

ICN Vertical Mergers Comparison Study

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Summary

1. This paper presents three case studies, produced for the International Competition Network (ICN) Mergers Working Group (MWG), comparing different National Competition Authorities' (NCAs) approaches to assessing vertical mergers.
2. This follows the [ICN Vertical Mergers Survey Report](#), produced in 2018, which provided a comparison of member NCAs' guidelines and practices in vertical merger analysis. It included the results of a survey of ICN member NCAs from across the world, which found that (while vertical mergers are still relatively rare) most of these NCAs had intervened in at least one vertical merger in the past three years. The survey also found that most of these NCAs include similar aspects in their assessment of vertical mergers, considering input and customer foreclosure as theories of harm and using an ability, incentive and effect framework.
3. Whereas the aforementioned report reviewed NCAs' approaches to assessing vertical mergers in general, this study considers in detail similarities and differences in the assessment of the same merger. We hope that a better understanding of different NCAs' methodologies will facilitate cooperation between NCAs in future.
4. The following mergers have been considered:
 - (a) Broadcom/Brocade, comparing decisions published by the European Commission (EC) and the NCAs in the United States (US), China and Japan, in relation to a merger involving the provision of integrated circuits used for wireline communications.
 - (b) Essilor/Luxottica, comparing decisions published by the EC with decisions by the NCAs in China, New Zealand, Chile and the US, in relation to a merger between firms involved in eyewear.
 - (c) Ticketmaster/Live Nation, comparing decisions published by NCAs in the US and United Kingdom (UK), in relation to a merger between companies in the live music industry.
5. Although country- and case-specific factors make direct comparison across cases difficult, we came to the following conclusions:
 - (a) The EC, UKCC and Chilean authority were most explicit in setting out that they applied an ability, incentive and effect framework. From the

published reasoning it was less clear how closely other NCAs followed this framework, though the published decisions were certainly not inconsistent with this framework. All NCAs explicitly established merging parties' market power.

- (b) In addition to the generally established theories of harm based on input and customer foreclosure, information sharing was a common source of vertical concerns in these mergers. The ability, incentive and effect framework was not straightforward to apply in these cases, although it was still relevant (for example, NCAs took into account competitors' abilities to protect themselves by switching to alternative suppliers, which would remove their supplier's incentive to misuse information).
- (c) Consistent with the findings of the ICN's 2018 survey, behavioural remedies seem to be attractive to NCAs faced with vertical theories of harm. They were used to resolve vertical concerns in two of the three cases studied.

Broadcom/Brocade

6. All four NCAs considered this merger at a worldwide level¹ and the conditions of competition were very similar for NCAs. The published decisions largely came to similar conclusions about the vertical theories of harm. In particular, every NCA, apart from the Japan Fair Trade Commission (JFTC), had concerns about the potential communication of confidential information from Broadcom to Brocade which could disadvantage Brocade's main competitor in the downstream market. All the decisions identified that Brocade had high market shares in the downstream market and faced only one main competitor.
7. Both the Ministry of Commerce of the People's Republic of China (MOFCOM) and the US Federal Trade Commission (US FTC) published decisions focused on the areas where they and other NCAs found concerns.²
8. In addition to areas of concern, the EC and JFTC decisions both discussed areas where they did not find concerns. Both the EC and JFTC considered vertical input and customer foreclosure concerns. The EC decision discussed two input and customer foreclosure theories of harm and the JFTC decision

¹ Though the European Commission left open the exact geographic market definition, it noted that the geographic scope was likely to be worldwide. MOFCOM also considered the influences of the transaction in China.

² The US FTC's decision focused on areas where the agency found concerns about the merger, as is customary. This does not suggest, however, that the US FTC did not consider and investigate other theories of harm.

discussed one. The EC explicitly referred to the ability, incentive and effect framework when assessing input and customer foreclosure theories of harm. Whilst not explicitly mentioned in the decision, the JFTC appears to have applied the same framework. Both the EC and JFTC concluded that the merger was unlikely to raise input or customer foreclosure concerns. For the vertical theory of harm they both considered, the published decisions cited slightly different evidence as the basis for these decisions.

- (a) For customer foreclosure, both agencies looked at the downstream competitor's market shares (estimated at being around 20-30%), but differed on the following:
 - (i) The EC considered Brocade's incentive to stop sourcing from its upstream supplier in the next two to three years. It also considered that the upstream competitor did not mention customer foreclosure concerns.
 - (ii) The JFTC explicitly considered the ease with which the downstream competitor could switch supplier.
- (b) For input foreclosure, both considered the upstream competitor's market shares which were around 60-70% and the ease with which the downstream competitor could switch supplier.
 - (i) The EC also discussed potential upstream entry. Regarding incentive, it considered the profitability of foreclosure, including that the downstream competitor could punish the merged entity in other markets. Regarding effects, it considered the viability of downstream alternatives and lack of customers concerns.

Essilor/Luxottica

9. Broadly, the four NCAs (China, New Zealand, Chile and the US) and the EC³ considered similar factors in the assessment of the vertical aspects of the Essilor/Luxottica merger. The ability and incentive to foreclose competitors

³ A number of other NCAs also reviewed this merger. We chose to specifically look at the EU Commission and New Zealand Commerce Commission decisions because they contained relatively detailed explanations. In addition, given the worldwide scope of the companies' activities, the EC cooperated closely with NCAs, including in particular the US Federal Trade Commission, as well as the NCAs of Australia, Brazil, Canada, Chile, China, Israel, New Zealand, Singapore, South Africa and Turkey. The US FTC published a [closing statement](#) following its investigation. The SAMR (China) decision was of specific interest because it was one of the only two NCAs that cleared the merger with remedies. The only other NCA that cleared the merger with remedies was Turkey. However, Turkey's Competition Authority did not find any concerns in relation to vertical effects. We decided not to consider a number of other NCAs in more detail in this paper due to the lack of decision documents in English.

both upstream and downstream were taken into consideration, albeit to varying degrees by each authority. The New Zealand authority systematically assessed the incentives to foreclose before moving on to assessing ability. Whilst the EC did not have to use this approach, both incentives and ability formed a general part of its assessment; however, assessment of ability did not appear to be predicated on the existence of incentives. China's NCA, known as the State Administration of Market Regulation (SAMR), appeared to have a similar approach to that of the EC (to the extent that can be implied from the comparatively brief explanations in the SAMR decision). The US FTC considered both the ability and incentive to foreclose or raise rivals' costs. US FTC staff used a variety of quantitative models to analyse the potential vertical competitive effects and tested the robustness of its findings using a range of reasonable assumptions. None of these economic models support a finding that the merging parties would be able to impose higher prices or reduce output on their downstream rivals or ultimately consumers. The Chilean authority assessed both the ability and the incentive of the merged firm to foreclosure competitors in each of the downstream retail markets and upstream wholesale markets for frames and lenses.

10. Whilst broadly similar factors were considered relevant in each jurisdiction, each NCA's findings on these were different. Findings on substitutability of brands of frames, for example, differed considerably. From the publicly available decisions, these differences are most likely attributable to different competitive conditions in each jurisdiction as perceived by the different authorities. In turn, this variation in evidence led to different conclusions on foreclosure, especially as seen in the decision by SAMR. Some market conditions differed, for example, in the US, Luxottica built one of the largest optical laboratories in the world in Atlanta, Georgia, and US FTC staff investigated whether the transaction would eliminate potential competition between Essilor and Luxottica in the provision of "free-to-choose" lab services.

Ticketmaster/Live Nation

11. This merger involved vertical relationships and overlaps at multiple levels in the live music industry. The NCAs in Canada, Norway, Turkey, the UK and the US reviewed and ultimately decided to allow the transaction. Given this context, the NCAs naturally focused on the most relevant aspects of the merger to their jurisdiction. We assessed in more detail the UK and US decisions. In considering potential vertical concerns, the UKCC focused on ways in which the merging parties might leverage their strength in the primary ticketing market. Having found horizontal concerns in primary ticketing services, the US Department of Justice (DOJ) was already in a position to put

in place a remedy to protect competition in the primary ticketing market, which included structural divestitures and related behavioural commitments; this remedy also guarded against potential vertical issues that could affect the primary ticketing market.

12. In response to public comments raising concerns about vertical foreclosure, the DOJ discussed the extent to which the merging parties had market power, and the extent to which the merger might increase their market power. The UK Competition Commission (UKCC), after finding that Live Nation did not have market power, continued to investigate whether particular circumstances of the merger might allow the merging parties to foreclose ticket agents. Accordingly, the UKCC considered (in some detail) mechanisms of possible foreclosure in its published decision, before dismissing these.

Background to vertical mergers

13. Vertical mergers are mergers between an upstream and a downstream company at different levels of a supply chain. The most common example is a merger between a manufacturer of certain products and the distributor of such products; however, vertical mergers can arise in other contexts as well, for example with the merger between a patent licensor and its exclusive licensee.
14. Such mergers can give rise to competition concerns if they harm the competitiveness of rivals (either in the upstream or in the downstream markets), which may then in turn result in an overall loss of competition. On the other hand, they may result in a number of efficiencies, such as internalisation of double mark-ups, reduced costs of transactions, and improved information flow and co-ordination.
15. In this study, we tried to select comparison cases which had the following characteristics:
 - (a) Featured vertical concerns as a major part of the NCAs' assessments;
 - (b) Involved conditions of competition which were similar across multiple jurisdictions;
 - (c) Had decisions published by multiple NCAs; and
 - (d) Had been assessed by NCAs from countries of various sizes and regions.
16. The absence of published decisions in English was one limitation on the analysis, although for some cases we were able to obtain translations of NCA decisions.

17. We are grateful to the NCAs who provided their decisions and cooperated in other ways.

Case comparison: Broadcom/Brocade

Summary

18. In 2016, Broadcom announced it was acquiring Brocade.⁴ Competition Authorities in the EU, China, Japan and the US reviewed and ultimately decided to allow the transaction, subject to remedies.
19. The European Commission (EC), the US Federal Trade Commission (US FTC) and the Ministry of Commerce of the People's Republic of China (MOFCOM) each published material explaining their reasoning.⁵ The Japan Fair Trade Commission (JFTC) recently published the tentative translation of the decision on its website.⁶ This allows us to compare their respective approaches to assessing vertical theories of harm in this merger and deciding to allow the transaction.
20. In this case, the NCAs largely came to similar conclusions about the vertical theories of harm.⁷ Every NCA, apart from the JFTC, had concerns about the possible communication of confidential information from Broadcom to Brocade which could disadvantage Brocade's main competitor in the downstream market.
21. The EC said that the merger did not give rise to any horizontal overlaps but did result in a number of vertical and conglomerate relationships.⁸ For one vertical relationship between the parties, it concluded that the transaction:
- (a) was unlikely to raise input or customer foreclosure concerns.⁹
 - (b) raised serious doubts in relation to the effective protection of a downstream competitor's commercially sensitive information.

⁴ <http://investors.broadcom.com/phoenix.zhtml?c=203541&p=irol-newsArticle&ID=2218429>

⁵ See the [European Commission decision](#), [FTC case page](#) and [MOFCOM announcement](#). The US FTC's decision focused on areas where the agency found concerns about the merger, as is customary. This does not suggest, however, that the US FTC did not consider and investigate other theories of harm.

⁶ https://www.jftc.go.jp/en/policy_enforcement/mergers/index_files/MajorBusinessCombinationsinFY2017.pdf.

⁷ The EC, JFTC, and MOFCOM all took remedies to address concerns based on conglomerate theories.

⁸ [European Commission decision](#), paragraph 6.

⁹ [European Commission decision](#), paragraph 120.

22. For the other vertical relationship, it did not consider that the merged entity would have the ability and incentive to implement either an input or customer foreclosure strategy.¹⁰
23. For the conglomerate theories of harm, the EC took remedies to address concerns with regard to a possible degradation of interoperability between the merged entity's products and those of its competitors.
24. While the US FTC reviewed and considered other vertical theories of harm, the US FTC's investigation only supported concerns that the merged entity could have incentives to share commercially sensitive data about its downstream competitor. The US FTC ordered the implementation of confidentiality agreements as a firewall to resolve these issues.
25. MOFCOM identified two vertical relationships between the parties and one conglomerate relationship.¹¹ It listed issues with potential vertical confidentiality and the conglomerate relationship.
26. The JFTC investigated vertical concerns around customer foreclosure, input foreclosure and sharing of confidential information. It also investigated conglomerate theories of harm. It did not find issues with the vertical theories of harm but did find issues with the conglomerate aspect of the merger.

¹⁰ [European Commission decision](#), paragraphs 133 and 144.

¹¹ [MOFCOM announcement](#)

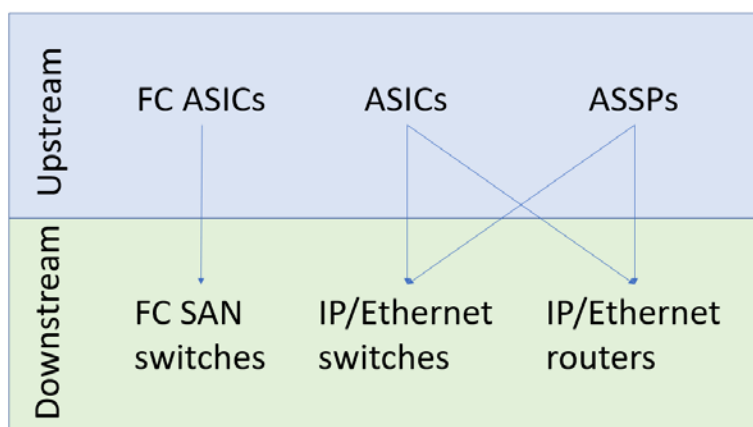
Theory of Harm	Investigated by:	Issues found by:
Vertical relationship leading to ineffective protection of downstream competitor's commercially sensitive data	EC US FTC MOFCOM JFTC	EC US FTC MOFCOM
Vertical relationship 1 leading foreclosure	EC JFTC US FTC	
Vertical relationship 2 leading to foreclosure	EC US FTC	
Conglomerate theories of harm	EC MOFCOM JFTC	EC MOFCOM JFTC

The relevant markets

Industry background

27. The parties had two main vertical relationships:
- (a) Fibre Channel (FC) Application Specific Integrated Circuits (ASICs) which are an input into fibre channel switches
 - (b) ASICs and Application Specific Standard Products (ASSPs) which are inputs into IP/Ethernet routers and switches
28. This is illustrated in Figure 1.

Figure 1: The Parties' vertically related products



29. Fibre channel switches are used within Fibre Channel Storage Area Networks (FC SANs), which use the fibre channel interconnect protocol to enable stable, high-throughput data transfers between servers and storage arrays in data centres.¹²
30. Each fibre channel switch contains an application specific integrated circuit (ASIC), which is an integrated circuit that is custom-tailored to carry out the functions of the fibre channel switch. It is the most costly and technically complex component of the switch. The FC ASIC is designed through collaboration between the switch manufacturer and an FC ASIC provider. Switch manufacturers typically develop proprietary intellectual property, and FC ASIC providers add intellectual property libraries, design oversight capabilities, and oversee the production of the FC ASICs at a third-party foundry in order to create a commercial FC ASIC for a switch manufacturer.¹³
31. IP/Ethernet is a type of network technology. Switches and routers are a combination of software and hardware devices and are essential parts of telecommunication networks. Although it is not always possible to establish the precise difference between switches and routers in marketing or technical

¹² [US FTC complaint](#), paragraph 9.

¹³ [US FTC complaint](#), paragraph 10.

terms, routers are generally larger devices that connect different networks together while switches are generally used within the same network.¹⁴

32. ASICs and ASSPs can be used as inputs for IP/Ethernet switches and routers.¹⁵

The 'upstream' markets

33. Broadly speaking, all the NCAs assessed the merger using the same upstream markets.
34. The EC left the precise market definition open, but the results of its market investigation indicated that:
 - (a) Integrated circuits used for wireline communications were not in the same product market as application specific semiconductors used in other product categories, including wireless communications, storage, or automotive.
 - (b) Different types of integrated circuits, namely ASICs and ASSPs,¹⁶ were not in the same product market.
 - (c) ASICs for FC SAN switches and ASICs for IP/Ethernet switches were not in the same product market.¹⁷
35. MOFCOM identified the relevant upstream market as ASICs for FC SAN switches. It noted that ASSPs for Ethernet switches were in a separate market.¹⁸
36. The JFTC identified the relevant upstream market as ASICs for FC SAN switches because:
 - (a) there is no demand side substitution for other types of ASIC and

¹⁴ [European Commission decision](#), paragraph 47.

¹⁵ [European Commission decision](#), paragraph 48.

¹⁶ In addition to custom made ASICs, there are also off-the-shelf integrated circuits which can be purchased in an identical form by a number of different customers. These are referred to as application specific standard products (ASSPs). ([European Commission decision](#), paragraph 13.) ASICs and ASSPs are not substitutable on the demand side, but there is some supply side substitutability. However, there are significantly higher costs involved in developing ASICs relative to purchasing ASSPs off the shelf. ([European Commission decision](#), paragraph 18.)

¹⁷ [European Commission decision](#), paragraphs 17-20.

¹⁸ [MOFCOM announcement](#), section III (I) 1.

(b) manufacturers of other types of ASIC cannot easily start producing ASICs for FC SAN switches.¹⁹

The 'downstream' markets

37. Broadly speaking, all the NCAs assessed the merger using the same downstream markets.
38. The EC identified separate downstream markets for FC SAN switches and IP/Ethernet networking. It considered whether IP/Ethernet switches should be included in the same market as FC SAN switches, but concluded that these switches have different characteristics, capabilities and require different skill sets within a customer to manage.²⁰ It left open the exact product definition for IP/Ethernet switches and routers.²¹
39. MOFCOM identified the relevant downstream market as FC SAN switches.²²
40. The US FTC identified FC SAN switches as the relevant line of commerce in which to analyse the effects of the acquisition. It said that FC SAN switch customers would not turn to alternative switching technologies in response to a small but significant price increase because doing so would be risky and expensive.²³ The US FTC noted that each FC SAN switch contains an FC ASIC.²⁴
41. The JFTC identified the relevant downstream market as FC SAN switches because:
 - (a) FC SAN and IP/Ethernet network connections cannot be substituted for one another and
 - (b) manufacturers cannot easily switch between producing the two.²⁵

¹⁹ JFTC decision, Part II, section 2.(1).

²⁰ [European Commission decision](#), paragraphs 23-24 and 36-37.

²¹ [European Commission decision](#), paragraph 56.

²² [MOFCOM announcement](#), section III (I) 2.

²³ [US FTC complaint](#), paragraph 9.

²⁴ [US FTC complaint](#), paragraph 10.

²⁵ JFTC decision, Part II, section 2.(2).

Geographic market

42. All four NCAs considered the merger at a worldwide level.
43. The EC left open the exact geographic market definition but noted that the geographic scope for both the upstream and downstream markets are likely to be worldwide.²⁶
44. The US FTC found that the geographic market was worldwide.²⁷
45. MOFCOM found that the geographic market was worldwide, but also looked at influences of the transaction in China.²⁸
46. The JFTC defined the geographic range as worldwide.²⁹

Vertical theories of harm

47. The EC, US FTC, MOFCOM and JFTC all considered whether the vertically integrated entity may gain access to commercially sensitive information on the activities of its downstream rivals.
48. The EC and JFTC assessed customer foreclosure and input foreclosure vertical theories of harm for the vertical relationships between Broadcom and Brocade in FC ASICs for FC SAN switches. The EC primarily applied its ability, incentive and effect framework to assess potential foreclosure. Whilst not explicitly mentioned in the decision, the JFTC seemed to apply the same framework. Both the EC and the JFTC found that the merged entity did not have the ability to foreclose its competitors. As indicated earlier, neither the US FTC nor the MOFCOM decisions discusses these theories because the decisions only address areas of concern.
49. Only the EC decision confirms that the agency considered vertical theories of harm for the vertical relationships between Broadcom and Brocade in:
 - (a) ASICs for IP/Ethernet switches and routers
 - (b) ASSPs for IP/Ethernet switches and routers

²⁶ [European Commission decision](#), paragraphs 32-33.

²⁷ [US FTC complaint](#), paragraph 11.

²⁸ [MOFCOM announcement](#), section III (II).

²⁹ JFTC decision, Part II, section 3.

50. Since these were only looked at by the EC and were not considered to be problematic, we will not consider them further in this paper.

Possible leakage of commercially sensitive information

51. As the ASICs used in FC SAN switches are tailored for each customer, the customer and the ASIC vendor work very closely together and the ASIC vendor receives IP and confidential information from the switch supplier for the development of the ASIC. The ASIC vendor also has visibility over other commercially sensitive information of the customer such as the switch supplier's product roadmap, time to market, cost, sales etc.³⁰
52. According to market participants, typically there are safeguards in place to preserve the confidentiality of the information/IP exchange: confidentiality agreements, licenses and non-disclosure agreements outlining the confidential information to be shared and any use restrictions on the information.³¹ The customer-supplier relationship between Broadcom and Cisco in relation to FC ASICs was subject to several confidentiality agreements, including:
- (a) A Memorandum of Understanding that laid out the steps that Brocade's ASIC design and development entity must take to protect Cisco's confidential information from disclosure to anyone who does not have a strict need to know the information in furtherance of Broadcom's relationship with Cisco (either inside the company or as a third party).³²
 - (b) A confidentiality agreement containing provisions aimed at preventing Cisco's confidential information from being disclosed to Broadcom personnel who were not responsible for developing Cisco's FC SAN switch ASICs.³³
53. Every NCA, apart from the JFTC, had concerns about the potential communication of confidential information from Broadcom to Brocade which could disadvantage Cisco in the downstream market.

³⁰ [European Commission decision](#), paragraph 104.

³¹ [European Commission decision](#), paragraph 108.

³² [European Commission decision](#), paragraph 109.

³³ [European Commission decision](#), paragraph 110.

EC investigation

54. Cisco raised a concern with the EC that, post-transaction, Broadcom could misuse Cisco's commercially sensitive information (in relation to the current generations of Cisco FC SAN switches, which are likely to stay on the market for several years, but potentially also for future generations should Cisco decide not to switch ASIC supplier) to favour Brocade, Cisco's main competitor in FC SAN switches.³⁴
55. Despite the confidentiality agreements, the EC noted that Cisco would be particularly vulnerable to any potential breach by Broadcom of its confidentiality obligations and that it would be particularly difficult for Cisco to determine whether Broadcom's competitive behaviour in the downstream market for FC SAN switches was a result of the normal course of business or whether its behaviour had been impacted by access to commercially sensitive Cisco information. The EC further noted that the sanctions on the merged entity in the event of a breach of the confidentiality provisions in some agreements did not appear to provide a satisfactory level of deterrence to prevent a potential breach of confidentiality in view of the specific exposure of Cisco.³⁵
56. The EC therefore considered that the contractual provisions that were in place between Broadcom and Cisco were in themselves insufficient to ensure that, post-merger, the merged entity did not use any confidential information received from Cisco to the benefit of its downstream FC SAN switch activities.
57. Broadcom committed to:
 - (a) Comply with the new confidentiality agreement entered into between Cisco and Broadcom.
 - (b) Maintain complete separation of the development teams for ASICs for FC SAN switches for Brocade and Cisco.
 - (c) Ensure that no information regarding Cisco's pricing be disclosed to employees active in the merged entity's FC SAN switch business.

³⁴ [European Commission decision](#), paragraph 107.

³⁵ [European Commission decision](#), paragraph 111.

(d) A number of measures to avoid discriminating against Cisco in favour of its own downstream FC SAN switch activities.³⁶

US FTC investigation

58. The US FTC's complaint alleged concerns that Broadcom's acquisition of Brocade could harm competition in the FC SAN switch market because, as Cisco's supplier, Broadcom had extensive access to Cisco's competitively sensitive confidential information. Brocade and Cisco were the only two competitors in the worldwide market for FC SAN switches, and Broadcom supplied both companies with ASICs to make these switches. As the new owner of Brocade, Broadcom could potentially use that information to unilaterally exercise market power or to coordinate action among Brocade and Cisco, increasing the likelihood that customers would pay higher prices for FC SAN switches, or that innovation would be lessened. The US FTC implemented a firewall to address the potential for competitive harm.³⁷ The firewall will be overseen by a monitor for five years, with the possibility to extend to ten years.

MOFCOM investigation

59. MOFCOM found that:

(a) In the upstream market for FC ASICs for FC SAN switches:

- (i) Broadcom had a global market share of [30-40]%,
- (ii) while its main competitor IBM / GlobalFoundries had a global market share of [60-70]%.

(b) In the downstream market for FC SAN switches,

- (i) Brocade had market shares of [70-80]% in the world and [40-50]% in China,
- (ii) while its main competitor Cisco had market shares of [20-30]% in the world and [40-50]% in China.³⁸

³⁶ [European Commission decision](#), paragraphs 245-247.

³⁷ [Press release: FTC Approves Final Order Preserving Competition in Worldwide Market for Fibre Channel Switches](#).

³⁸ [MOFCOM announcement](#), section IV (I).

60. MOFCOM noted that Broadcom manufactured ASICs for FC SAN switches for Brocade and third-party FC SAN switch suppliers, so Broadcom could access confidential information of third-party FC SAN switch suppliers. After the transaction, if third-party FC SAN switch suppliers did not change suppliers of ASICs for FC SAN switches, Broadcom may enlarge its share in the downstream market for FC SAN switches by improper use of confidential information of third-party FC SAN switch suppliers. MOFCOM was the only NCA that noted that changing ASICs suppliers for FC SAN switches took 2-3 years and was very costly, and also may lead to a significant delay in market entry of new products, so it was not commercially viable for third-party FC SAN switch suppliers to change suppliers in the short term. Although Broadcom had concluded a series of confidentiality agreements with third-party FC SAN switch suppliers, MOFCOM said that after the merger, third-party FC SAN switch suppliers were particularly vulnerable to whether Broadcom complied with the confidentiality obligation.³⁹
61. MOFCOM's anti-monopoly review concluded that the existing confidentiality agreements between third-party FC SAN switch suppliers and Broadcom could not ensure that Broadcom would not eliminate or restrict competition in the market of FC SAN switches by making use of confidential information of third-party FC SAN switch suppliers.⁴⁰

JFTC investigation

62. The JFTC looked at the impact of the merged entity sharing competitors' confidential information. It looked at this in two stages:
- (a) The impact of Broadcom obtaining confidential information about its main competitor (Company A)
 - (b) The impact of Brocade obtaining confidential information about its main competitor (Company B)
- *The impact of Broadcom obtaining Company A's confidential information on the market*
63. When FC ASICs are developed or sold, manufacturers of FC ASICs and of FC SAN switches share confidential information with each other. If, after the merger, Broadcom should obtain Company A's confidential information

³⁹ [MOFCOM announcement](#), section IV (I).

⁴⁰ [MOFCOM announcement](#), section IV (I).

through Brocade, Company A would be disadvantaged, which could impact competition in the market.

64. However, as ASICs are manufactured specifically for each customer mainly based on the customer's unique design, so intellectual property and confidential information which make ASICs specific to the customer usually belong to the customer. Accordingly, the JFTC considered it unlikely that the competition in the market of ASICs for FC SAN switches would be affected by Company A's confidential information being shared.⁴¹

- *The impact of Brocade obtaining Company B's confidential information on the market*

65. In a similar way, if Brocade should obtain Company B's confidential information through Broadcom, Company B would be placed at a disadvantage, which could impact competition in the market.

66. However, FC SAN switches made by Company B and those made by Brocade differ in performance, and in addition, Broadcom and Company B have entered into a non-disclosure agreement which requires them to keep mutual information on product development, prices, etc. confidential. Therefore, it is considered unlikely that the competition in the market of FC SAN switches would be affected.⁴² This differs from the findings of the other NCAs considering this merger who found a potential problem with Broadcom obtaining confidential information regarding its downstream competitor.

ASICs for FC SANs

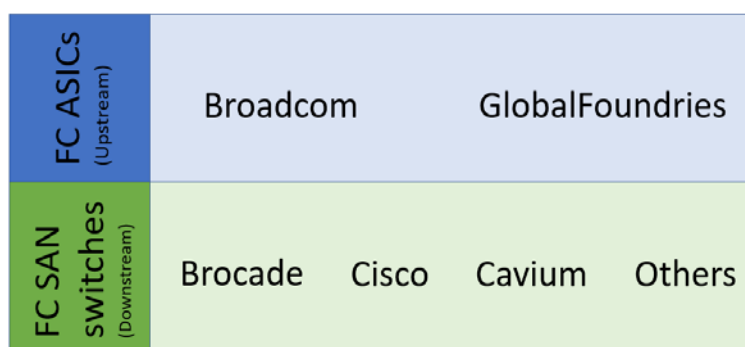
67. The main suppliers at each level of the supply chain are shown in **Figure 2**. There is a duopoly between Broadcom and GlobalFoundries in the upstream market. The downstream market is close to a duopoly between Brocade and Cisco, as the shares of Cavium and others are small.⁴³

⁴¹ JFTC decision, Part III, section 1.(4).

⁴² JFTC decision, Part III, section 1.(4).

⁴³ The JFTC decision did not identify the names of competitors. The names of competitors in this section are taken from the European Commission decision.

Figure 2: Upstream and downstream players in FC ASICs and FC SAN switches



68. Pre-merger, Brocade sourced FC ASICs from Broadcom and GlobalFoundries and Broadcom supplied FC ASICs to Brocade and Cisco.
69. Both the EC and JFTC concluded that the merger was unlikely to raise input or customer foreclosure concerns. For the theory of harm regarding ASICs for FC SANs, the published decisions cited slightly different evidence as the basis for these decisions.

Foreclosure of GlobalFoundries by removing access to Brocade as a customer for FC ASICs (customer foreclosure)

70. Following the merger, the merged entity could reduce the number of FC ASICs sourced from GlobalFoundries or stop sourcing from them entirely.
 - *EC investigation*
71. The EC considered that a customer foreclosure strategy would be unlikely for the following reasons:
 - (a) In relation to current generations of FC ASICs, Brocade faced barriers to switching its FC ASIC supplier. Given that Broadcom did not have its own fabrication facilities, it appeared unlikely that Brocade would try post-transaction to migrate the manufacturing of FC ASIC for its current generations of FC SAN switches away from GlobalFoundries. Accordingly, GlobalFoundries would still have access to Brocade as a

customer for the current generation of FC ASICs, for the next two to three years.⁴⁴

(b) For ASICs for the future generation of 64 Gbps FC SAN switches, even if Brocade was to source the design, development and production of 64 Gbps FC ASIC internally with Broadcom, GlobalFoundries would still have access to Cisco as a customer for FC ASICs. Cisco, with a FC SAN switch market share of [20-30]%, would continue to represent a possible non-integrated customer for the FC ASICs of GlobalFoundries.⁴⁵

72. Neither GlobalFoundries, nor any other market participant raised any customer foreclosure concerns in relation to FC ASICs during the market investigation.⁴⁶

73. The EC concluded that, even if the merged entity eventually decided to source all its FC ASICs internally and engage in customer foreclosure, it was highly unlikely that such conduct would result in the foreclosure or marginalisation of GlobalFoundries in relation to ASIC manufacturing to such an extent that competition for the provision of FC ASICs would be negatively affected.⁴⁷

- *JFTC investigation*

74. The JFTC also looked at the possibility of customer foreclosure for FC ASICs. It noted that Brocade held a large market share in the downstream market (approximately 75%) and Broadcom's main competitor (referred to as Company A) could lose a substantial amount of business from the customer foreclosure in question, and it would be hard for Company A to find an alternative customer other than Brocade's main competitor (referred to as Company B) as ASICs for FC SAN switches can only be used for FC SAN switches.

75. In the downstream market, however, Company B held around 25% share, and there were no obstacles to Company B switching suppliers as products made by the two manufacturers of ASICs for FC SAN switches are no different in

⁴⁴ [European Commission decision](#), paragraph 116.

⁴⁵ [European Commission decision](#), paragraph 117.

⁴⁶ [European Commission decision](#), paragraph 118.

⁴⁷ [European Commission decision](#), paragraph 117.

performance and other key features. Therefore, Company A could switch customers from Brocade to Company B.

76. Whilst not explicitly mentioned in the decision, the consideration of market shares and the ease of changing customers suggests that the JFTC was applying the ability, incentive and effect framework.
77. Based on the above, the JFTC decided that no issues of closure or exclusivity of the market would arise from customer foreclosure.⁴⁸

Foreclosure of access to FC ASICs by Broadcom (input foreclosure)

- *EC investigation*

78. The EC found that Broadcom's 2016 market share in the upstream ASIC market was not significantly above 30%, with GlobalFoundries having a [60-70]% market share.⁴⁹ It considered whether suppliers of ASICs for purposes other than FC SAN switches could start producing ASICs for FC SAN switches.⁵⁰ It concluded that, although it was unclear to what extent ASIC providers such as eSilicon and STMicroelectronics could be considered as alternatives for the supply of FC ASICs, there was at least one viable alternative provider (GlobalFoundries) who could supply FC ASICs to FC SAN switch manufacturers competing with the merged entity in the event that post-transaction the merged entity engaged in full or partial FC ASIC foreclosure.⁵¹
79. The EC found high barriers to entry, even for established wireline communications ASICs providers. Furthermore, the market was flat or declining, reducing the attractiveness of entry.⁵²
80. The EC also considered the ease of switching FC ASIC supplier for:
 - (a) The existing/current generation of FC SAN switches.
 - (b) The new/upcoming generation of FC SAN switches

⁴⁸ JFTC decision, Part III, section 1.(3).

⁴⁹ [European Commission decision](#), paragraph 85 and Table 1.

⁵⁰ [European Commission decision](#), paragraph 88.

⁵¹ [European Commission decision](#), paragraph 89.

⁵² [European Commission decision](#), paragraph 90.

81. It considered that it would not be possible to switch supplier for the existing/current generation of FC SAN switches.⁵³ It considered that it would be possible to switch supplier for the new/upcoming generation of FC SAN switches, if done early enough in the production process.⁵⁴
82. Cisco, Broadcom's only customer for FC ASICs other than Brocade, said that it would be difficult to switch its FC ASIC supplier for its current/existing generation of 32 Gbps FC SAN switches. However, the design and development phases of the FC ASIC procurement process for Cisco had already been finalised and Broadcom was only handling the physical fabrication of the FC ASIC. In addition, the supply of FC ASICs from Broadcom to Cisco for all existing generations of FC ASICs that Cisco sources from Broadcom was governed by a series of agreements between Broadcom and Cisco.⁵⁵
83. Regarding the new/upcoming generation of FC SAN switches, at the point of the decision, Cisco had not yet selected the supplier for the next generation of 64 Gbps switches. The EC considered that Cisco was in the position to turn to an alternative FC ASIC supplier if the merged entity refused to develop and supply FC ASICs for future generations of FC SAN switches or were to engage in partial input foreclosure in relation to the next generation of ASICs. In particular, it could turn to GlobalFoundries for the design and manufacture of future generations of next generation FC ASICs.⁵⁶
84. Therefore, the EC concluded that it was unlikely that the merged entity will have the **ability** to engage in input foreclosure with regard to FC ASICs for both existing and future generations of FC SAN switches.⁵⁷
85. Concerning the **incentive** of the merged entity to engage in such foreclosure strategy and, in particular, its profitability, it is possible that the merged entity would recoup downstream the lost revenue from supply to Cisco with FC ASICs upstream. The magnitude of Brocade's revenue on the downstream market for FC SAN switches in 2016 (USD [1,000 – 1,500] million) and the marginal presence of other FC SAN switch providers (mainly Cavium's legacy products) mean that the merged entity would need to divert only a minimal

⁵³ [European Commission decision](#), paragraphs 91-92.

⁵⁴ Two to three years ahead of the FC SAN switch product launch.

⁵⁵ [European Commission decision](#), paragraphs 92-94.

⁵⁶ [European Commission decision](#), paragraphs 93-97.

⁵⁷ [European Commission decision](#), paragraph 98.

amount of sales from Cisco to be able to offset the foregone revenue from FC ASIC supply. However, the merged entity would risk in such a foreclosure scenario losing not only FC SAN switch revenue from Cisco, but also significant revenue from other products that it was currently supplying to Cisco. The EC therefore considered this to be a factor limiting the incentive of the merged entity to engage in foreclosure in relation to FC ASICs.⁵⁸

86. Regarding the possible **effects** of input foreclosure towards FC SAN switch providers, the EC noted that, post-transaction, there would be viable alternatives for Cisco to source FC ASICs which will allow it to continue to compete effectively on the downstream market for switches. The EC also noted that FC SAN switch customers did not expect the transaction to have any effect in relation to ASICs for FC SAN switches.⁵⁹
87. Therefore the EC considered that the merged entity would not have the ability or the incentive to engage in input foreclosure due to the presence of GlobalFoundries as a viable alternative supplier of FC ASICs, the possibility for FC SAN switch competitors to switch FC ASIC vendor for next generations of ASIC, the contractual obligations on Broadcom to continue the supply of current generations of ASIC to its customers, as well as the risk of losing significant revenue from its FC ASIC customers in the case of a foreclosure scenario.⁶⁰

- *JFTC investigation*

88. The JFTC also looked at the possibility of input foreclosure for FC SAN switches. JFTC noted that, in addition to Broadcom, there is another player, Company A, in the market of ASICs for FC SAN switches, holding around 65% of the market, and Company B (Brocade's main competitor) does not have to purchase ASICs for FC SAN switches from Broadcom.
89. Therefore, the JFTC considered that if Broadcom should refuse to supply to, or raise the price of, ASICs for FC SAN switches to Company B, Company B could purchase equivalent products from Company A.

⁵⁸ [European Commission decision](#), paragraphs 99-101.

⁵⁹ [European Commission decision](#), paragraph 102.

⁶⁰ [European Commission decision](#), paragraph 103.

90. Whilst not explicitly mentioned in the decision, the consideration of market shares and the ease of changing suppliers suggests that the JFTC was applying the ability, incentive and effect framework.
91. Based on the above, the JFTC decided that no issues of closure or exclusivity of the market would arise from input foreclosure.⁶¹

Conglomerate theories of harm

92. Three NCAs also found problems with at least part of the conglomerate aspects of this merger.⁶²
93. FC SANs require both FC SAN switches and FC host bus adapter (FC HBAs), the former of which is mainly produced by Brocade and Cisco and the latter of which is only produced by Broadcom and Cavium.⁶³
94. The EC investigated three conglomerate theories of harm:
 - (a) Interoperability degradation towards competing FC HBAs
 - (b) Leakage/misuse of FC HBA confidential information
 - (c) Mixed bundling of FC SAN switches and FC HBAs
95. MOFCOM also investigated conglomerate theories of harm in the market for FC HBAs. The conglomerate theories of harm which gave rise to concerns were:
 - (a) Damaging interoperability between FC HBAs and FC SAN switches
 - (b) Improperly using confidential information of third-party FC HBA suppliers
 - (c) Tying or bundling of FC HBAs and FC SAN switches.⁶⁴
96. The JFTC also investigated conglomerate theories of harm. The theories of harm it investigated were:

⁶¹ JFTC decision, Part III, section 1.(2).

⁶² We note that, under Section 7 of the Clayton Act, the US FTC would not address the type of conduct usually addressed by traditional conglomerate theories of harm.

⁶³ The JFTC decision did not identify the names of competitors. The names of competitors in this section are taken from the European Commission decision.

⁶⁴ [MOFCOM announcement](#), section IV (II).

(a) Closure or exclusivity of the FC SAN switch market

(b) Closure or exclusivity of the FC HBA market.⁶⁵

Case comparison: Essilor/Luxottica

97. In January 2017 Essilor and Luxottica, considered to be the two largest international firms involved in making spectacles⁶⁶, announced that they had agreed to merge.⁶⁷
98. In late 2017 and early 2018, the Commerce Commission of New Zealand and the EC respectively cleared the merger unconditionally. However, SAMR and Turkey's Competition Authority approved the merger on certain conditions to remedy competition concerns. The merger was reviewed by a number of NCAs,⁶⁸ but in this paper we focus on the analysis of the EC, the SAMR, the Commerce Commission of New Zealand, the Chilean Competition Authority (La Fiscalía Nacional Económica) and the US FTC. We note that **five** of these jurisdictions also considered conglomerate theories of harm as part of their assessments.
99. First, we set out a general background on the industry for an understanding of the various levels in the supply chain and how the merging parties were involved in the chain. Secondly, we describe the analytical frameworks used by the different NCAs to analyse the vertical markets. Finally, we look at each vertical theory of harm in turn. In doing so, product and geographic definition is looked at under each theory followed by a comparison in analyses made between the different NCAs in terms of the vertical markets which at least two of the three NCAs have explored.

⁶⁵ JFTC decision, Part III, section 2.

⁶⁶ <https://www.bbc.co.uk/news/business-38899892>

⁶⁷ <https://www.bbc.co.uk/news/business-38633306>

⁶⁸ The other NCAs were Australia, Brazil, Canada, Chile, Colombia, India, Japan, Korea, Mexico, Morocco, Russia, S. Africa, Singapore, Taiwan and the US. All these NCAs and the EU Commission and New Zealand allowed the merger to proceed unconditionally. We chose to specifically look at the EU Commission and New Zealand Commerce Commission decisions because they contained relatively more detailed explanations. In addition, Given the worldwide scope of the companies' activities, the Commission cooperated closely with other NCAs, including in particular the US Federal Trade Commission, as well as the competition authorities of Australia, Brazil, Canada, Chile, China, Israel, New Zealand, Singapore, South Africa and Turkey. The SAMR (China) decision was of specific interest because it was one of the only two NCAs that cleared the merger with remedies. The only other NCA that cleared the merger with remedies was Turkey. However, Turkey's Competition Authority did not find any concerns in relation to vertical effects. We decided not to consider a number of other NCAs in more detail in this paper due to the lack of decision documents in English.

Industry background

100. The key market participants in the industry are involved at various levels of supply chains. At the beginning of the supply chain are manufacturers of substrate, ophthalmic lenses (hereby referred to as finished lenses), optical and sunglass frames, ophthalmic machines and consumables.

Substrate and finished lenses

101. Finished lenses correct visual impairments diagnosed by an optometrist or ophthalmologist. On the other hand, substrate, also referred to as “unfinished lenses” in the New Zealand NCA decision, is raw material supplied for the purposes of producing finished lenses through a process referred to as ‘finishing’. Finishing entails surfacing, coating (such as tinting) and glazing (edging the substrate to fit a prescription frame). This process occurs at prescription laboratories. Glazing, however, can also occur at an optical retailer’s premises or at glazing facilities where surfaced and coated substrate is glazed and fit on to frames for the optical retailer. Manufacturers can also mass produce finished lenses known as stock lenses, in which case the finishing process at prescription laboratories is not needed and can be provided directly to wholesalers, optical retailers or end-consumers via online sales.

102. Luxottica is not involved in the manufacture of substrate. Essilor, on the other hand, manufactures substrate in a number of plants in Asia and Europe and has a significant market share of 40% of the wholesale supply of substrate in Europe. Both source substrate to convert it to finished lenses, though Luxottica has very limited activities in Europe.⁶⁹ Essilor produces its stock lenses, which are the finished lenses it mass-produces in Asia, and brings them into Europe. These finished lenses are then supplied to entities operating at the retail level.

103. In the US, Essilor is a leading designer and manufacturer of finished lenses and is the largest provider of wholesale laboratory services in the US.

104. In New Zealand, substrate is imported and then finished in prescription laboratories located in the country. Essilor operates two out of the six laboratories located in New Zealand. Essilor is also active in the finishing of lenses in Chile, supplying both its own retail stores and competitors.

⁶⁹ It has one prescription laboratory in Europe (in Sedico, Italy)

Machines

105. Ophthalmic machines are used for the process of finishing substrate to produce finished lenses. They include surfacing, coating and glazing machines which are generally industrial in scale and are employed at prescription laboratories. However, glazing can occur at the premises of an optical retailer using a smaller scale machine known as a 'table-top' edger. Consumables are used with these machines and a distinct type of consumable is used for each category of machine. Essilor is involved in the manufacture and sale of these machines but purchases consumables from third parties and distributes them (with the exception of polishing pads which it manufactures). Luxottica does not produce any machinery but purchases machinery for use in its prescription laboratories.

Frames and sunglasses

106. Luxottica designs, manufactures and distributes finished lens and sunglass frames. It currently possesses licenses to produce frames with branding that includes Chanel, Prada and Armani. It also owns the Ray-Ban, Oakley and Vogue Eyewear brands. Essilor also manufactures and distributes frames (under brands such as Bolon, Costa and Foster Grant) but it is more focused on low to mid-priced frames and non-prescription sunglasses.
107. There is no production of frames in New Zealand. They are all imported. Luxottica is a wholesale supplier of frames in the country. Similarly, in Chile Luxottica supplies frames on a wholesale basis to retail stores.
108. In China, both Essilor and Luxottica are active in the wholesale distribution of prescription frames and sunglasses.

Retail

109. Finally, at the end of the chain are optical retailers (which also sell sunglasses) and stores that solely retail sunglasses. Luxottica owns a large network of stores (mainly located outside of Europe)⁷⁰ and websites through which it sells finished lenses, frames and sunglasses to the end consumer. In comparison, Essilor has less of a presence at the retail level in Europe, for example, Essilor has very limited activity in brick-and-mortar retail (two Kodak

⁷⁰ In the UK Luxottica operates two chains: Sunglass Hut and David Clulow Opticians. In Italy it operates a chain known as Salmoiraghi & Vigano. Sunglass Hut (specialised solely in sunglass retail) is present in all EEA countries

points in the UK and Germany only). However, Essilor does operate four retail websites in Europe. In the US, Essilor operates retail websites and through an alliance of independent eye care professionals (iECPs).

110. In New Zealand, Luxottica retails through its OPSM stores. It specifically also retails sunglasses through its Sunglass Hut and Oakley stores.
111. In the US, Luxottica is the largest optical retailer.
112. In China and in Chile, both Luxottica and Essilor are involved in the retail of finished lenses, frames and sunglasses.

The relevant markets

113. With the exception of Turkey,⁷¹ the four other NCAs considered the upstream wholesale supply of lenses, frames and sunglasses and the downstream retail of these products, though the focus of the US investigation was on lenses. However, in addition, the EC and New Zealand's NCA decisions also considered the supply of ophthalmic substrate (hereby referred to as substrate) as a raw material for lens production. The EC's decision covered an even more comprehensive range of markets within the industry, including the manufacturing and supply of ophthalmic machines. As these other markets were not considered in the other NCA decisions, we do not explore them for the purposes of our comparison.

Analytical frameworks for the assessment of vertical theories of harm

114. The framework applied by the EC to assess whether competition issues can arise as a result of vertical mergers places a specific emphasis on the consideration of two factors; input foreclosure and customer foreclosure.
115. Input foreclosure occurs when the merger would result in a restriction of supply of an important input to downstream competitors, thus raising their costs and making them less competitive. For input foreclosure to be a

⁷¹ During the time of the decision of the Competition Authority of Turkey, Essilor and Luxottica were involved in the upstream wholesale market for finished lenses, frames and sunglasses in Turkey; but they were not involved in the downstream retail market (the exception was involvement in the retail of sunglasses where Luxottica had a limited presence). The decision did not appear to address this in the context of vertical theories of harm and considered that there was enough competition in this particular relevant market). The decision only addresses concerns surrounding conglomerate effects through tying and bundling and the merged entity's increased ability to impose restrictive conditions on retailers downstream.

concern, the merged entity should have a significant amount of market power in the upstream market.

116. Customer foreclosure occurs where the merged entity forecloses upstream rivals by restricting their access to a sufficient customer basis. For customer foreclosure to be a concern, the merged entity should have a significant amount of market power in the downstream market.
117. The New Zealand NCA decision also applied a similar framework, focussing considerably on the arguments pertinent to input and customer foreclosure. The key difference is that the New Zealand NCA decision first identified, in a systematic way, the incentives for the merged entity to foreclose competitors in particular ways. It then moved on to assess whether the merged entity would have the ability to foreclose in those particular ways. The conclusion on whether there were concerns regarding the vertical effects hinged on the merged entity's ability to foreclose.
118. Similarly, the EC's assessments were mainly concerned with the merged entity's ability to foreclose. The EC did not systematically consider whether there was an incentive to foreclose in particular markets at the outset. It instead stated that there were a number of vertical markets affected and that it would consider whether these affected markets would reduce competition through input and customer foreclosure. The incentives of the parties formed a general part of that assessment.
119. For the US, a primary focus of the investigation was the possibility of vertical harm, including vertical foreclosure and raising rivals' costs. In particular, US FTC staff assessed whether the merged firm would have the ability and incentive to foreclose or raise the costs of iECPs who compete with Luxottica at the retail level.
120. The Chilean decision considered customer foreclosure against suppliers of frames and input foreclosure of frames and of finished lenses, with the intention to exclude other retailers, and input foreclosure of machinery with the intention of excluding other suppliers of finished lenses. In each case, the incentive and ability of the merger firm to engage in exclusionary conduct was considered. Incentive is primarily assessed using a vGUPPI⁷² approach to

⁷² vGUPPI is an adaptation of the Gross Upward Pricing Pressure Index methodology for vertical mergers. It involves the calculation of indexes reflecting the incentive of the merged entity to raise prices in the upstream market and the incentive of competitors in the downstream market to raise prices (and therefore the incentive of the merged firm to increase the price of the input). See Moresi, Serge and Salop, Steven C., "vGUPPI: Scoring Unilateral Pricing Incentives in Vertical Mergers" (June 18, 2012). *Antitrust Law Journal*, Volume 79, pages 185-214, 2013; Georgetown Law and Economics Research Paper No. 12.022.

measure the incentives of merged entity to raise prices in the upstream and downstream markets. In considering ability, the Chilean authority focusses on the availability of alternatives to the merging firms for competitors.

Competition assessment of vertical theories of harm

Supply of substrate as raw material and lens production

Product and geographic definition

121. In the EC decision, the relevant product market considered was the supply of substrate as raw material for lens production. In previous cases, the EC distinguished between the sale of finished lenses to optical retailers and the sale of substrate to prescription laboratories, which then process the substrate and subsequently supply the finished lenses to retailers. There is neither supply nor demand side substitutability as substrate and finished lenses are products at different levels of the supply chain and are used by different customer groups. The geographic definition was left open. However, the analysis was carried out on a European Economic Area (EEA)-wide basis on the basis of low transportation costs for substrate within the EEA and the multinational presence of all major suppliers.
122. In New Zealand's NCA decision, the market definition in relation to substrate was worded slightly differently, but in essence was the same as that of the EC decision. The relevant product market was the import and intermediate supply of blank (or unfinished) prescription lenses. The New Zealand's NCA decision referred to substrate as "unfinished lenses". The same is true of the Chile decision, where the manufacture and import of substrate was assessed to be international and entirely imported, and the supply of finished lenses national.

Vertical theories of harm

123. The EC explored whether competition would be significantly impeded as a result of vertical effects between Essilor's supply of substrate and Luxottica's lens production activities. In the EEA, Essilor supplies substrate to independent lens manufacturers and prescription laboratories integrated within retail chains. Whilst 90% of its sales of substrate is generated via internal sales to Essilor's own vertically integrated prescription laboratories in Europe, it holds a market share of between [30- 40]% in this particular market. Other lens manufacturers such as Zeiss, Hoya and Rodenstock are also active in substrate supply. In terms of lens production, Luxottica only has one prescription laboratory in the whole of the EEA (located in Sedico, Italy) in the downstream market with only [0-5]% share in the supply of finished lenses. It

has the same market share in this downstream market in Italy. The EC considered that there was no risk of input foreclosure for two reasons. Firstly, there were a sufficient number of alternative suppliers involved in [70-80]% of the market for the supply of substrate both at a global and EEA level. Luxottica's competitors in lens production would therefore be able to source the raw material input from a sufficient number of alternatives. Secondly, Essilor would have no intention of downgrading supply to Luxottica's competitors as Luxottica only forms a very small part of its revenues from the wholesale of substrate given its small market share in lens production in the EEA. For that very reason, Essilor would also be unable to cause customer foreclosure by leveraging Luxottica's market position. Competing substrate suppliers would not depend on Luxottica's limited activities in the EEA for the continued viability of their businesses.

124. In New Zealand, Luxottica is not engaged in the finishing of lenses. However, the vertical theory of harm in relation to supply of substrate was briefly explored in a more general context and not in relation to any particular downstream activities by Luxottica.⁷³ Similar reasons were given for there being no concerns regarding input and customer foreclosure. Like the EC decision, it was found that there were sufficient alternative suppliers of substrate (referred to in the New Zealand's NCA decision as unfinished lenses) to provide protection against input foreclosure in downstream lens finishing.
125. The Chilean authority's decision calculated that the merged firm would have a vGUPPI of [20-30%] in the downstream market for the sale of glasses to consumers. This figure indicates that, without considering the ability of competitors in this market to source from alternative suppliers of substrate and finished lenses in the upstream market, the merged firm would have the incentive to foreclosure competitors in this way. However, the market for substrate was found to be international with many alternative suppliers (particularly in Asia) and there were found to be many alternative laboratories in Chile able to supply finished lenses. As such, the Chilean authority concluded that the merged firm would lack the ability to foreclosure competitors using the supply of lenses, despite it having the incentive to do so.

⁷³ NZ Decision- para 112.1 and 115

Supply and retail of finished lenses

Product and geographic definition

126. In the EC decision, the relevant product market, in relation to wholesale supply, was the wholesale supply of ophthalmic lenses. This was not further segmented according to material of lens (plastic or glass), lens type (single vision, multifocal, trifocal, progressive and tinted sunglass lenses) and distribution channel (independent optical retailers and retail chains). Plastic lenses constituted more than 90% of EU sales and Essilor's market position would not change regardless of which sub-segment was considered. Sunglass lenses were considered to be in the same product market as they only involved an additional step of tinting. The EC considered the wholesale of contact lenses to form a separate market.
127. It was acknowledged that there was limited supply side substitutability due to the difference in cost of manufacturing different types of lenses and the different types of machinery needed. However, market definition was left open as it would not have significantly changed the market position of the merging parties in the different possible sub-segments of the market.
128. The geographic definition was considered to be national in scope due to differences in national preferences and brand awareness. Suppliers needed to have a local presence. Retailers tended to negotiate with local suppliers, the minority only concluding contracts on an EEA wide basis. Regulations also differed between member states.
129. Similarly, in the New Zealand NCA's decision the relevant product market was defined as the wholesale supply of finished prescription lenses. It emphasised that it was distinct from the import and intermediate supply of blank (or unfinished) lenses because unlike Essilor, competitors who supplied finished lenses were not vertically integrated with a supplier of substrate. Furthermore, the authority had considered that there was a strong possibility that there was a market for the supply of finished prescription lenses to independent optical retailers only. This was because the two retail chains in New Zealand were not contestable. Specsavers was vertically integrated and Luxottica's OPSM had an exclusive supply agreement with Eyebiz Laboratories Pty Ltd (Eyebiz) (see section on vertical theories of harm below for more details). However, the market definition was left open. Overall, it was found that the authority's conclusions would not have changed on the basis of more narrowly defined product markets.
130. In the SAMR decision, there were more definitive delineations between the sub-segments of the market for the supply of finished lenses. Whilst the EC

and New Zealand's NCA decisions left open the possible sub-segmentation within the market, the SAMR concluded that there were separate markets for mid-high-end lenses and low-end lenses due to different requirements in relation to technology, materials, manufacturing processes and targeted end-customers. According to the SAMR decision, both Essilor and Luxottica overlap in the supply of mid-high-end lenses and low-end lenses. Their combined market shares in the two sub-segmented relevant markets would be [40%-50]% and [30-35]% respectively. Their largest competitors in the mid-high-end market had a combined market share of [20-25]% and [5-10]% in the low-end market. There are no references to what the increment in market share would be and what the market shares were pre-merger.

131. In relation to retail, the EC left open whether the retail for optical products and services and eyewear (including finished lenses, frames and sunglasses) could be further divided according to distribution channels, i.e. online and 'brick and mortar' sales. The geographic definition was considered to be national in scope given that the retail chains that operate in several countries operate under different national brands.
132. In terms of retail, the SAMR's market definition was similar to that of the EC. The SAMR described the relevant market as the 'glasses retail market', which included finished lenses, frames and sunglasses because retailers generally sold all three products at their stores. Whilst the geographic market definition was considered to be the 'Chinese urban market', it was accepted that consumers shopped at local stores and were unwilling to travel considerable distances to shop. However, this was not further explored.
133. On the contrary, the New Zealand's NCA decision considered a separate market for the retail supply of (non-prescription) sunglasses due to lack of demand side substitutability.
134. The New Zealand NCA considered retail of contact lenses to form a separate market.
135. In the US FTC investigation, while the lens market was national, the retail markets were local for purposes of analysing the downstream diversion of sales.

Vertical theories of harm

136. As indicated before, Luxottica's retail activities in the EEA are essentially limited to the UK and Italy. Essilor has a market share of between 30% and 40% in the supply of finished lenses in both countries. The EC noted that, in the sub-segmented markets for multifocal and single vision lenses in Italy, the

market shares were 40% to 50% and 30% to 40% respectively. In the UK, it was 30% to 40% for multifocal lenses and 50% to 60% for single vision lenses. The EC found that there were a sufficient number of alternative suppliers in both geographic markets, many of them being international suppliers. The authority also observed that Essilor's market share had decreased in Italy whilst remaining stable in the UK over the previous three years. It was found that due to Luxottica's limited presence in the retail market in both the UK and Italy, it would not have the incentive to restrict input to other retailers who represented a significantly larger proportion of Essilor's sales. Finally, again due to Luxottica's low market shares in retail, the merged entity discontinuing purchases of finished lenses from alternative suppliers would not lead to customer foreclosure.

137. It is important to note that Essilor and Luxottica already had a pre-existing supply relationship in New Zealand at the time of the investigation. All of Luxottica's requirements for finished lenses were supplied by Essilor via a joint venture between the two parties, Eyebiz; 70% owned by Essilor and 30% owned by Luxottica. This is a one-way exclusive relationship in which Luxottica is required to purchase all of its requirements from Eyebiz but in which Eyebiz could supply finished lenses to other optical retailers. Luxottica then retails these through its OPSM stores in New Zealand. Due to Essilor's majority ownership in Eyebiz, it was considered to be Essilor that was supplying Luxottica and other retailers for the purposes of analysis.
138. It was found that Essilor did not supply 'must have' finished lenses that could not be supplied by competitors. If Essilor decided to stop supplying finished lenses to other optical retailers, post-merger, those retailers could switch to supplies from alternative wholesalers and meet their requirements. Hence, there would be no input foreclosure. Whilst Luxottica had a strong position in frames, similarly, it was found that it did not sell 'must have' frames. It would therefore be unable to leverage its market position in frames to make Essilor refuse to supply other frame wholesalers. It was overall found that frame brands altered in popularity over time and therefore bundling of Essilor finished lenses with Luxottica frames would not lead to customer foreclosure.
139. The SAMR decision did not explicitly refer to 'vertical' theories of harm. However, it considered both the possibilities of enforcing unfair terms and conditions on and the refusal to supply popular brands of finished lenses to other retailers. In the context of the EC and New Zealand's NCA frameworks, these theories of harm are related to the concept of input foreclosure. The input for competing optical retailers are either made more expensive via unfair conditions or are completely refused. As a result of these concerns, the SAMR approved the merger on the condition that the merged entity would not refuse to supply finished lenses to competing retailers and would not apply

unreasonable conditions on competing optical retailers. The commitment to preclude the application of unfair terms did not apply to the supply of whole spectacles (finished lenses and spectacles fitted and sold together). The decision did not elaborate further on the definition of unreasonable conditions.

140. The US FTC assessed whether Essilor/Luxottica would (1) have the ability to increase the price of an upstream input, or cut off an input, to iECPs and (2) be able to recapture enough of the sales lost by its iECP customers through the merged firm's downstream operations to make the net effect profitable. Staff determined that although Essilor is a substantial provider of upstream inputs in the US eyewear industry, including progressive lenses and photochromic lens treatments, its iECP customers reported that they currently have alternatives from which to choose. The evidence therefore did not support the hypothesis that Essilor would be able to raise prices for (or completely deny access to) these upstream products without losing substantial sales to competitors. Regarding recapturing lost sales, although Luxottica is one of the largest optical retailers in the US, its national share of the optical retail business is less than 10%. Luxottica's share of the local markets that likely constitute relevant geographic markets for the retail sale of eyewear is below the level necessary for Essilor to recapture enough downstream sales for diversion to Luxottica's retail stores to offset lost lens sales.
141. In its investigation, US FTC staff gathered and analysed evidence from numerous sources that in the end were wholly consistent with staff's own empirical economic analysis. US FTC staff used a variety of quantitative models to analyse the potential vertical competitive effects, and tested the robustness of its findings using a range of reasonable assumptions. None of these economic models support a finding that the merging parties would be able to impose higher prices or reduce output on their downstream rivals or ultimately consumers.
142. The Chilean authority considered the possibility of the foreclosure of the market for the retail sale of finished lenses alongside market for substrate. Similarly to the related theory of harm, the decision found that the merged firm would have the incentive to foreclosure competing retailers due to their large share in this market, but it would lack the ability to do so because of the large number of alternative suppliers of finished lenses.
143. In addition, customer foreclosure of suppliers of frames and sunglasses was considered by the Chilean authority. It was found that the merged firm would not have the ability to exclude suppliers of frames by refusing to stock their products in its optical retailers due to its low share in the downstream market.

144. The difference between the SAMR and EC decision may be traced to conditions in the different geographical markets. In the EU, Luxottica operated retail stores and chains in Italy and the UK though its market shares were minimal. Essilor would lose a significant portion of their revenues if they refused to supply finished lenses to competing optical retailers in those countries. The SAMR, on the other hand, estimated the combined market share in retail stores in China as considerable. In Chile and the US also, the merged firm was found to have a substantial share in retail markets, though not sufficiently large to raise competition concerns.
145. The difference between the SAMR and New Zealand's NCA decisions however, appear to stem from differences in substantive analysis. The SAMR defined a separate market for mid-high-end lenses. In the terms of the New Zealand's NCA decision, these would have been likened to 'must-have' finished lenses. New Zealand's NCA decision however, did not perceive any of the finished lenses supplied by Essilor as 'must-have', indicating more substitutability between different brands of finished lenses compared to the SAMR decision. Given the stricter market definition in the SAMR decision, it is understandable that the SAMR did not mention the ability of retailers to switch to alternatives, which was alluded to in the New Zealand's NCA decision. In contrast, the Chile decision considered substrates and finished lenses together for the purposes of assessing the merged firm's ability and incentive to engage in input foreclosure, and did not segment this market by lens quality.

Supply and retail of frames and sunglasses

Product and geographic definition

146. The EC stated that the wholesale supply of sunglasses and frames should form separate markets, with any further sub-segmentations in terms of branding and price ranges being left open.
147. As mentioned in the section above on supply and retail of finished lenses, the EC considered retail of frames and sunglasses to be in the same market as finished lenses, leaving any further delineations open, as did the Chilean authority. The New Zealand NCA decision however, did define separate relevant markets for the retail supply of (non-prescription) sunglasses and the retail supply of prescription lenses and frames (whether sold separately or together as finished prescription glasses).

Vertical theories of harm

148. The EC found that Luxottica had a strong market position in the supply of branded frames and sunglasses with 30% to 40% market share in number of member states in the EEA. However, given Essilor's limited activities in retail through websites with an 'immaterial' market share in the EEA, there was no concern pertaining to this vertical relationship.
149. In the New Zealand NCA decision, it was considered that new brands of frames were emerging in the market, and that therefore brands exclusively supplied by Luxottica were not must-have products. Competing optical retailers downstream would survive if they lost the well-known brands supplied by Luxottica as they could switch to sourcing alternative emerging brands.
150. Like its reasoning for concerns around the wholesale supply of popular brands of finished lenses, the SAMR stated that the merged entity would either refuse to supply or supply popular sunglasses and optical frames on unfair conditions to competitors downstream. As a result of these concerns, the SAMR approved the merger on condition that the merged entity would offer its 'STARS' program, which is a program by Luxottica enabling licenses to sell frames and sunglasses through enrolment, to competing optical retailers. The merging parties were also required to commit to supply all frames and sunglasses and offer trademark licensing on fair, reasonable and non-discriminatory terms (FRAND) to competing optical retailers downstream. A number of brands operated by speciality stores were, however, excluded from this condition.
151. The Chilean authority identified Luxottica's high share in the wholesale supply of frames, and brands which are considered must-have by retailers, as creating the ability of the merged firm to foreclosure competing optical retailers. It was also estimated that the merged firm would have the incentive to implement such a strategy, given a vGUPPI of [10-20%]. However, the behaviour of Luxottica with respect to its downstream competitors was not consistent with this strategy prior to the merger, despite possessing the ability to do so and a strong incentive (though weaker than after the merger). The Chilean authority concluded it should oversee the behaviour of Luxottica following the merger to ensure it does not implement a strategy of foreclosure through frames.
152. Again, the key difference between the New Zealand NCA and SAMR decisions revolves around the perception of the brand licensing held by the merging parties. The SAMR did not refer to any emerging alternative brands and appeared to construe brand popularity as static. This is further reflected in the remedies agreed with the merging parties, where licensing of brands to competing retailers FRAND terms downstream was made a condition of the

merger. This would resolve the SAMR's concern that, post-merger, the companies would stop offering popular products to other stores and instead, increase the number of retail stores through which they sell branded frames and sunglasses.

Case comparison: Ticketmaster/Live Nation

153. In 2009, Live Nation and Ticketmaster announced a merger of equals. NCAs in Canada, Norway, Turkey, the UK and the US reviewed and ultimately decided to allow the transaction. In the US and Canada, remedies were required before the merger was allowed, on the basis of horizontal concerns in ticketing.
154. The UK's Competition Commission (UKCC) - which predated the Competition and Markets Authority (CMA) - and the US's Department of Justice (DOJ) published the most substantial material explaining their reasoning.⁷⁴ This allows us to compare their respective approaches to assessing vertical theories of harm in this merger and deciding to allow the transaction (while recognising significant differences between the competitive conditions in the UK and US).
155. The UKCC investigated and dismissed horizontal concerns in "the UK market for the primary retailing of live music tickets". The UKCC also considered and dismissed vertical concerns in relation to the foreclosure of "the UK market for the promotion of live music events" and the foreclosure of live music venues in the UK.
156. The DOJ found horizontal concerns in relation to the competitive impact of the merger on "the sale of primary ticketing services to major concert venues in the United States", and it challenged the merger on this basis.⁷⁵
157. It ultimately agreed remedies with the merging parties, in the form of a consent decree which was designed to establish and/or strengthen Comcast-Spectacor and AEG as competitors in primary ticketing. Although the remedies were primarily designed to address the DOJ's horizontal concerns,

⁷⁴ See the [CMA case page](#) and the [DOJ case page](#). Also of interest is commentary by the contemporary DOJ Assistant Attorney General (Varney, Christine, 2010, "The Ticketmaster/Live Nation Merger Review and Consent Decree in Perspective," Austin, South by Southwest), and a consultant to the coalition of state attorneys general that investigated the merger alongside the DOJ (Kwoka, John, "Rockonomics: The Ticketmaster-Live Nation Merger and the Rock Concert Business", The Antitrust Revolution, 2012).

⁷⁵ *U.S. v. Ticketmaster Entertainment, Inc.*, case 1:10-cv-00139, D.D.C. (Jan. 25, 2010) at ¶¶37-41; Competitive Impact Statement, *U.S. v. Ticketmaster Entertainment, Inc.* (Jan. 25, 2010) at II.D.

the decree included behavioural measures designed to prevent retaliation and to promote competition. Specifically, the decree prohibited forced bundling of the parties' ticketing and promotion services, and prevented them from unfairly using their access to customers' data to make switching more difficult.. The DOJ stated that "these provisions should work together to prevent the post-merger entity from using its new unique position to exclude any of its existing or new competitors from the business."⁷⁶

158. The DOJ also heard and investigated complaints from third parties that the merging parties would be able to foreclose competitors by denying them access to their venues, artists or promotion business. However, it ultimately determined that it could not prove that the vertical integration resulting from the merger would significantly harm competition in the concert promotion market or any market other than primary ticketing services⁷⁷.

The relevant markets

159. The UKCC and DOJ described the industry in which Live Nation and Ticketmaster operate in very similar terms. However, they defined the relevant markets differently.

Industry background

160. The key market participants are consumers, venues, ticket agents, promoters and artist management agencies. Promoters are commissioned by artist management agencies to organize and market artists' tours and music festivals. Promoters negotiate with venues to decide how many tickets the venue will sell to consumers, and how many will be sold on behalf of the promoter. Venues and promoters typically use ticket agents to sell their tickets to consumers, although some venues and promoters make these sales themselves.
161. Some venues, promoters and/or ticket agents are vertically integrated under common ownership. Even before the merger, Live Nation was a prominent example of this as a major venue owner and promoter in the UK and US.

⁷⁶ Varney, Christine, 2010, "The Ticketmaster/Live Nation Merger Review and Consent Decree in Perspective" Austin, South by Southwest.

⁷⁷ Plaintiff United States' Response to Public Comments, U.S. v. Ticketmaster Entertainment, Inc. (June 21, 2010) at IV.B.1.

162. In 2008 Live Nation began to act as its own ticket agent in the US, using existing technology from CTS Eventim AG (Eventim), with plans to supply this to external venues as a ticket agent in future. It immediately became Ticketmaster's largest competitor. Live Nation also planned to use Eventim as a ticket agent in the UK. Ticketmaster was the largest ticket agent in both the UK and US, and in response to Live Nation's entry, it acquired Front Line, a major artist management company.⁷⁸ In this period both of the merging firms indicated broad ambitions, including their intent to offer artists a one-stop-shop for their live music needs.⁷⁹

Ticketing (the 'upstream' market)

163. The UKCC identified the relevant upstream market in which the merging firms overlapped as "the UK market for the primary retailing of live music tickets", including sales by promoters and venues direct to consumers, as well as those made by ticket agents.⁸⁰ It excluded non-music events (such as theatre).

164. The DOJ identified "the sale of primary ticketing services to major concert venues in the United States" as the relevant market in which the merging firms overlapped (following Live Nation's recent entry).⁸¹ The DOJ specified that it was concerned with the impact on concert venues which required more sophisticated ticketing services, services which could (for example) handle greater peak traffic. The DOJ considered that major concert venues therefore had fewer realistic alternative suppliers of ticketing services. Implicitly, the DOJ included self-ticketing by major venues in the market for primary ticketing.

Promotion and venues (the 'downstream' markets)

165. The UKCC identified a market for "the promotion of live music events in the UK". Although it did not define a market for live music venues, the CMA's final report also considered the merger's impact on this segment.

⁷⁸ Artist management companies negotiate with promoters on behalf of artists.

⁷⁹ CC final report, paragraph 3.2.

⁸⁰ CC final report, paragraphs 5.20-5.26.

⁸¹ US Department of Justice, "Competitive Impact Statement, U.S. v Ticketmaster Entertainment, Inc., and Live Nation, Inc." January 25, 2010a at II.C.

166. In its filings challenging the transaction, the DOJ did not define markets for promoters or venues, although it did consider the merger's impact on purchasers of primary ticketing services (i.e. venues) as well as on promoters that, in turn, contract with these venues.

Vertical theories of harm

167. In general, the UKCC applied the ability, incentive and effect framework in assessing vertical theories of harm, following the approach set out in its guidance.⁸² To take into account the facts of the case, it considered the impact of the merger on Eventim's entry separately from its assessment of the merger's impact on other ticket agents.
168. The DOJ set out its reasoning on vertical foreclosure in response to public comments.⁸³

Foreclosure of ticket agents by Live Nation

The UKCC

169. The UKCC's guidance states that 'generally, a vertical merger will only raise competition concerns when the firms involved are able to exercise a substantial level of market power in one or more markets along the supply chain'.⁸⁴
170. The UKCC found no indication that Live Nation had significant market power as a promoter. It found evidence of competition from other promoters, and no indication of significant advantage in booking rebate from ticketing agents was enjoyed by Live Nation. The UKCC also found that its market power as promoter would not be changed by the merger.⁸⁵ Similarly, the UKCC found that, although Live Nation owned several of the largest arenas in the UK, and that most of these faced only differentiated local competition, Live Nation's market power was limited by its need to fill the venues, and by promoters' ability to switch events between towns.⁸⁶ Overall, the UKCC found that Live

⁸² [CC/OFT Merger Assessment Guidelines \(CC2\)](#), paragraph 5.6.6.

⁸³ [Plaintiff United States' Response to Public Comments](#).

⁸⁴ CC2, paragraph 3.64.

⁸⁵ CC final report, paragraphs 5.75-5.78.

⁸⁶ CC final report, paragraphs 5.79-5.86.

Nation controlled many live music tickets, but less than 10% of all such tickets, in the UK.⁸⁷

171. Notwithstanding the absence of a finding that Live Nation had market power, the UKCC went on to consider whether particular factors in this case (for example, Live Nation's arrangement with Eventim) might give the merged firm the ability to foreclose ticket agents. The UKCC found that Eventim would sell less than 2% of all UK live music tickets, absent the merger, through its arrangements with Live Nation, and that these arrangements did not change the fact that (like other ticket agents) it faced significant barriers to expansion.⁸⁸ The UKCC assessed Live Nation's ability and incentive to foreclose Eventim, and the effect of any such foreclosure on competition. The UKCC concluded that post-merger Live Nation would have some ability and incentive to limit the allocation of Live Nation's tickets to Eventim, but that Live Nation could only affect Eventim's position in the UK market for the primary retailing of live music tickets to a limited extent,⁸⁹ and that even if it did so this would be unlikely to have a material effect on competition in ticketing given Eventim's small size. The UKCC noted that Eventim's prospects of becoming a large-scale ticketing agent in the UK depended primarily on its own efforts and abilities, and that these would not be affected significantly by the merger.⁹⁰
172. The UKCC then considered the merged firm's ability and incentive to foreclose ticket agents other than Eventim. It found that the merged firm had the ability to harm a small number of ticket agents but that it would not have the incentive to do so, given its strong incentives to sell as many tickets as possible.⁹¹

The DOJ

173. The DOJ responded to a third party's contention that "Live Nation dominates concert promotion (and thus can leverage that dominance into primary ticketing)".⁹² However, the DOJ found that Live Nation had only a 33% market share of concert revenue at major venues. The DOJ also noted that concert

⁸⁷ CC final report, paragraph 7.16.

⁸⁸ CC final report, paragraph 7.19. The CC disagreed with Eventim's forecasts of its likely ticket sales, but found that even if Eventim had met its projections, it would have sold less than 4% of all UK live music tickets.

⁸⁹ CC final report, paragraph 7.79.

⁹⁰ CC final report, paragraph 7.98-7.99.

⁹¹ CC final report, paragraph 7.137.

⁹² US Department of Justice, "Plaintiff United States' Response to Public Comments, U.S. v Ticketmaster Entertainment, Inc., and Live Nation, Inc." January 25, 2010a. Section IV.A.3.

promotion represented only a part of the overall market for ticketing services which might facilitate entry into the ticketing business; for example, sports venues also require robust ticketing services. The DOJ also responded to a third party's contention that competitors "will be unable to provide primary ticketing services to venues that are owned or operated by the merged firm." The DOJ concluded there was no support for this contention, and that ticketing companies would not need access to Live Nation's own ticketing volume in order to accumulate sufficient scale in the ticketing business to provide competitive pricing to venues.

174. In general, both DOJ and the UKCC dismissed this foreclosure theory of harm because the evidence showed that Live Nation did not have market power as a promoter.

Foreclosure of promoters and venues

The UKCC

175. The UKCC considered several strategies which the merged firm could pursue to foreclose promoters and venues, using its strength as a ticketing agent.

- *Total foreclosure by ceasing to sell tickets on behalf of other promoters*

176. The UKCC found that Ticketmaster's position as a preferred ticket agent for some customers was such that, if a promoter lost access to it, that promoter would be likely to lose sales.⁹³ The merged firm would therefore have the ability to foreclose other live music promoters. In assessing the incentive to foreclose, the UKCC calculated the critical proportion of the promotions business which would need to switch to Live Nation in order for the foreclosure of other promoters to be profitable in the short term. It found that for every 100 tickets which Ticketmaster ceased selling for other promoters, Live Nation would need to increase the size of its promotions business by 60 tickets. Given Live Nation's low market share, the UKCC concluded that several promoters would need to exit the market for foreclosure to be a profitable strategy. The UKCC also noted that Ticketmaster would be sacrificing more certain profits in ticketing for more risky profits in promotion,

⁹³ CC final report, paragraph 8.10.

given that promoters tend to bear a greater proportion of the risk involved in organising a concert.⁹⁴

177. The UKCC therefore found that overall, to foreclose promoters the merged firm would need to accept short term costs, both from reduced revenues (from tickets it refused to sell) and from a reduced range harming its market position, in return for uncertain long term gains. The UKCC concluded that the merged firm would be unlikely to have the incentive to foreclose promoters.

- *Partial foreclosure by reducing rebates paid to other promoters*

178. The UKCC found that, if Ticketmaster sought to worsen the terms of its offer to other promoters by reducing the rebate they received, many promoters would switch some ticket volumes away from Ticketmaster, eg to See Tickets. The UKCC considered that this response would reduce significantly the incentive for the merged entity to foreclose other promoters in this way. The UKCC concluded that, due to this likely response, the merged entity would not have the incentive to partially foreclose other ticket agents by reducing the level of ticket rebates which it paid.⁹⁵

- *Partial foreclosure by increasing the booking fees charged to the consumers of other promoters' tickets*

179. The UKCC found that, if Ticketmaster increased its booking fees for the tickets of other promoters by a small amount (assuming it was allowed to do so by the promoters), there would be little effect on Ticketmaster's ticket sales for other promoters. If Ticketmaster increased booking fees for the tickets of other promoters substantially, then at least some promoters would switch some ticket volumes to other ticket agents and the merged entity would probably result worse off. The UKCC concluded that the merged entity would not have the ability to partially foreclose other ticket agents by increasing the booking fees charged to the consumers of other promoters' tickets by a small amount, and it would not have the incentive to do so by a large amount.⁹⁶

⁹⁴ CC final report, paragraphs 8.34-8.36.

⁹⁵ CC final report, paragraphs 8.50.

⁹⁶ CC final report, paragraphs 8.56-8.57.

- *Partial foreclosure by reducing the marketing of other promoters' events*
180. The UKCC found that, if reducing Ticketmaster's marketing activity for other promoters had any effect on the ticket sales of other promoters, the result for the merged entity was most likely to be a short-term cost with an uncertain long-term gain. The UKCC concluded that, even if the merged entity had the ability to partially foreclose other promoters by reducing the extent to which it marketed their events (which was unclear), it would not have the incentive to do so.⁹⁷
- *Partial foreclosure by delaying the payment of cash from ticket sales to other promoters*
181. The UKCC found that the balance of costs and benefits from foreclosing other promoters by delaying the payment of cash from ticket sales would be similar to the previous cases of partial foreclosure, involving both a likely short-term cost and an uncertain long-term gain. In the short term, Ticketmaster would lose income as some promoters would switch some volume of tickets to other ticket agents but, in the long term, Live Nation could increase its market power as a result of some of these other promoters either losing business from artists and their agents or exiting the market altogether. The UKCC concluded that, though the merged entity might have the ability to partially foreclose other promoters by delaying the payment of cash from ticket sales, it would not have the incentive to do so.⁹⁸
- *Partial foreclosure through using other promoters' operational or customer data to the advantage of Live Nation*
182. The UKCC found that Ticketmaster's access to other promoters' operational data would not provide the merged entity with the ability to partially foreclose other promoters by using the information to plan its bids and ticket sales, in particular given that Ticketmaster is rarely privileged with access to sensitive and timely information which could be used change a promoter's strategy.⁹⁹
183. In contrast, the UKCC found that the merged entity might have some ability to foreclose other promoters by providing Live Nation with access to Ticketmaster's customer data, which would allow the merged firm to market

⁹⁷ CC final report, paragraphs 8.63-8.64.

⁹⁸ CC final report, paragraphs 8.72-8.73.

⁹⁹ CC final report, paragraphs 8.77-8.88.

Live Nation's events more effectively. However, the UKCC considered that, it would not have the incentive to do so, because promoters would switch away from Ticketmaster to other ticket agents in response, and the short-term benefit to Live Nation would not be large.¹⁰⁰

- *Total or partial foreclosure of music venues*

184. The UKCC investigated whether the merged entity could foreclose other live music venues by Ticketmaster either refusing to sell their tickets (total foreclosure) or by selling their tickets on worse terms (partial foreclosure). As a result, Ticketmaster would suffer a loss from reduced ticket sales. However, other venues would also be likely to sell fewer tickets (depending on whether they were able to sell tickets through other channels) and would probably be less able to attract promoters to use them for live music events. If so, Live Nation would increase its market share as a venue operator, with some feedback benefit to Ticketmaster as Live Nation's ticket agent.
185. The UKCC found that under these circumstances, either the venue would seek to use another ticket agent or the promoters of the events at the venue would reallocate the venue's tickets to other ticket agents. Therefore, it concluded that a strategy to foreclose other venues from access to Ticketmaster was unlikely to lead to a reduction in total ticket sales at these venues, or to a benefit to Live Nation's venues.

The DOJ

186. Having found competitive harm related to the market for primary ticketing services from the horizontal effects of the merger between and proposed a judgement that would fully remedy any loss of competition in primary ticketing, the DOJ did not find evidence that the merger would result in harm to any other relevant market, such as concert promotion, venue services, or venue management.
187. The DOJ specifically responded to third parties' concerns that the merged parties would use the Front Line artist management business to foreclose promoters.¹⁰¹

¹⁰⁰ CC final report, paragraphs 8.101-8.104.

¹⁰¹ US Department of Justice, "Plaintiff United States' Response to Public Comments, U.S. v Ticketmaster Entertainment, Inc., and Live Nation, Inc." January 25, 2010a. Section IV.B.1.

- *Total or partial foreclosure of promoters*

188. The DOJ found that the merged firm would not have the ability to exclude promoters as a substantial majority of artists would not be affiliated with the merged firm and would be available for competing promoters to present. The DOJ furthermore noted that Front Line has no legal right to dictate to its artists which promoters they can use. In light of these factors, the DOJ concluded it was unlikely that the combination of Front Line with Live Nation restrict competition in the concert promotion business.

189. The DOJ considered that artists would also have the ability and incentive to prevent the merged firm from exercising market power in concert promotion. It considered that there are two primary ways that the merged firm could attempt to exercise such market power: (i) reducing compensation paid to artists (or otherwise adversely altering the terms on which promotional services are provided to artists); or (ii) restricting the number of artists' concerts in an effort to raise prices to consumers. In both cases, artists would have the incentive to prevent the merged firm from harming their own economic interests. The DOJ noted that artists would also have the ability to turn to a large number of competing concert promoters, including AEG and many regional promoters, who would gladly seize on the opportunity to expand their promotion business at the expense of the merged firm.

- *Total or partial foreclosure of venues*

190. The DOJ analysed the impact of the merger on the market for operating venues.¹⁰² It did not rule out the possibility that Live Nation's ownership of many key venues throughout the US might grant it a degree of market power but noted that the merger would not increase this (as Ticketmaster owned no venues). Accordingly, the DOJ considered that the merger would be unlikely to alter the competitive dynamics in the venue market.

191. In summary, neither the DOJ or UKCC found that the merger was likely to result in the foreclosure of promoters or venues: (i) the main reasons for the UKCC decision broadly relate to the lack of the incentives for the merger entity to foreclose; (ii) the DOJ decision is broadly based on the existence of the alternatives to the merged entity or on the fact that the merger will not change the competitive dynamics.

¹⁰² US Department of Justice, "Plaintiff United States' Response to Public Comments, U.S. v Ticketmaster Entertainment, Inc., and Live Nation, Inc." January 25, 2010a. Section IV.B.1.

Horizontal theories of harm

192. The UKCC and the DOJ each considered the extent to which the merger would reduce competition in ticketing. The authorities' conclusions on horizontal concerns are briefly summarised here.
193. The UKCC ultimately decided (contrary to its provisional findings) that while competition in the market for retail ticketing was “less than fully effective”, and “although the merger might result in a loss of competition between Live Nation and Ticketmaster for some events, the party which was most at risk of suffering any harm was Live Nation, as the promoter for the majority of the events affected.” Accordingly, as it expected Live Nation to protect its promoter business, the UKCC considered that no harm would come to consumers.¹⁰³
194. The DOJ found that Ticketmaster had dominated the primary ticketing services market in the US (with greater than 80% market share), and that the entry of Live Nation posed a major threat to Ticketmaster's dominance. The DOJ considered that the merger would extinguish Live Nation's competitive threat and was therefore anticompetitive.

Findings across cases

195. We came to the following conclusions:
- (a) The EC, UKCC and Chilean authority were most explicit in setting out that they applied an ability, incentive and effect framework. From the published reasoning it was less clear how closely other NCAs followed this framework, though the published decisions were certainly not inconsistent with this framework. All NCAs explicitly established merging parties' market power.
 - (b) In addition to the generally established theories of harm based on input and customer foreclosure, information sharing was a common source of vertical concerns in these mergers. The ability, incentive and effect framework was not straightforward to apply in these cases, although it was still relevant (for example, NCAs took into account competitors' abilities to protect themselves by switching to alternative suppliers, which would remove their supplier's incentive to misuse information).

¹⁰³ CC final report paragraphs 7.6-7.8.

- (c) Consistent with the findings of the ICN's 2018 survey, behavioural remedies seem to be attractive to NCAs faced with vertical theories of harm. They were used to resolve vertical concerns in two of the three cases studied.
196. One question raised by our comparison of these three cases is whether the ability, incentive and effect framework is appropriate for assessing information sharing theories of harm. Can it be improved upon?
197. NCAs have been considering vertical mergers for many years, and (as the ICN's survey found in 2018) there is broadly a consistent approach between NCAs in terms of the framework for assessing vertical mergers. At the same time, these cases show that the details of how NCAs assess vertical mergers in practice can differ, even when considering similar conditions of competition.
198. Given the different approaches between NCAs in the assessment of vertical theories of harm there is scope for further work to facilitate cooperation in relation to vertical mergers such as:
- (a) in the context of the review of a multijurisdictional vertical merger, continue to promote the discussion between the NCAs in relation to the appropriate framework and relevant evidence for the assessment of these mergers;
 - (b) facilitate that dialogue by reference to a common economic framework and terminology (see, for instance, the economic framework and the glossary described in Annex A of the ICN Survey Report on Vertical Mergers); and
 - (c) discuss the challenges of international cooperation on remedies aimed at solving vertical competition concerns.