ICN Vertical Mergers Survey Report

SUMMARY

1. This paper presents the initial findings from a new workstream for the ICN Mergers Working Group (MWG) on vertical mergers.

2. The ICN has previously undertaken significant work to provide consolidated guidance on merger analysis, with a focus on horizontal mergers. ICN products from this workstream include the Merger Guidelines Workbook (with an introduction to vertical mergers); Recommended Practices for Merger Analysis (2017); Investigative techniques handbook for merger review (2005); and the Implementation Handbook (2006).

3. An important part of this new work has been to conduct and analyse results from a survey of member agencies looking at existing practices in vertical mergers analysis.

4. Key findings from responses to the survey on vertical mergers are:

   (a) Most National Competition Authorities (NCAs) reported that they had intervened in at least one vertical merger in the past three years. However, compared to horizontal cases these interventions are relatively rare, accounting for around 1 in 10 cases in which NCAs intervened.[1]

   (b) Broadly there is a consistent approach by NCAs to the assessment of vertical mergers. Specifically, most NCAs consider input and customer foreclosure theories of harm, use an ability/incentive/effect framework, consider similar factors such as the importance of the input for downstream firms and the existence of alternatives, and also assess efficiencies.

   (c) One of the areas of greatest variation between NCAs is in their use of more detailed economic modelling techniques to analyse foreclosure incentives. While a number of NCAs indicated that they sometimes or always use these techniques, such as vertical arithmetic and vertical

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[1] Note that this figure includes purely vertical mergers and mergers where theories of harm include both horizontal and vertical issues.

gross upward pricing pressure indices (vGUPPI), a substantial proportion of respondents said that they never use them.

(d) Although NCAs typically use behavioural remedies to address vertical competition concerns, almost a third of cases were addressed with structural remedies or by prohibition.

BACKGROUND

Rationale and scope of the vertical mergers project

5. For 2017-18, the ICN MWG decided to address a topic new to the group's work: vertical mergers.

6. The ICN MWG considered this to be an opportune time to compare the current practices of member National Competition Authorities (NCAs) on the assessment of vertical mergers in order to understand if there had been any significant developments in their practice and thinking that may justify revisiting the existing ICN products or the preparation of additional materials.

7. It should be noted that this project focuses only on vertical mergers and not conglomerate mergers, looking mainly at input and customer foreclosure. Its main objectives are to understand the prevalence of vertical mergers in the work of NCAs and to understand their current approaches to the assessment of these kinds of mergers, through exploring the guidelines, practices and cases from member agencies.

8. The first phase of the project has aimed to compare existing practices in the assessment of vertical mergers and includes two key elements: a summary of (i) the economic framework for vertical mergers; and (ii) the results and main findings from the survey of NCAs on how vertical mergers are conducted in practice.

9. In the second phase of this project, the aim is to focus on more specific issues identified in the assessment of vertical merger (such as less common theories of harm) and, if appropriate, add material to new or existing ICN products.

10. This report and the work conducted in this project in 2017/2018 includes input from several NCAs and non-governmental agencies of the ICN MWG.

ECONOMIC FRAMEWORK [NOTE TO REVIEWERS: THE ECONOMIC FRAMEWORK HAS ALREADY BEEN CONSULTED ON AND AGREED]

11. The material in this section was sent to NCAs as an introduction to the survey. Its aim was to define the terminology used in the survey and provide a summary of the economic theory of vertical mergers.

12. 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 licensee.[2]

13. 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 induce a number of efficiencies, such as internalisation of double mark-ups, reduced costs of transactions, and improved information flow and co-ordination.

14. This section of the report provides a brief summary of the economic theory of vertical mergers and discusses:[3]

    (a) Input foreclosure, i.e. the foreclosure of the merged firm's downstream competitors;

    (b) Customer foreclosure, i.e. the foreclosure of the merged firm's upstream competitors; and

    (c) Possible efficiencies generated by vertical mergers.

15. We also provide an overview of the potential remedies where vertical concerns are found to be substantiated.

Input foreclosure

16. There are two types of input foreclosure: (i) 'total' input foreclosure, which amounts to a refusal by the upstream division of an integrated firm to supply

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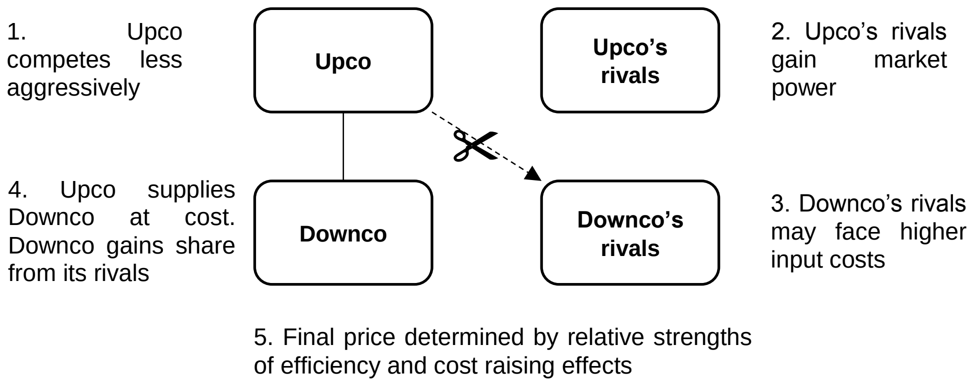
[2] A merger may simultaneously have horizontal and vertical elements. This section abstracts from any horizontal consideration and focuses on vertical aspects.

[3] Vertical mergers may also facilitate coordination between firms in the upstream market, by making it easier to monitor the prices charged by upstream rivals, or between firms in the downstream market, by increasing transparency on input costs and providing additional ways to punish deviations. This section, however, does not discuss these possible theories of harm.

an input to rivals of its downstream division; and (ii) 'partial' input foreclosure, which involves supplying the input on 'worse terms' than prior to the merger. 'Worse terms' include higher prices, lower quality or service for the same price, or choosing to use technology that is not compatible with rivals' technologies.[4] It is helpful to understand the theory of input foreclosure with reference to the diagram below.

Diagram 1: Input Foreclosure



Source: Parker and Majumdar (2016)

17. The diagram can be explained as follows. According to economic theory, when an upstream firm ("Upco") merges with a downstream firm ("Downco"), input foreclosure could occur in the following manner:[5]

(a) Upco refuses to supply Downco's rivals or does so on worse terms.

(b) Because of reduced upstream competition from Upco, Upco's rivals may gain market power and also charge higher prices to Downco's rivals.

(c) If so, Downco's rivals would have their input costs increased. This could lead them to charge higher prices, causing sales to divert to Downco.

(d) In contrast to this, as a result of the merger, Upco would supply Downco at cost, so Downco's input costs would fall.[6]

(e) Whether end-customers gain or suffer depends on how these effects balance out. On the one hand, Downco's rivals would be less competitive if their costs are higher. On the other hand, Downco would have an incentive to lower price because its costs have fallen. If the cost-raising effect dominates, so that downstream prices increase (in aggregate), then

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[4] We note that some authorities may not use the term 'foreclosure' to describe what is here defined a 'partial input foreclosure' theory of harm.
[5] In addition to increase in prices, downstream rivals could also be harmed if the merger gave Downco access to sensitive information about them.
[6] This assumes that prior to the merger Upco earned a margin when supplying Downco.

the outcome is 'anti-competitive'. If the efficiency effect dominates, so that end-customers gain in aggregate, then the merger is beneficial (regardless of whether Downco's rivals end up paying higher prices).[7]

18. Input foreclosure can be assessed with reference to:

    (a) whether the merged entity would have the ability to engage in input foreclosure;

    (b) whether the merged entity would have the incentive to do so; and

    (c) whether the impact of such foreclosure would have a harmful effect on end customers.

Ability to foreclose

19. By ability to foreclose we mean not simply the ability of the supplier to increase its price, but the ability to harm the competitiveness of rivals. When assessing such ability, a number of considerations may be relevant:

    - *Market power / Ease of switching to alternative inputs.* The easier it is for Downco's rivals to switch to alternative inputs, and the more competition there is between suppliers of alternative inputs, the less likely it is that input foreclosure would occur.

    - *Importance of the input.* In order for a foreclosure strategy to be effective, the input supplied by Upco must be sufficiently important that a change in the terms of supply can have a substantial impact on downstream competition. For example, if the input accounts for only a small part of the total costs incurred by Downco's rivals, even if the price of the input rises, Downco's rivals' costs are less likely to be materially affected.

    - *New entry.* Upco may be constrained from increasing input prices by the prospect of new entry in the upstream market.

    - *Buyer power.* Downco's rivals may have sufficient buyer power to protect themselves from paying higher prices (e.g. due to the scope to promote new entry in the upstream market).

    - *Nature of contracts.* The length (and strength) of supply contracts may protect Downco's rivals from input foreclosure strategies.

[7] Some jurisdictions look at efficiencies as a part of the theory of harm, while others see it as one of other considerations to review.

- *Regulation in the upstream market.* There may be regulation which prevents or limits the extent to which the merged company can pursue a foreclosure strategy.

Incentive to foreclose

20. Even if the merged company has the ability to harm the competitiveness of its rivals, it may or may not be in its interests to do so, because engaging in foreclosure reduces its upstream division's sales. When assessing the incentive to foreclose, the following factors may be considered:

- *Loss of sales in the upstream market.* Input foreclosure involves giving up some upstream profit to gain (a greater amount of) downstream profit. The greater the number of upstream units likely to be lost following a price rise, the more that upstream profit is harmed when attempting to foreclose downstream rivals.

- *Gain of sales in the downstream market.* The greater the diversion of sales from 'affected' rivals (i.e. those subject to the higher input price) to Downco, the greater the scope for profitable foreclosure. This is more likely to be the case when Downco closely competes with its rivals.[8, 9]

- *Upstream and downstream margins.* All else equal, if a firm has higher upstream margins relative to downstream margins this makes input foreclosure less likely to be profitable.

- *Efficiency of downstream suppliers.* Input foreclosure may be less profitable where Downco is less efficient than its rivals.

- *Capacity constraints.* Input foreclosure may be less profitable where Downco is capacity constrained, so that it cannot take full advantage of the weaker competitive constraints in the downstream market.

Effect on end-customers

21. The increase in Downco's rivals' costs relaxes the competitive constraints faced by Downco, potentially leading to higher prices for customers. Other issues to consider in relation to the foreclosure strategy's effects on competition are as follows:

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[8] Diversion from foreclosed rivals also depends on the extent of cost pass-through, i.e. on the extent to which the higher costs faced by Downco's rivals are passed-through to their customers.
[9] Diversion to Downco can sometimes be approximated using Downco's market share.

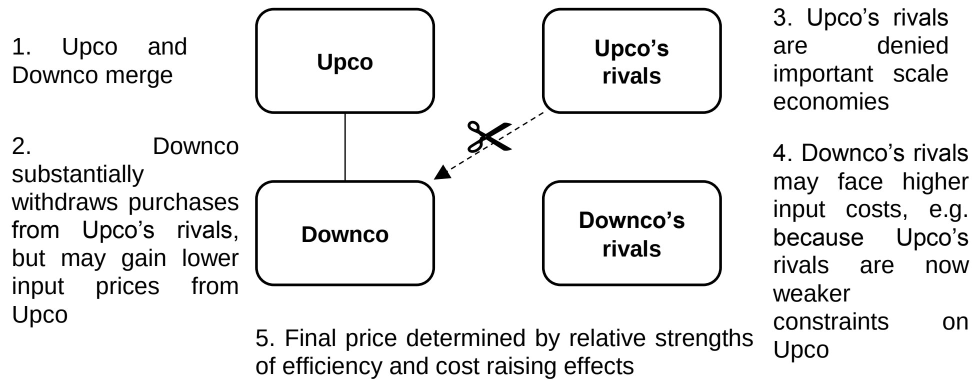
- *Dynamic effects.* A successful input foreclosure strategy may increase barriers to entry in the downstream market: new entrants may expect to be similarly foreclosed, making entry less attractive. This could negatively impact consumer welfare over time.

- *Rivalry enhancing efficiencies*. These may benefit the integrating firm, inducing it to lower prices or otherwise improve its offer to end-customers (see paragraphs 28 to 35 below). This in turn would put downwards pressure on the prices set by Downco's rivals.

Customer foreclosure

22. Customer foreclosure can occur where an upstream supplier integrates with an important customer in the downstream market. There are two types of customer foreclosure: (i) 'total' customer foreclosure, where the vertically integrated firm stops purchasing products or inputs from rival upstream suppliers; and (ii) 'partial' customer foreclosure, where the vertically integrated firm purchases inputs from an upstream rival at a lower price (that is, it reduces the upstream rival's revenues) or degrades the terms (increases the price or degrades the quality) at which it sells to final consumers the products incorporating the inputs supplied from the upstream rival – for example, by making it harder for customers to purchase or consume the product.[10] The theory of customer foreclosure is illustrated by the following diagram.

Diagram 2: Customer Foreclosure



Source: Parker and Majumdar (2016)

23. When an upstream firm ("Upco") merges with a downstream firm ("Downco"), customer foreclosure could occur in the following manner:

   (a) Downco substantially reduces or suspends purchases from Upco's rivals.

[10] We note that some authorities may not use the term 'foreclosure' to describe what is here defined as a 'partial customer foreclosure' theory of harm.

(b) As a result, Upco's rivals' revenues decrease. They may be excluded from the market, if no longer able to cover their fixed costs, or may no longer benefit from economies of scale and therefore face higher costs. Upco's rivals, therefore, become weaker constraints on Upco.

(c) Downco's rivals, in turn, may face higher input costs, as a result of the weakened competition in the upstream market.

(d) The final price faced by consumers depends on whether these cost-rising effects are compensated by merger efficiencies, in particular whether Upco can supply Downco more cheaply than its current suppliers. If the cost-raising effect dominates, so that downstream prices increase (in aggregate), then the outcome is 'anti-competitive'.[11] In particular, for customer foreclosure to lead to consumer harm, it is not necessary for the merged entity's rivals (either upstream or downstream) to exit the market.

24. The potential for customer foreclosure can be assessed using the same framework as with input foreclosure: ability, incentive, effect.

Ability to foreclose

25. When assessing the ability to foreclose, a number of considerations may be relevant:

- *Pre-merger purchasing patterns.* Where Downco does not (and is not expected to) purchase from Upco's rivals prior to the merger, customer foreclosure is unlikely to arise.

- *Downstream market power*. How important a customer Downco is to Upco's rivals and the strength and nature of possible alternative sales channels through which Upco's rivals can sell.

- *Economies of scale and scope in upstream firms.* If Upco's rivals are characterised by economies of scale and scope (or need minimum efficient scale), they may be more susceptible to successful customer foreclosure strategies.

- *Different uses of the input.* Where the upstream input can be used in other markets, this may decrease the likelihood of a customer foreclosure strategy being successful, as Upco's rivals can more easily find alternative sales channels.

[11] Some jurisdictions look at efficiencies as a part of the theory of harm, while others see it as one of other considerations to review.

- *New entry*. How easy or difficult it is for firms to enter the downstream market, as new entry makes it easier for Upco's rivals to find alternative sales channels.

- *Reactions by rivals.* Upco's rivals may have credible strategies to protect themselves from a customer foreclosure strategy, including the ability to sponsor entry in the downstream market.

- *Nature of contracts.* The length (and strength) of supply contracts may protect Upco's rivals from customer foreclosure strategies.

- *Regulation in the downstream market.* There may be regulation which prevents or limits the extent to which the merged company can pursue a foreclosure strategy.

Incentive to foreclose

26. Turning to the incentive to foreclose, the following factors may be considered:

- *Loss of sales in the downstream market.* Customer foreclosure involves giving up some downstream profit (from selling rivals' products) to gain upstream profit. The greater the diversion away from the downstream firm (Downco) in a customer foreclosure scenario, the more downstream profit is harmed by refusing to purchase products from rivals.

- *Gain of sales in the upstream market.* In situations where the concern is that Downco would increase the selling price of products made by Upco's rivals so as to divert its customers to Upco's products instead, the greater the diversion in the downstream market to Upco's inputs, the greater the scope for profitable foreclosure.

- *Upstream and downstream margins.* All else equal, higher downstream margins relative to upstream margins make customer foreclosure less likely to be profitable.

- *Efficiency of upstream suppliers.* Customer foreclosure may be less profitable where Upco is less efficient than its rivals.

- *Capacity constraints.* Unused low-cost capacity upstream can provide a powerful incentive to customer foreclosure. Conversely, customer foreclosure may be less profitable where the merged entity is capacity constrained, so that it cannot take full advantage of the weaker competitive constraints in the upstream and downstream markets.

- *Product differentiation.* Customer foreclosure may be less profitable where there is important differentiation in the inputs supplied by the upstream market.

Effect on end-customers

27. The issues to consider in relation to the foreclosure strategy's effect on competition are as follows:

    - *Dynamic effects.* A successful customer foreclosure strategy may reduce the scope for rivals to operate efficiently, increase barriers to entry or make it less attractive for upstream rivals to invest in research and development. This could negatively impact consumer welfare over time.

    - *Rivalry enhancing efficiencies.* The merger may generate efficiencies, inducing lower prices in the downstream market (see paragraphs 28 to 35 below).

Efficiencies

28. Vertical mergers may induce a number of efficiencies such as internalisation of double mark-ups, reduced costs of transactions, and improved information flow and co-ordination.[12] This section considers some of the main types of efficiencies that a vertical merger can lead to.

Double marginalisation/pricing efficiencies

29. In a vertical relationship, there is a misalignment of incentives between firms active at different levels of the supply chain. A good example in this respect is the problem of double marginalization. For example, if a manufacturer of a product, in order to extract its profits, charges prices above marginal cost to its retailer and the latter subsequently behaves similarly by charging prices above marginal cost to the final consumer, the product is marked up above marginal costs twice. A vertical merger allows the merged entity to internalise any pre-existing double mark-ups arising as a result of independent price setting prior to the merger.

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[12] It should be noted that some of these efficiencies could be realised without a vertical merger but by some other vertical restraint.

Improved coordination between upstream and downstream

30. Vertical integration can address the problems that arise from the existence of incomplete contracts. An incomplete contract is a contract between parties that cannot address all possible contingencies that can arise during the lifetime of this contract. A contract can cover issues such as price, quality, delivery, quantity, or product characteristics, but it is very costly and possibly not feasible to construct complete contracts. As a result of the incompleteness of the contract and the misalignment between the parties' incentives, either party may face opportunistic behaviour from the other, as shown in the examples in this section. Vertical mergers can reduce transaction costs and mitigate the adverse outcomes of incomplete contracts, leading to efficiency gains.[13]

Mitigation of the hold-up problem

31. A vertical merger can promote investment in specific assets by mitigating the hold-up problem, i.e. the incentive difficulty associated with investments in relationship-specific assets. The hold-up problem involves opportunistic behaviour by a buyer (aiming at a lower price) or seller (aiming at a higher price) who attempt to renegotiate the terms of trade after investment in the asset. For instance, a buyer may have agreed to pay the retailer's average total cost pre-investment but, post-investment, the seller will also be just willing to supply even if it receives only its average variable costs if its capital costs are sunk. Anticipating that the buyer may take advantage of the change in the seller's incentives post investment, the seller will be reluctant to make the required investment. If the transaction costs associated with eliminating the risk of hold-up through private contracts are too large, then an alternative is a vertical merger.

Elimination of free riding

32. "Free-riding" is defined as a situation in which an individual may be able to obtain the benefits of a good without contributing to the cost. In the absence of a vertical merger between a manufacturer and its retailer, the incentives for a manufacturer to invest in a retailer and its product are reduced because of potential free-riding by other manufacturers. Instances of free-riding that can be eliminated through a vertical merger include:

    (a) Free-riding by rivals on demand created through investments in product quality and promotion. In this case the investments by the manufacturer

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[13] On the other hand, coordination problems between merged firms may reduce the efficiencies realised in practice.

create demand for the product category, which its rivals benefit from. Yet, given that these manufacturers do not share the investment costs, they are able to offer their products at a lower price, providing financial inducements (such as higher margins) to retailers to divert customers.

(b) Free-riding by rivals on product innovation and design, which is possible when design and innovation are not completely protected by intellectual property rights.

(c) Free-riding by rivals on investments in retailers. A manufacturer will have less of an incentive to make investments in its retailer network if the benefits to those investments are not specific to it.

33. A vertical merger between manufacturer and retailer may eliminate the incentive to 'free-ride', as the retailer internalises the impact that its actions have on the manufacturer.

Other coordination efficiencies

34. A vertical merger more closely aligns the interests of a downstream firm with that of the upstream firm.[14] Investments by either firm that increase demand or quality will not take into account the benefit that the other derives when they are separate, but will be internalized post-merger.

35. Furthermore, vertical integration means that manufacturers can share information regarding market conditions and their promotional plans/activities with their downstream company and be less concerned that it will be leaked intentionally, or inadvertently, to a competing upstream company.

Remedies

36. This section outlines the broad types of remedies that are available where a merger is likely to give rise to vertical concerns. It should be noted that these types of remedies are not specific to vertical mergers, however, it is useful to set them out here to help in interpreting the survey results presented below.

37. Where it is considered likely that a merger will result in competition issues, this can potentially lead either to the prohibition of the merger, or to different types of remedies being agreed, accepted or imposed. The choice of remedy depends on the specific characteristics of each case. Among remedy types, a distinction can be drawn between structural and behavioural remedies.

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[14] There are several reasons why incentives can diverge between upstream and downstream firms. For example, differences in margins between the upstream and downstream firm can lead to disagreement on the optimal effort each firm should exert.

38. Structural remedies require the divestment of a business or assets from the merging parties to a market participant independent from the parties in order to restore the rivalry lost as a result of the merger.

39. Behavioural remedies regulate the conduct of parties following a merger on an ongoing basis and can be of two types:

    (a) Enabling measures which seek to remove obstacles to competition or to stimulate competition. In the context of vertical mergers, these include enabling competitors to have access to the products and facilities of a merged entity; or putting in place firewalls restricting access to confidential information generated by competitors' use of the merged companies' facilities or products; and

    (b) Controlling or restricting the outcomes that otherwise would result from business processes in order to minimise the adverse effects expected from a merger e.g. price caps.

SURVEY RESULTS

Introduction to the survey

40. In this section, we move beyond the economic theory underlying vertical mergers to the results of a recent survey of member agencies about how vertical merger assessment is carried out in practice.

41. This survey was sent to member agencies in December 2017 and included a number of questions aimed at exploring:

    (a) Any legal limitations on undertaking investigations in to vertical mergers;

    (b) Available guidelines and their content;

    (c) How vertical mergers are assessed e.g. the theories of harm that are applied and the evidence and techniques used; and

    (d) The prevalence of vertical mergers compared to horizontal mergers.

42. Importantly, the survey also asked member agencies to provide case studies to illustrate how vertical mergers are carried out in practice.

43. Responses were received from 43 agencies, with an overall response rate of 62%. This provided a rich data set from which the following results have been drawn.

44. This section considers in turn:

(a) NCAs' ability to assess vertical mergers, the existence of safe harbours, and whether NCAs' merger guidelines include the assessment of vertical mergers;

(b) How vertical merger assessments are carried out, including the most common types of vertical theories of harm and frameworks of analysis, the types of evidence and the quantitative techniques used for the assessment;

(c) The importance of vertical mergers assessment, including the priority given to vertical theories of harms, the frequency with which vertical concerns are found and industries which more often raise vertical concerns;

(d) The types of remedies considered in relation to vertical mergers; and

(e) Experience of international cooperation in relation to vertical mergers.

Ability to assess vertical mergers

Ability to review

45. All NCAs responding to the survey told us that legislation does not impose a limitation to their ability to review vertical mergers or that the same limitations apply for all mergers (i.e. both horizontal and non-horizontal).

46. However, jurisdictions do differ in the market share and/or turnover tests that need to be met for a merger to be considered for detailed scrutiny. In principle, these threshold tests could be considered to limit the ability of some NCAs to review vertical mergers. For example, in the case of a purely vertical merger (in which there was no horizontal overlap between the merging parties), NCAs would be unable to assert jurisdiction on the basis of a market share test.[15] In practice, however, such limitations appear to be nugatory because many jurisdictions only require mergers to meet one threshold i.e. market share or turnover.[16].

Safe harbours

47. While NCAs have few limitations on their ability to review vertical mergers, most authorities follow guidelines featuring structural presumptions to identify vertical mergers that are unlikely to generate any competition concerns. Of

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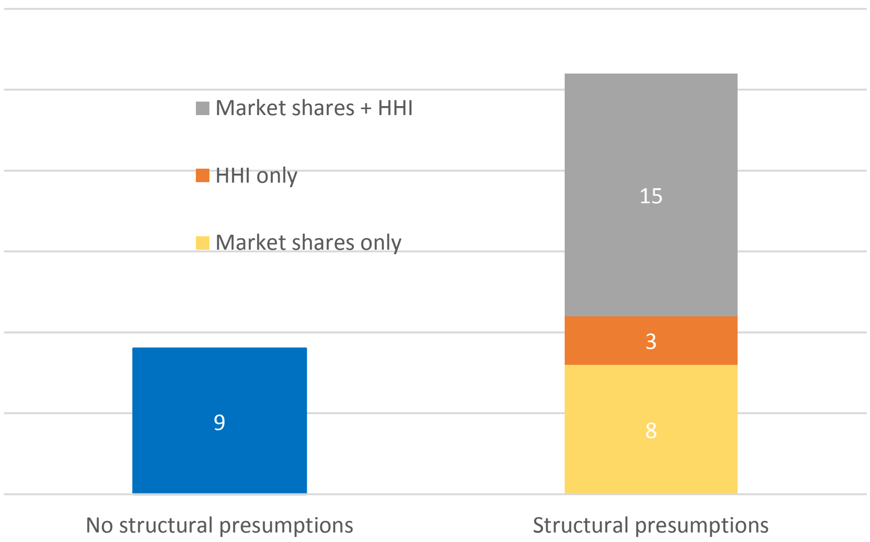
[15] That is, there would be no increment to market share as a result of the merger.

[16] This is the case for example in Portugal, Taiwan and the UK.

the 35 NCAs responding to question 10 of the survey, only 9 do not have structural presumptions.

48. Among the other NCAs, thresholds are often based on a combination of market shares and the Herfindahl-Hirschman Index (HHI) (see Footnote 30 for a definition of HHI). For these NCAs, vertical mergers are usually considered unlikely to give rise to concerns if the merging parties' market shares are below 25-30% in both the upstream and the downstream markets and/or for values of HHI below threshold ranging between 1,000 and 2,500.

Figure 1: Frequency and types of 'safe harbours'

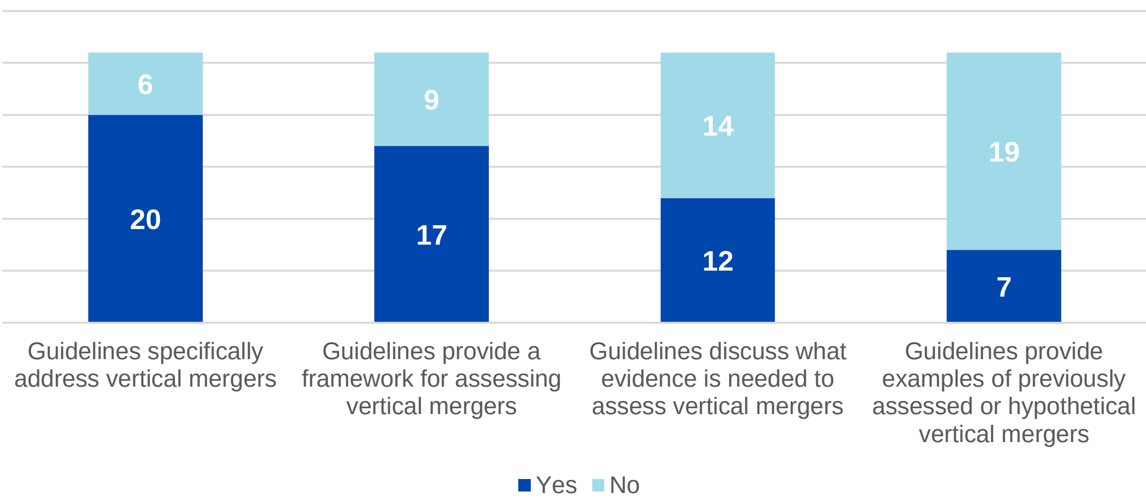


Guidelines

49. The majority of the NCAs responding to the survey have published their own mergers guidelines, 26 out of 43.[17] Further, as shown in Figure 2, where mergers guidelines are available, most of these guidelines will specifically address vertical mergers (20 out of 26). However, there are big differences in the level of detail provided on how to assess vertical mergers. It is common to include a framework for analysis (17 out of 20 do this) but it is less common to discuss what evidence is needed to assess vertical mergers (12 out of 20 do this) and much less common to provide examples of previously assessed or hypothetical vertical mergers (7 out of 20 do this)

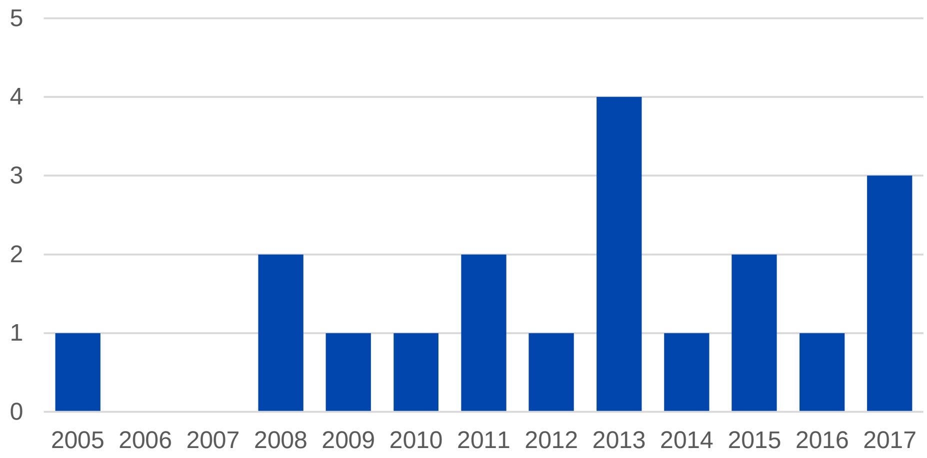
[17] Several European NCAs refer to the guidelines published by the European Commission. Figure 1 includes all agencies who responded by saying that they follow the EC guidelines. Note that the Federal Trade Commission and Department of Justice adopt common guidelines.

Figure 2: Guidelines frameworks



50. The survey also asked NCAs when they had most recently updated their vertical merger guidelines. Figure 3, below, shows the year in which this occurred for 19 of the 20 guidelines specifically addressing vertical mergers.[18] The results indicate a relatively stable number of updates per year.

Figure 3: Year when vertical merger guidelines were last updated



Assessment of vertical mergers

51. This section of the report summarises what survey respondents told us in relation to how vertical mergers are assessed. NCAs have been asked about the theories of harm they commonly consider when assessing vertical mergers, the framework adopted in the assessment, the way efficiencies are

[18] The non-horizontal Guidelines of the DoJ (USA) have not been updated since 1984.

taken into account, the type of evidence gathered and the quantitative methods of analysis used.

Common theories of harm

52. As outlined in paragraphs 16 to 27, above, a vertical merger may reduce competition if the merged entity engages in:

    (a) input foreclosure, i.e. the foreclosure of the merged firm's downstream competitors, or

    (b) customer foreclosure, i.e. the foreclosure of the merged firm's upstream competitors.

53. Of the 40 NCAs responding to Question 7 in the survey, all 40 consider input foreclosure as a possible theory of harm when assessing vertical mergers, while 39 consider customer foreclosure as a possible theory of harm.

54. Another theory of harm considered by NCAs in relation to vertical mergers is 'information sharing', in which competition is harmed as a result of the vertical entity having access to competitively sensitive confidential information about downstream or upstream competitors.[19]

55. The following case studies provide examples of different vertical theories of harm commonly used by NCAs: input foreclosure, customer foreclosure (Case Study 1) and information sharing (Case Study 2).

Case study: input and customer foreclosure

56. Case Study 1 shows how both input and customer foreclosure were investigated by France's Autorité de la Concurrence in relation to a merger between companies active in the production and distribution of tyres.

Case Study 1: ALLOPNEUS/MICHELIN GROUP AND HÉVÉA – Autorité de la Concurrence (France)

On 30 June 2015, the French Competition Authority (FCA) cleared the acquisition of joint control of Allopneus by Michelin group and Hévéa.

Michelin is active in the upstream markets for tyre production and replacement while both Michelin and Allopneus are active in the downstream market for tyre distribution, offline and online respectively. In this case, the FCA found no

[19] There was no specific question about information sharing as a theory of harm, however, around 6 NCAs mentioned this theory of harm in their case studies.

anticompetitive vertical effects after it reviewed the capacity and the incentive of the merged entity to adopt an input or customer foreclosure strategy.

First, in order to set aside the risk of customer foreclosure, the FCA noted the necessity for distributors to adopt a multi-brand strategy - provided that a wide range of products is a determining factor in consumer’s choice - which prevents Allopneus from cutting its supply from Michelin’s competitors.

Second, regarding input foreclosure the FCA reviewed the likelihood of a strategy involving a full or partial supply cut. The FCA distinguished between online and offline tyre distribution.

In the offline tyre distribution markets, the implementation of an input foreclosure strategy was considered unlikely since Michelin’s distribution network was not wide enough to cover the sale of Michelin tyres that would have stopped being sold by its competitors. Moreover, the GUPPI test that was conducted resulted in a low carry-over rate between Michelin and Allopneus.

As regards the online tyre distribution markets, the FCA relied on a market test showing a certain degree of loyalty between consumers and the Michelin brand, making the latter a key player. Moreover, the FCA noted the unlikelihood of a refusal to supply considering the presence of numerous wholesalers offering an alternative to direct supply from the manufacturer. The FCA also underlined that not supplying the significant pure-players active in this market would not be profitable.

Case study: information sharing

57. The next case study, from the USA’s Federal Trade Commission, is an example of an information sharing theory of harm, in the context of a merger between a developer and suppliers of semiconductors and a leading manufacturer in the downstream market for fibre channel switches.

Case Study 2: BROADCOM/BROCADE – Federal Trade Commission (USA)

In 2017, the FTC imposed a firewall in the vertical merger of Broadcom and Brocade. Broadcom is a global developer and supplier of semiconductors and Brocade is the leading manufacturer of fibre channel switches, which are used to transfer data between servers and storage arrays in data centres. Brocade and Cisco are the only two competitors in the worldwide market for fibre channel switches, and Broadcom supplies both companies with ASICs to make fibre channel switches.

The FTC alleged that the vertical acquisition could harm worldwide competition in the fibre channel switch market because as Cisco’s supplier, Broadcom has extensive access to Cisco's competitively sensitive confidential information.

The FTC order requires Broadcom's business group, responsible for providing Cisco with fibre channel ASICs, to have separate facilities and a separate information technology system with security protocols that allow access only to authorized individuals.

58. When assessing input or customer foreclosure theories of harm, NCAs often distinguish between total and partial foreclosure. In some cases, different analytical techniques are specifically used for assessing total or partial foreclosure (see Paragraphs 16 and 22).

Case study: total and partial foreclosure

59. Case Study 3 provides an example of a case where the analysis clearly differentiated between total and partial foreclosure. The case, from Brazil's CADE, relates to the acquisition of Time Warner, a distributor of channels to pay-TV operators, by AT&T, owner of the pay-TV company Sky.

Case Study 3: AT&T/TIME WARNER - Administrative Council for Economic Defence – CADE (Brazil)

AT&T proposed to acquire Time Warner in October 2016. AT&T owns Sky, a pay-TV company in Brazil and Time Warner owns and distributes a series of channels to pay-TV operators, such as TNT, CNN, Cartoon Network, HBO and Esporte Interativo, a growing Brazilian sports channel. The merger would then result in a vertically integrated company, since Time Warner provides channels to Sky and to other TV operators.

CADE found that the resulting company would have the ability and incentive to foreclose both the upstream and the downstream market. Regarding input foreclosure, CADE found that although Time Warner's market shares were not extremely high for some genres, its channels and packages were very important for the TV operators and it would be hard for them to compete without these channels. CADE also found that a complete foreclosure would be unlikely since the channels' revenue is a factor of the number of subscribers they have. However, there was evidence that Time Warner could adopt a number of strategies to make its competitors worse off, such as raising prices and selling channels in bundles. CADE also found that such strategies had been used before by another company that was vertically integrated.

For customer foreclosure, CADE found that Sky was second in the pay-TV market, with 30% market share and was extremely important for channels to be distributed by it. Sky also had the incentive to completely foreclose the market, especially for smaller channels, since it would have, through Time Warner, a wide diversity of channels. Other strategies of partial foreclosure could also be used, such as changing its line-up, enhancing Time Warner's channels in Sky's programming and paying lower prices to third parties' channels. These kinds of strategies along with total foreclosure were also observed in the past by another company that was vertically integrated.

Finally, CADE found that the merger could increase the probability of collusion between the new company and the other company that was vertically integrated (Globo/Claro), since it would make them more symmetrical and allows the flow of information between the parties involved.

The parties proposed behavioural remedies, which included mechanisms of transparency, a Chinese wall and the possibility of arbitration in case a third party felt harmed. The merger was approved in 2017 with these remedies.

Framework for analysis

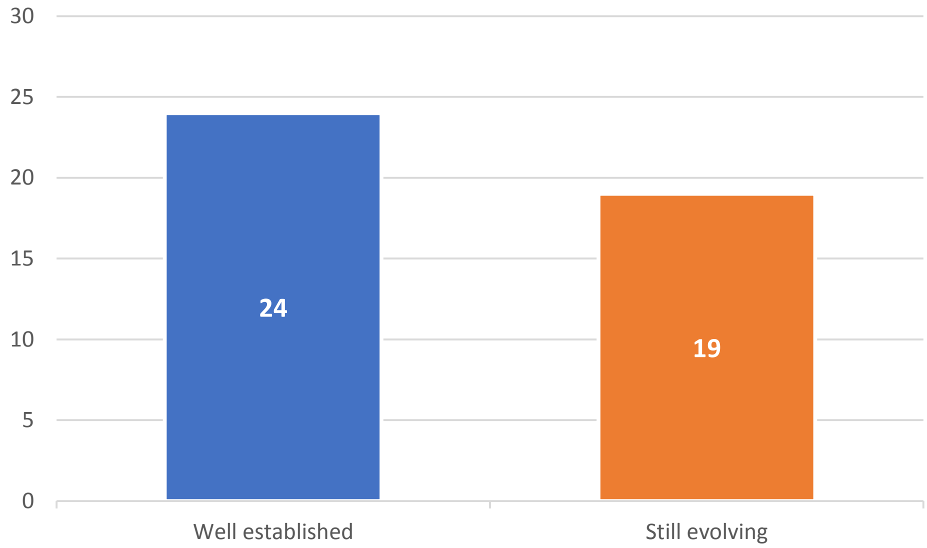
60. 38 out of 40 NCAs responding to question 9 of the survey said that they use an ability, incentive and effect framework when assessing foreclosure theories of harm. One further NCA explained that, although its guidelines do not specifically feature an ability, incentive and effect framework, in practice these are considered when reviewing transactions.

61. The ability, incentive and effect framework was adopted in most of the case studies in this report.[20]

62. Finally, the majority of the NCAs responding to the questionnaire follow a fairly well-established approach to the assessment of vertical mergers (see Figure 4: NCAs with well-established or still evolving approaches to assessing vertical mergers), although a number noted an ongoing process of improvement and refinement.

[20] See Case Studies 6,7,11 and 13 for particularly clear examples.

Figure 4: NCAs with well-established or still evolving approaches to assessing vertical mergers



Efficiencies

63. As briefly explained in paragraphs 28 to 35, above, vertical mergers can give rise to efficiencies, such as the elimination of double marginalisation or improved coordination between upstream and downstream firms, that may in some cases outweigh any lessening of competition resulting from the merger. Of the 40 NCAs responding to question 13 of the survey, only 3 stated that they do not consider efficiencies as part of their assessment of vertical mergers.[21]

64. One NCA noted that, while efficiencies are often important in horizontal mergers, they are much more intrinsic to a vertical transaction due to the cost-reducing effects of most vertical mergers. While such effects are not necessarily large, they render the starting point of the analysis of vertical mergers more challenging than horizontal mergers.

65. Several NCAs explained that, while they take efficiencies into account, the onus is on the merging parties to demonstrate that they are likely to occur and that are going to benefit consumers.

66. The types of efficiencies taken into account include the removal of double marginalisation, cost reductions, reduction of transaction costs and better organisation of production processes, solution of hold-up and coordination

[21] Other 3 NCAs stated that they do not. However, their answers make it clear that efficiencies would be taken into account if relevant to the case. We cannot exclude that this is the case also for the 3 NCAs whose answer to question 13 was an unqualified 'no'.

problems or of other types of market imperfections. In order to be considered in the assessment of a vertical merger, efficiencies must be merger-specific, verifiable, and must benefit consumers. Some NCAs also specifically told us that the timeliness of the efficiencies is an important consideration.

67. One NCA explained that, when a merger is cleared based on evidence of efficiencies,, the Parties must commit to transferring the realised benefits to consumers. In these cases, mergers are cleared with the condition that parties follow through on their commitments.

68. In practice, NCAs have indicated that evidence of efficiencies is mainly qualitative in nature, but quantitative evidence is also used in some cases. One NCA explained that it takes into account quantitative evidence on the elimination of double marginalisation either through vGUPPI (for purely vertical mergers) or through UPP (for horizontal mergers with vertical aspects).

69. For an example of a case where the potential efficiencies arising from a vertical merger were taken into consideration see Case Study 4, below.

Evidence used for assessment

70. In the assessment of vertical mergers, and of foreclosure theories specifically, NCAs make use of multiple pieces of evidence. The types of evidence used depend on the theory of harm considered, the specific features of a case, and the availability of data. Figure 5 and Figure 6 show the number of survey respondents making use of five of the most commonly used pieces of evidence for the assessment of input and customer foreclosure theories of harm.

Figure 5: Evidence gathered to assess input foreclosure

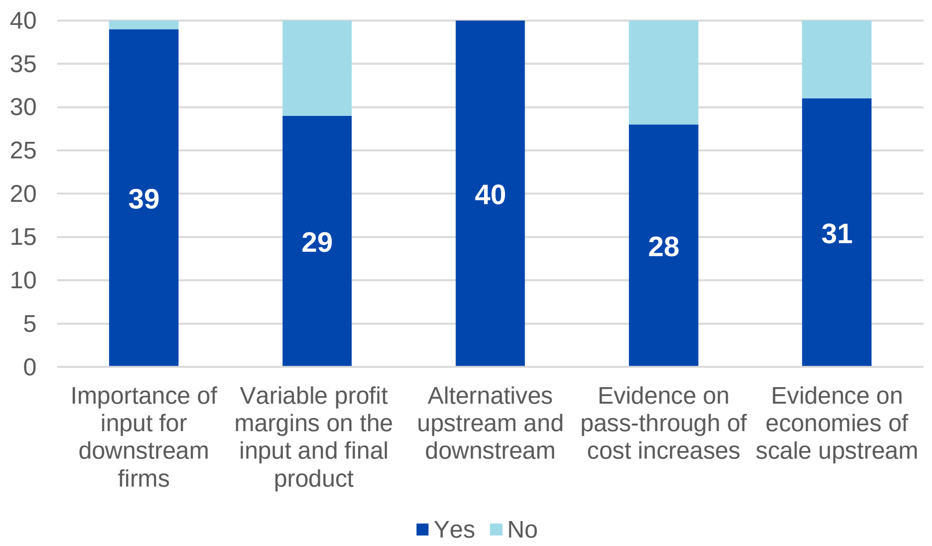
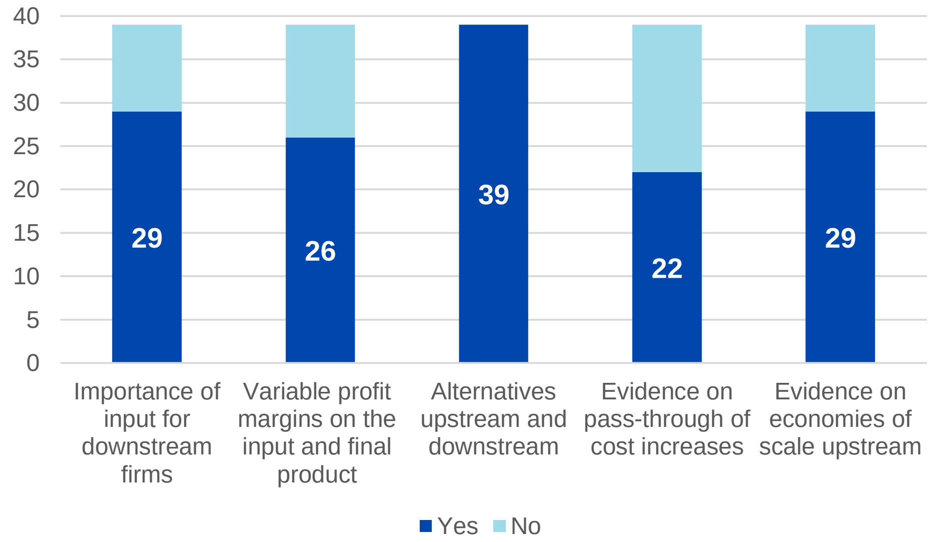


Figure 6: Evidence gathered to assess customer foreclosure



71. NCAs indicated a large number of additional pieces of evidence that may be used in the assessment of vertical mergers. Some are common to both input and customer foreclosure theories and include evidence on capacity constraints, diversion, market shares, barriers to switching, buyer power and the ability for targeted rivals to adopt counterstrategies. Internal strategic documents are also an important source of evidence. Moreover, in some markets, market regulations play an important role.

72. Other pieces of evidence have been mentioned only in relation to input foreclosure. They include evidence on entry barriers upstream and on the must-have nature of the input supplied by the upstream party. Finally, elements relevant for the assessment of customer foreclosure include evidence on barriers to entry in the downstream market and the importance of the downstream party as a customer.

73. Case Study 4 provides an example of a case in which economies of scale upstream were explicitly taken into consideration in the analysis. Case Study 5 shows a case in which existing regulations, and their limitations, were important in the assessment of the ability to foreclose.

Case study: Economies of scale

74. Case Study 4 presents the investigation by the Finnish Competition and Consumer Authority of the merger between companies active at the wholesale and retail level in the grocery sector.

Case Study 4: SOK/STOCKMANN DELICATESSEN – Finnish Competition and Consumer Authority

On 5 December 2017, the FCCA conditionally cleared the acquisition of Stockmann Group's Delicatessen business by Suomen Osuuskauppojen Keskuskunta, SOK (The Central Finnish Cooperative Society), HOK-Elanto Liiketoiminta Oy, Pirkanmaan Osuuskauppa, Turun Osuuskauppa and Meira Nova Oy (S-Herkkukeittiö Oy). SOK is part of S Group (the other major group being K Group). The parties to the merger are active on both the retail and wholesale markets of the grocery sector.

Products sold at Stockmann Delicatessen stores are purchased through Tuko Logistics Cooperative (Tuko). Tuko is owned by Stockmann Group, Wihuri and Heinon Tukku. In practice, Tuko is the only alternative and independent wholesaler within the purchasing market of the grocery sector offering an alternative to other wholesalers SOK and Kesko Food (part of K Group). As a result of the merger, the purchasing market of the grocery sector would consolidate even further, while strengthening the positions of the market leader SOK on the purchasing market of groceries. According to the FCCA, the removal of Stockmann Delicatessen's purchase volume from Tuko would lead to the weakening of Tuko's purchase terms and economies of scale with an impact on the competitive position of other owners of Tuko, i.e. Wihuri and Heinon Tukku. The weakening of small competitors would contribute to further strengthening of S Group in particular and partly K Group as well on the retail grocery market.

To eliminate the competitive concerns resulting from the merger, SOK, HOK-Elanto, Pirkanmaan Osuuskauppa, Turun Osuuskauppa and S-Herkkukeittiö Oy committed themselves to continuing to make the purchases for Stockmann Delicatessen from Tuko until 31 December 2018. According to the FCCA, the commitments would guarantee that the market structure of the procurement market for the grocery sector is retained at a level corresponding with the prevailing competitive situation.

Case study: ability to foreclose

75. Case Study 5 summarises the investigation, undertaken by the Australian Competition and Consumer Commission, of the acquisition of a long-term lease to operate an automotive terminal at the port of Melbourne by MIRRAT, an automotive shipping line.

Case Study 5: MIRRAT/WDW TERMINAL – Australian Competition and Consumer Commission

On 27 March 2014, the ACCC decided it would not oppose the proposed acquisition by Melbourne International RoRo & Auto Terminal Pty Ltd (MIRRAT) of a long-term lease to operate the Webb Dock West automotive terminal at the Port of Melbourne (WDW Terminal), subject to a section 87B undertaking.

The Port of Melbourne consists of several major docks, including the WDW Terminal. The Victorian Government announced a redevelopment project for the WDW Terminal with the successful bidder to be appointed the sole operator at the WDW Terminal. MIRRAT was the successful bidder.

Port of Melbourne Corporation (PoMC) is the port manager and owner of all land within the port boundaries, including the WDW Terminal. PoMC required the successful operator of the WDW Terminal to manage the terminal on a non-discriminatory basis with open access to all automotive shipping lines, stevedores, mooring service providers, Pre-Delivery Inspection service providers, car companies and other automotive terminal end users. The successful operator would be required to publish tariffs, terms and conditions of access and berthing priority rules as part of the open access regime.

The ACCC concluded that, in the absence of a remedy, MIRRAT would have an increased ability and incentive to discriminate against rival automotive shipping lines and other terminal users that MIRRAT may compete with in the future, and provide preferential treatment to its related entities in the market for the supply of automotive terminal services in the Melbourne region.

The project would result in the terminal operator of the WDW Terminal controlling a monopoly asset, which would give it market power in respect of that asset. MIRRAT's ultimate parent company (Wallenius Willhelmsen Logistics AS of Norway) is a full service global automotive shipping and logistics provider which provides shipping services into and out of the Port of Melbourne.

The ACCC was concerned that the open access regime PoMC proposed was unlikely to be effective in preventing MIRRAT from engaging in vertical foreclosure behaviour because it would not be subject to independent oversight and enforcement. MIRRAT provided a court enforceable undertaking to address the ACCC's concerns.

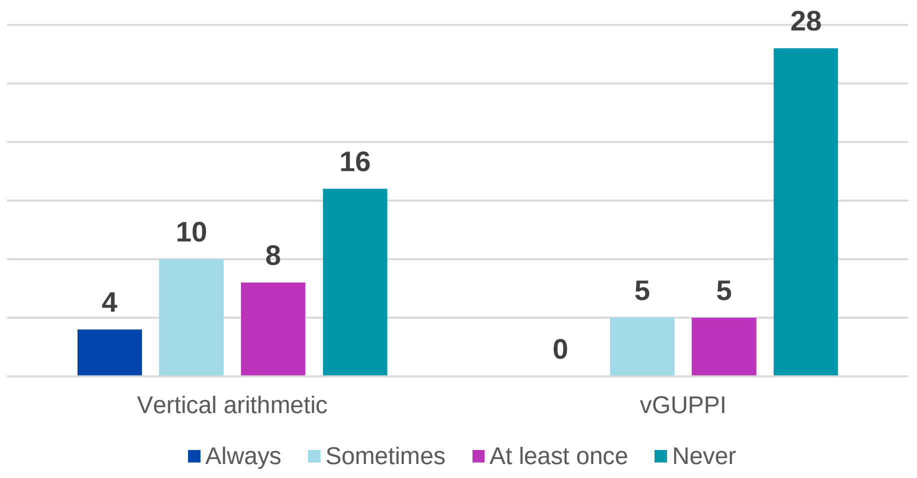
Application of quantitative methods

76. NCAs use a variety of quantitative methods of analysis when assessing vertical mergers. As shown in Figure 7, vertical arithmetic[22] has been used by

[22] Vertical arithmetic is used to compare the likely costs and the potential benefits of foreclosure for the merging parties, considering the relative margins of the merging firms, the magnitude of lost upstream sales resulting from the foreclosure, and the likely increase in the downstream merger partner's sales due to the foreclosure strategy.

22 out of 38 NCAs responding to question 12 of the survey. vGUPPI,[23] on the other hand, is infrequently used: 28 out of 38 NCAs have never used this technique. One NCA explained that they use vertical arithmetic and vGUPPI for assessing total foreclosure and partial foreclosure respectively (see Case Study 7).

Figure 7: Frequency of use of vertical arithmetic and vGUPPI



77. Other quantitative methods of analysis used by NCAs in relation to vertical mergers include vertical merger simulation, bargaining models, demand estimation, simulation of the profitability of price increases (similar to vGUPPI, but not in the form of an index), critical loss analysis,[24] and margin squeeze analysis.[25]

78. Case Studies 6,7 and 8 provide examples of investigations where the analysis made use of quantitative techniques like vertical GUPPI, vertical arithmetic and vertical merger simulation.

79. Case Study 6 shows how different quantitative techniques were used by Chile’s Fiscalía Nacional Económica in the context of the investigation of the merger between AT&T, owner of a multichannel video programming distributor, and Time Warner, one of the major content providers.

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[23] vGUPPI refers to the Vertical Gross Upward Pricing Pressure Index, which estimates the incentive of a merged firm to raise upstream prices. It measures the percentage value of diverted sales by balancing two main price effects resulting from a merger, which are (i) the pressure to increase prices following the loss of competition between the merged firms, and (ii) the pressure to lower prices as merger efficiencies reduce incremental costs.

[24] Critical loss analysis identifies for any given price increase the quantity in sales that can be lost before the price increase becomes unprofitable. If the actual loss is smaller (greater) than the critical loss, the price increase would be profitable (unprofitable).

[25] Margin squeeze analysis determines whether the margin between retail and access prices is sufficient to allow competition from efficient downstream rivals. It is mostly applied in the context of regulated network industries (eg telecommunications).

Case Study 6: AT&T/TIME WARNER – Fiscalía Nacional Económica (Chile)

In Chile, AT&T owns DirecTV, which is a multichannel video programming distributor and Time Warner operates through Turner and through HBO LAG, a joint-venture with a third party involved. Both entities are major content providers, which operate upstream of DirecTV.

The investigation of the FNE was focused on three theories of harm: input foreclosure, access to sensitive information and customer foreclosure.

The major concern in this merger was input foreclosure. Regarding the ability, the content provided by Time Warner was considered a "must have" by competitors and clients of the merging parts. The importance of this content was also documented in several marketing studies. To quantify the incentives, the FNE conducted two quantitative exercises. For assessing the partial input foreclosure, we used the vertical GUPPIs and for the total foreclosure we used the vertical arithmetic. Diversion and departures ratios were estimated using surveys contained in marketing studies used by third parties in the normal course of business. Both exercises showed that there were incentives to foreclose all rivals simultaneously. Finally, regarding the effects, it was found that the merger would increase the entry barriers downstream and would reduce the competitive pressure downstream, resulting in higher prices for final consumers.

After expressing concerns to the merging parties, they offered remedies. The remedies that were finally accepted, consisted of the incorporation of confidentiality clauses in the contracts and in the negotiations with rivals (to mitigate the risk of access to confidential information), and an obligation to negotiate in non-discriminatory terms and to offer an arbitration mechanism to the competitors of DirecTV, for cases in which such negotiations were not reaching agreement (to mitigate the risk of input foreclosure).

80. The next case study shows how sophisticated quantitative techniques were used by Canada's Competition Bureau for the assessment of the mergers between the largest distributor and one of the major retailers of pharmaceutical products.

Case Study 7: MCKESSON/KATZ GROUP – Competition Bureau (Canada)

Katz Group, the downstream firm, owns and operates a chain of corporate retail pharmacies called Rexall, among the largest retailers of pharmaceutical products in Canada. McKesson Corporation ("McKesson") is the largest distributor of pharmaceutical products in Canada, and is the primary distributor of pharmaceutical products to many of Canada's largest and most recognized pharmacy retail chains, including Rexall. Apart from the acquisition of the Rexall retail pharmacy chain, McKesson did not own or operate any retail pharmacies in Canada, but did provide "banner" or franchise services to independent pharmacists who chose to operate under one of McKesson's own retail banners.

McKesson's post-merger profitability would be determined by the sum of the profits from its wholesale business and its newly acquired retail business, thus altering the strategic incentives through the interaction of the upstream and downstream businesses by:

- Providing McKesson an incentive to use its wholesale division to weaken the non-Rexall pharmacies it supplied, thereby driving diversion to Rexall, where it would earn both a wholesale and a retail margin;
- Providing double marginalization efficiencies whereby post-merger McKesson would be able to extract the full profit from any reductions in wholesale prices or improvements in service quality to Rexall pharmacies; and
- Providing Rexall an incentive post-merger to compete less aggressively in the retail market, as a portion of the customers that it loses would be diverted to pharmacies supplied by McKesson. The latter would then earn a wholesale margin on those diverted sales.

Effects were calculated using a first order vGUPPI analysis in the local retail markets and an asymmetric Nash bargaining model for the effects on prices negotiated between the upstream and downstream markets. Price effects were determined using a vertical merger simulation model.

Using the above analysis, the Bureau found:

- McKesson was likely to have an incentive to disadvantage Rexall's retail rivals by supplying them under less favourable terms, conditions, or service quality;
- Rexall was likely to have an incentive to compete less aggressively on these products at retail; and
- Wholesale competition from other pharmaceutical distributors, and retail competition from pharmacies supplied by a wholesaler other than McKesson, were unlikely to effectively constrain McKesson's ability to profitably act on these incentives.

81. The final case study in this section shows how vGUPPI analysis was applied in a case in the UK.

Case Study 8: TESCO/BOOKER – Competition and Markets Authority (UK)

In 2017, the CMA cleared a transaction where Tesco, primarily a groceries retailer, was expected to acquire Booker, primarily a groceries wholesaler. The analysis considered overlaps relating to more than 12,000 stores supplied by Booker which faced competition from at least one Tesco-owned or Tesco-supplied store (ie One Stop branded stores) in the relevant local area. The large majority of stores supplied by Booker were convenience stores.

Two categories of vertical foreclosure were considered. In the first category, the CMA considered the post-merger incentive for Tesco to raise retail prices (or otherwise compete less aggressively) because some sales lost by Tesco would 'divert' to retailers that are supplied by Booker, meaning at least some of the margin would be recaptured by the merged company. Some lost sales would also 'leak' to other wholesalers since retailers supplied by Booker also use other wholesalers, as well as to retailers not supplied by Booker.

In the second category, the CMA considered the post-merger incentive of Booker to raise wholesale prices (or otherwise compete less aggressively) because, by worsening its wholesale offer, Booker may induce downstream retailers to worsen their retail offering, resulting in Tesco winning some additional customers and profits (albeit at the cost of some independent retailers switching to alternative wholesalers).

For retail diversion, the CMA considered a range of evidence on the competitive constraints on convenience stores, particularly the importance of distance and fascia. The CMA modelled diversion ratios using a 'weighted share of shops' methodology. Specifically, the CMA applied weightings to each competitor store depending on their geographic distance from the analysed store as well as the degree to which the competitor's fascia competed closely with that of the analysed store. The CMA found the results were not sensitive to using an alternative assumption, where sales would divert evenly between all operators or fascia within the geographic area (independent of the location or number of shops they have).

In addition to evidence from the vGUPPI, the CMA also considered evidence on the strength of local wholesale and retail competition from survey responses from nearly 500 retailers; internal documents and commercial data from the merging parties; views submitted by wholesalers, retailers and other third parties; and data on wholesale churn rates, wholesaler depot locations and competitors' catchment areas.

After considering the evidence, the CMA found that the anticipated acquisition may not be expected to result in a substantial lessening of competition.

The importance of vertical mergers assessment

82. Most NCAs told us that they had found vertical competition concerns in at least one case in the past three years. Further, most NCAs responding to the survey said that they give equal priority to horizontal and vertical theories of harm. However, although NCAs are not specifically constrained by law in their ability to review vertical mergers or by their prioritisation principles, much of their work focuses on the assessment of horizontal mergers rather than vertical mergers.

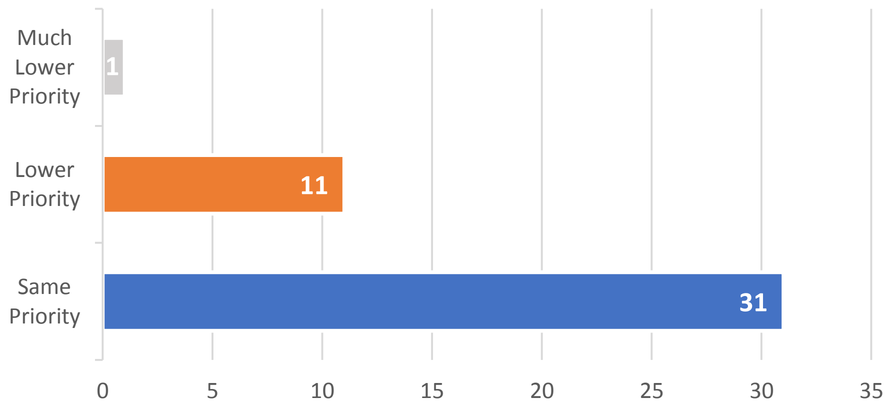
83. This is to be expected, as vertical mergers are generally less likely to be of concern when compared to horizontal mergers and in fact may have efficiency benefits e.g. the elimination of double mark-ups and incentive alignment. Vertical mergers are also less likely to impact on (or have a large impact on) market shares in any relevant market and hence may be protected by safe harbour thresholds. As a result, many NCAs have limited experience with vertical mergers and even the most experienced have found vertical concerns in (relatively) few mergers in the last three years.

Importance of vertical assessment relative to horizontal mergers

84. The majority of NCAs responding to the survey give the same priority to vertical and horizontal theories of harm (see Figure 8). However, there is a significant minority (11/43) that gives lower priority to vertical theories of harm and one NCA who gave them much lower priority relative to horizontal theories of harm.

85. There was no observable pattern in relation to the NCAs that chose to deprioritise vertical mergers.

Figure 8: Priority given to vertical theories of harm relative to horizontal theories of harm



Prevalence of vertical concerns

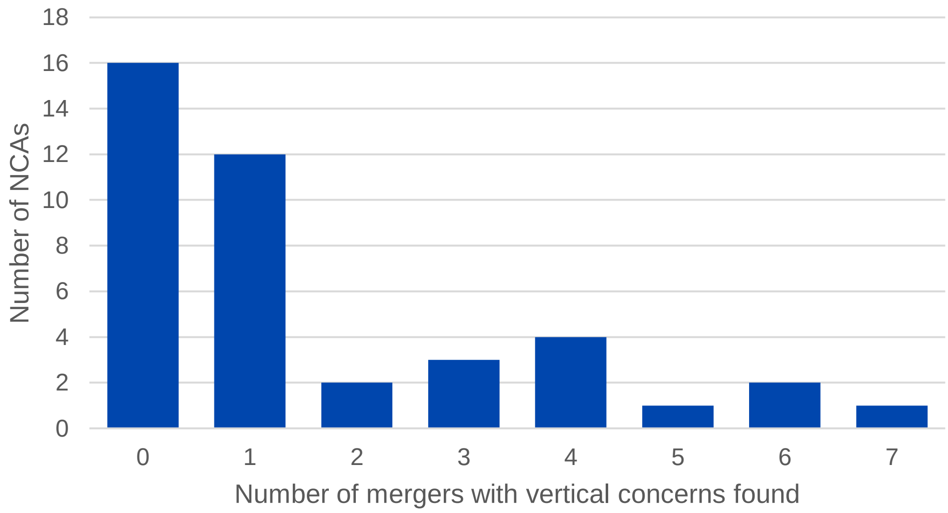
86. NCAs were asked:

(a) how many mergers in total across the last three years were not cleared without remedies and/or conditions (question 18); and

(b) of those, how many were not cleared without remedies and/or conditions as a result of a vertical concern (question 19).

87. It is interesting to note that most NCAs who responded to this question had found at least one vertical concern in the last three years (around 60%).

Figure 9: Mergers with vertical concerns found in the last three years



88. Based on the responses to our survey, vertical concerns were most likely to be found in Europe, Australia and South Africa.

89. However, overall vertical concerns are less likely to result in non-clearance than are horizontal concerns. This result is an intuitive one and the survey showed that in practice, across 38 NCAs, vertical concerns accounted for around 1 in 10 of the mergers that were not cleared without remedies or conditions.[26][27]

[26] This estimate, however, suffers from various limitations. Some respondents are likely to have interpreted question 18 as referring only to the cases which had been subject to an 'in-depth' investigation, rather than to all the cases not unconditionally cleared. Moreover, some responses had to be excluded from the analysis because of the extremely high number of cases reported to have not been unconditionally cleared, or because the numbers reported were higher for question 19 than for question 18. Finally, some NCAs could only provide data for the period 2014-2016, while most provided data covering the period 2015-2017.

[27] Note also that these may be cases where only vertical concerns were considered or cases with both vertical and horizontal concerns.

Industries where vertical concerns are greater

90. NCAs were asked whether they think there any industries in which vertical concerns are greater or seem to arise more often. While 13 NCAs do not think this is the case, others have mentioned several industries in which vertical concerns are more often encountered. The most commonly mentioned industries are energy (electricity, gas, fuel; 8 mentions), media and broadcasting (5 mentions), telecommunications (5 mentions), healthcare and pharmaceutical sectors (4 mentions) and food industries and agricultural sector (4 mentions).

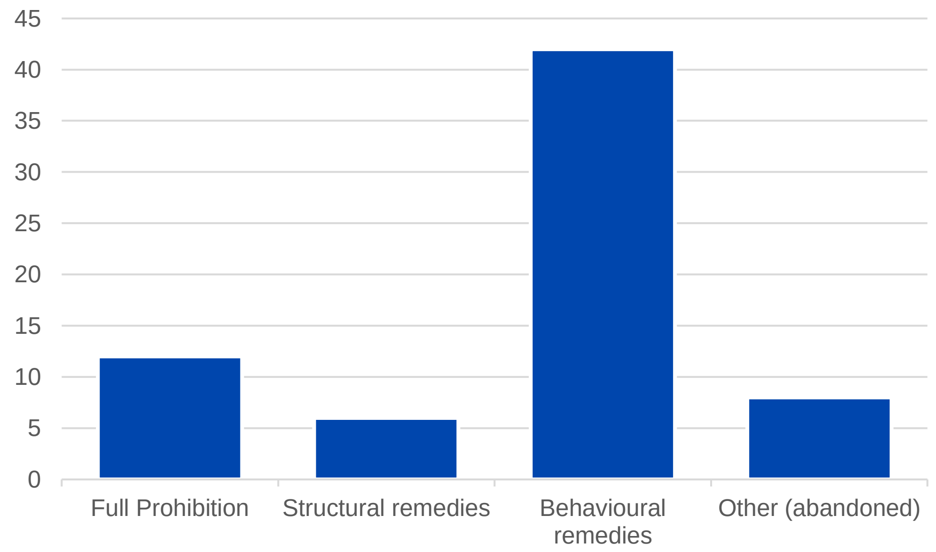
91. Two NCAs noted that vertical concerns arise more often in network industries (such as the energy and telecommunication industries mentioned above), which are characterized by higher concentration and/or by substantial network effects (including indirect network effects in multi-sided markets).

Remedies for mergers with vertical concerns

92. Having noted that the majority of authorities are likely to find at least some vertical concerns, this section examines the types of remedies that are typically applied in response to a vertical concern. The broad types of remedies are set out in the economic framework above.

93. When a merger is not unconditionally cleared as a result of vertical concerns, NCAs often impose behavioural remedies, as shown in Figure 10. Structural remedies are rarely required, and are sometimes accompanied by behavioural remedies. A significant minority of these mergers (20 out of 64 in the last three years) were either prohibited or abandoned.

Figure 10: Outcomes of mergers not unconditionally cleared as a result of vertical concern in the last three years



Note: The data provided by some NCAs covers the period 2014-2016 instead of 2015-2017.

94. The following case studies provide examples of vertical mergers in which NCAs imposed prohibition (Case Study 9), structural remedies (Case Study 10), behavioural remedies (Case Study 11) and a combination of structural and behavioural remedies (Case Study 12).

Case study: Prohibition

95. The first case study refers to the acquisition of terminal storage and distribution facilities for the supply of petroleum products by a company with interests in the marketing of the same products downstream. The investigation by the Barbados Fair Trade Commission lead to the prohibition of the merger.

Case Study 9: SOL/BNTCL – Barbados Fair Trading Commission

The proposed transaction involved the acquisition of the Barbados National Terminal Company Ltd (BNTCL) by BNTCL Holdings Limited (SOL). This translated to SOL assuming direct control and ownership of the storage and distribution facilities for the supply of petroleum products (i.e. auto fuels, heavy fuel oil, JetA1 fuel) from BNTCL, while maintaining commercial interests in the marketing of these petroleum products in downstream markets.

Pre-merger markets are concentrated at each level of the value chain. SOL is a dominant downstream player. BNTCL holds a monopoly in terminal storage and distribution. Vertical Arithmetic Method (Cost-Benefit Analysis) showed that (i) SOL has the ability to foreclose; (ii) SOL has the incentive to foreclose; and (iii) consumers are likely to be negatively affected post-merger.

Moreover, the provisions of the Sale and Purchase Agreement were inherently anticompetitive, as they included: (a) 15-year moratorium on new licenses and storage; (b) 32% increase in throughput fees. There was the possibility of exclusive importation rights granted to SOL. There were no real efficiencies.

On the basis of both input and customer foreclosure being likely, the Commission concluded that the transaction would have increased prices, reduced competition, reduced competitive options, and increase SOL's dominance downstream and SOL's influence upstream. Positive financial impact from US$100 million injection would not have outweighed the likely negative effects.

The Commission was of the view that the remedies proposed by the Parties did not adequately address the competitive threats that were highlighted. Specifically, the remedies anticipated the regulation of the throughput fees by the Commission (the regulation of throughput fees does not fall within the current mandate of the Commission). The Commission was also of the opinion that the remedies were vague; did not remove the competitive threats and consumer harm associated with the proposed transaction; were subject to interpretation; and could easily be evaded. The merger was therefore prohibited.

Note: The Commission's decision is currently under appeal.

Case study: divestment

96. Case Study 10 relates to the acquisition of a leading brand of nicotine replacement therapy products by a company already owning one of the largest manufacturers of nicotine patches. The investigation by the European Commission lead to a divestment remedy.

Case Study 10: Johnson & Johnson's/Pfizer consumer healthcare – European Commission

Johnson & Johnson's (J&J) subsidiary ALZA developed and manufactured nicotine patches and supplied those to several third parties, including GlaxoSmithKline (GSK), under exclusive long-term supply contracts. GSK marketed nicotine patches under its NiQuitin brand in Europe. On the upstream level, Pfizer's consumer healthcare business (PCH) supplied nicotine replacement therapy (NRT) products to the UK retailer Boots. PHC's business focus was, however, on the retail level, where it marketed under the Nicorette brand a range of NRT products, including patches.

As a result of the transaction, J&J would own a leading nicotine patch brand (PCH's Nicorette) and it would be the sole supplier of nicotine patches to its principal downstream competitor, GSK. The Commission considered that there was a risk of input foreclosure.

As regards the merged entity's ability to foreclose, the Commission found that there were no alternative suppliers from which GSK could source its NiQuitin patches, as its contract with ALZA was exclusive. In addition, only ALZA manufactured transparent nicotine patches and it had patent protection for those. Switching to only pink patches would have severely damaged GSK's NiQuitin brand. Moreover, while being contractually bound, J&J/ALZA would nevertheless have the ability to reduce the competitiveness of GSK's NiQuitin through various means, such as limiting or reducing supply, degrading quality, increasing costs of goods, or disrupting R&D.

The Commission found that J&J/ALZA would also have the incentive to engage into input foreclosure. PCH's Nicorette and GSK's NiQuitin were the two main nicotine patches marketed in the EEA, and most consumers if they no longer had access to the NiQuitin patch would switch to Nicorette. J&J's input foreclosure strategy would therefore directly benefit its new Nicorette business, by increasing sales of Nicorette patches.

Such input foreclosure strategy would have a direct impact on competition on the downstream markets for NRT products/nicotine patches, leading to reduced choice and increase prices for consumers across the board.

To eliminate the vertical concerns, J&J offered to divest ALZA's international nicotine patch business, which allowed the Commission to conditionally clear the transaction. The main assets to be transferred were the relevant supply agreements, trademarks, technology and, as an option for the purchaser, ALZA's nicotine patch production lines. In addition, J&J undertook to provide manufacturing capacities and technical assistance to the purchaser until the latter had become fully operational.

Case study: behavioural remedies

97. Case Study 11 is an example of behavioural remedies, used by Spain's Comisión Nacional de los Mercados y la Competencia to solve the competition concerns arising from the creation of a joint venture between publishing groups to carry out the wholesale distribution of periodical publications.

Case Study 11: DISTRIRUTAS/GELESA/LOGINTEGRAL – Comisión Nacional de los Mercados y la Competencia (Spain)

The merger involved the creation of a joint venture company (NEWCO) to carry out the periodical publications wholesale distribution carried out in the region of Madrid (Community of Madrid) by SIGLO XXI, DISTRIRUTAS; GELESA; and LOGINTEGRAL. These companies belong to major publishing groups that control and/or have non-controlling stakes in a large number of wholesale distributors of periodicals in Spain. In nearly all cases they share holdings in the same distributors.

The main risk was the possibility of exclusion or discriminatory treatment by NEWCO of newspapers from publishers not vertically integrated with wholesale distribution. Additionally, NEWCO would have the ability and incentives to reduce the margins of the points of sale and subject them to non-objective and discriminatory conditions, which could impair effective competition by leading to a smaller variety of points of sale for consumers.

In order to avoid the identified vertical problems, the parties to the merger offered remedies to solve them. Therefore, for a fixed period the publishers will be given the option of maintaining the previous distribution conditions, enough time so that the publisher can adapt and negotiate transparent, objective and non-discriminatory conditions with NEWCO. With respect to the points of sale, the remedy proposed was to distribute publications on transparent, objective and non-discriminatory terms, and the setting of the criteria for fixing those conditions (type of point of sale, location, sales, opening hours and days). This remedy was completed by giving points of sale the option of maintaining the current commercial and economic conditions, during a reasonably lengthy fixed period, that also served to give points of sale time to adapt and negotiate and determine the transparent, objective and non-discriminatory distribution conditions to be offered by NEWCO. In order to ensure the effective application of the commitments, an independent auditor was named.

Case study: structural and behavioural remedies

98. The next case study, from Botswana’s Competition Authority, shows the use of a combination of structural and behavioural remedies to address the concerns arising from a transaction that resulted in the common ownership of wholesalers and retailers of consumer electronics and home appliances.

Case Study 12: WARBLER HOLDINGS (PTY) LTD / BLUEHEARTS (PTY) LTD – Competition Authority (Botswana)

Warbler Holdings, the target enterprise, was a holding company for three companies operating as wholesalers of home and kitchen appliances, personal grooming products and consumer electronics; a fourth subsidiary provided logistics, warehousing and freight services to its associated companies. The vertical relationship arose from the fact that the promoter of the acquiring entity (Mr. Ramachandran Ottapathu) owned enterprises that retailed in consumer electronics and home appliances whilst the target entity was trading in the distribution of consumer electronics and home appliances.

The merger analysis showed that the merged entity would have an incentive to foreclose players in the downstream market post-merger in instances in which the merged entity was a sole distributor of the product and enjoyed a dominant position (Samsung branded consumer electronics), as other players in the upstream market could not be considered to be a viable option in the upstream market. It was realised that there would be limited or no competition in the market for the retailing of branded consumer electronics as the long-term effects of the merger could result in exiting of competitors (or brands) at the retail level should the merged entity engage in any foreclosure strategies.

The Authority concluded that the proposed transaction was likely to result in a substantial lessening of competition due to the vertical integration. Therefore, the Authority approved the transaction subject to conditions including:

- Bluehearts would continue to supply the same retailers that were previously supplied by Warbler Holdings on fair, reasonable and non-discriminatory terms; it would annually (for a period of 5 years) submit to the Authority a detailed report indicating a list of its new and old customers and the trading terms referred to above.

- Before implementation of the proposed transaction, Mr. Ramachandran Ottapathu was to divest his interests in a series of retailers. In addition, for a period of 5 years from the implementation date, Mr. Ottapathu should not directly or indirectly be associated with, interested or engaged in any firm, business, company or other association of persons which carries on a business activity similar to the business carried on by the divested companies.

Case study: sufficiency of behavioural remedies

99. Finally, Case Study 13 shows how behavioural remedies (proposed by the merging parties) may not be sufficient for eliminating concerns raised by vertical mergers. Japan's Fair Trade Commission considered that behavioural remedies would not have solved the competition concerns arising from a merger between a leading supplier of semiconductor equipment and the main supplier of tools used in the R&D of such equipment.

Case Study 13: KLA-TENCOR CORPORATION/LAM RESEARCH CORPORATION – Japan Fair Trade Commission

Lam Research Corporation (LAM), a leading supplier of semiconductor manufacturing equipment, intended to acquire KLA-Tencor Corporation (KLA), a leading supplier of metrology and inspection equipment. Lam and its competitors purchase KLA's metrology and inspection tools (KLA tools) for their R&D. KLA tools are considered as "Industry Standards" and essential for LAM and its competitors.

The JFTC was concerned about input foreclosure by the parties reducing LAM's competitors' timely access to KLA tools after the merger, pointing out that the parties have the ability and incentive to foreclose:

- Ability to Foreclose: KLA Tools are used by advanced semiconductors manufacturers as a "standard" in the industry. Suppliers of semiconductor manufacturing equipment have to present to the semiconductors manufacturers that their tools satisfy performance requirements based on the inspection results by KLA tools.

- Incentive to Foreclose: The main revenue of KLA comes from sales toward semiconductors manufacturers. Loss of sales by foreclosing LAM's competitors would not be a damage for the merging parties. Equal and timely access to the latest KLA tools is very important for suppliers of semiconductor manufacturing equipment for their R&D. Even a brief delay of weeks or months in the development of a process tool can be a damage for LAM's competitors.

To address this concern, the parties proposed a remedy that LAM's competitors would be provided with an opportunity to use KLA tools practically at the same timing when LAM would use them for a certain period of time. The JFTC concluded that the proposed remedy would not be enough to eliminate the concerns because of (i) the difficulties of monitoring the state of compliance with the proposed remedy; (ii) the difficulties of restoring competition if it is lost once by the foreclosure; and (iii) no prospects of solving the problem after a certain period of time. The parties abandoned their merger plans.

Ex-post evaluation

100. Only 4 of the NCAs responding to the survey have carried out ex-post evaluations, research or working papers in relation to vertical mergers; for two further NCAs, such research is ongoing.

101. Where remedies have been put in place to overcome potential competition issues resulting from a merger, some authorities have a duty to keep the post-merger outcome under review. This is the case for the CMA where ex-post

evaluations may lead to remedies being varied or revoked. Case Study 14 provides an example.

Case Study 14: ROUGH GAS STORAGE UNDERTAKINGS REVIEW – Competition and Markets Authority (UK)

The CMA recently reviewed undertakings from 2003 given by Centrica Storage Limited (CSL) and Centrica plc (Centrica) in relation to its acquisition of Dynergy Storage Limited and Dynergy Onshore Processing UK Limited, owners of the Rough gas storage facility. Rough is the largest gas storage facility in Great Britain and is used by market participants to store gas in the summer and to deliver gas to meet peak demand in the winter.

At the time of clearing the merger, in the interests of maintaining competition, Centrica and CSL were required to give undertakings to:

- Ensure non-discriminatory access to Rough for users;
- Restrict Centrica's access to capacity; and
- Legally, financially and physically separate CSL from Centrica.

As described in the CMA's research on past merger remedies, these behavioural remedies were effective. However, in 2016 the CMA found it necessary, due to the physical degradation of Rough, to vary these undertakings to introduce a mechanism to allow Ofgem (at the request of CSL) to adjust the capacity to be made available to third party users. In 2017 Centrica argued that further degradation had occurred which meant circumstances had changed such that the undertakings were no longer appropriate and should be revoked. The CMA conducted a new review and came to the conclusion that the age and degradation of the wells and other facilities at Rough meant it was no longer safe to be used as a storage facility, absent substantial and economically non-viable refurbishment. The parties were therefore released from their undertakings.

102. In addition to ex-post evaluations of previously assessed mergers with a vertical dimension, in 2014, the Japan Fair Trade Commission has undertaken a study of the use of behavioural remedies in foreign countries, looking at both horizontal and vertical mergers. The themes researched were in what cases behavioural remedies had been chosen, what kind of cases

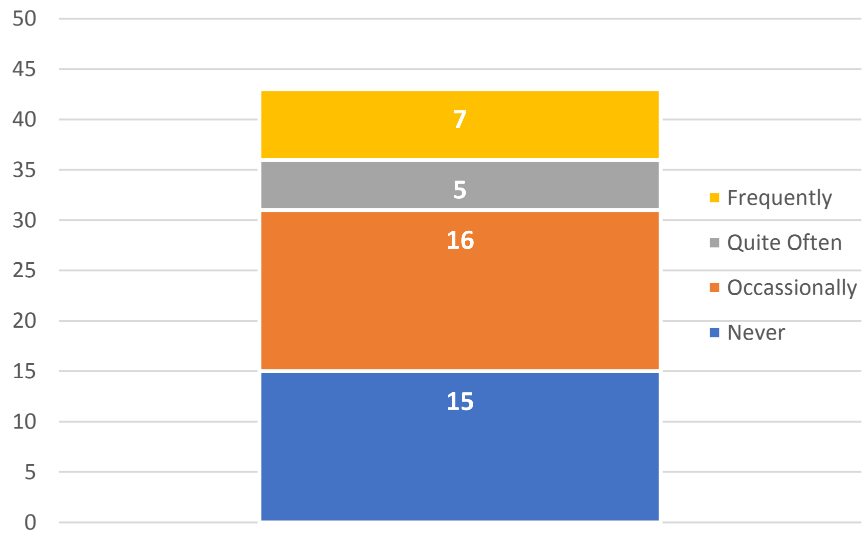
were appropriate for behavioural remedies, and what should be considered when a behavioural remedy is used.[28]

International cooperation

103. The responses to the survey indicate that the majority of NCAs have never or only occasionally cooperated with other competition agencies in the assessment of international mergers raising vertical theories of harm.

104. It is not possible to conclude from the responses received whether the reason for limited international cooperation relates to the vertical nature of the theories of harm or whether the frequency for international cooperation by these NCAs is different regarding horizontal mergers.

Figure 11: Prelevalence of international cooperation on vertical mergers



105. Most of the respondents did not identify particular challenges in cooperating with other NCAs on the review of vertical mergers.

106. Some of the challenges identified by some NCAs were:

(i) restrictions in exchange of information due to non-disclosure obligations (although waivers can be used to address this issue);

(ii) (differences in the circumstances and nature of the different national markets, as well as differences in the legal frameworks and procedures.

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[28] The study is available in Japanese at http://www.jftc.go.jp/cprc/reports/index.files/cr-0414.pdf.

107. These challenges are not substantially different from the challenges faced by NCAs when cooperating on international horizontal mergers.

108. The main difficulties identified by some NCAs that are specific to vertical mergers were:

(a) The use of different terminology to refer to vertical mergers. In particular, in some jurisdictions to the concept of vertical mergers includes both vertical and conglomerate mergers, while conglomerate mergers are beyond the reach of merger control in some jurisdictions;

(b) the challenges of international cooperation on remedies aimed at solving vertical competition concerns; and

(c) lack of materials setting out common guidelines or a framework for the assessment of vertical mergers that is valid across jurisdictions.

ANNEX

109. The CMA received responses from 43 NCAs (see Table 1, below) with the overall response rate being 62 per cent.

Table 1: NCAs responding to the survey

Europe		North America	Central and South America	Africa	Asia	Oceania
Belgium	Ireland	Barbados	Brazil	Botswana	Japan	Australia
Bulgaria	Italy	Canada	Chile	Mauritius	South Korea	New Zealand
Croatia	Netherlands	USA DoJ	Colombia	South Africa	Taiwan	
Cyprus	Norway	USA FTC	El Salvador	Zambia		
Czech Republic	Portugal		Mexico			
Denmark	Russia					
DG Comp	Serbia					
Estonia	Slovakia					
Finland	Spain					
France	Sweden					
Germany	Switzerland					
Greece	Turkey					
Hungary	United Kingdom					

110. A copy of the questionnaire is set out below.

ICN SURVEY

VERTICAL MERGERS

Please note that this survey asks about your experience of pure vertical mergers[29] and horizontal mergers with vertical aspects that lead to substantial vertical concerns (e.g. including a stand-alone vertical theory of harm and/or vertical aspects that were the subject of analysis in their own right). In some transactions, the distinction between vertical and conglomerate issues is not that clear. When answering this survey, it is better to include these cases if there is any uncertainty.

Throughout this survey the questions refer to certain technical terms. To ensure there is no confusion over the meaning of any term used in the survey we have provided a list of definitions (some of which refer to the economic theory piece accompanying this survey) in Annex A.

Contact details

1. Please state your name, e-mail address and the full name of your agency.

Agency name	
Contact person	
Contact email	

Law

2. Is there any limitation on your agency's ability to review vertical mergers?

   Yes/No

3. If so, please explain what are these limitations (e.g. if there are specific thresholds for the review of vertical transactions, what are these thresholds).

[29] Vertical mergers happen between an upstream supplier and a downstream customer which purchases the supplier's goods or services either as an input into its own production or for resale. By 'pure' vertical merger we mean where the merging parties only operate at different levels of the supply chain pre-merger.

Guidelines

4. Please provide a link to your Merger Guidelines (if available, in English), if you have them in place.

Link:	

5. If you have guidelines, do they specifically address vertical mergers?

Yes/No

(a) Do they provide a framework for assessing vertical mergers?

Yes/No

(b) Do they discuss what evidence is needed to assess vertical mergers?

Yes/No

(c) Do they provide examples of previous vertical mergers your agency assessed in the past or hypothetical examples?

Yes/No

6. When were your guidelines last updated?

Date:	

Assessment

Please answer the following questions, if your agency has experience assessing vertical mergers. Otherwise please skip to Question 14.

7. When assessing vertical mergers do you consider input foreclosure and/or customer foreclosure as possible theories of harm?

	Input foreclosure	**Customer foreclosure**

Yes/No		

8. Do you differentiate between total and partial foreclosure?

Yes/No

9. Do you use an ability, incentive and effect framework (in some form as described in the introductory think piece)?

Yes/No

(a) If not, briefly explain your agency's framework for assessing vertical mergers.

10. Do your guidelines feature any structural presumptions (e.g. based on market shares or HHI measures[30]) to identify vertical mergers that are unlikely to generate any competition concerns (i.e. safe harbours) or, conversely, vertical mergers for which competition concerns are presumed?

Yes/No

(a) If yes, briefly explain your agency's structural presumptions for vertical mergers.

11. What evidence do you gather to assess input and/or customer foreclosure (to the extent you assess these at all)? Please fill in the table below.

Evidence	**Input foreclosure**	**Customer foreclosure**

[30] The Herfindahl-Hirschman Index (HHI) is a measure of market concentration that takes into account of the differences in sizes of market participants, as well as their number. The HHI is calculated by adding together the squared values of the percentage market shares of all firms in the market.

	Yes/No	**Yes/No**
Importance of input for downstream firms (e.g. cost of input relative to cost of output)		
Variable profit margins on the input and final product		
Alternatives upstream and downstream (i.e. evidence on switching)		
Evidence on pass-through of cost increases		
Evidence on economies of scale upstream		
Any other (please specify)		

12. Please indicate how often you used in the past three years the following quantitative methods of analysis when assessing vertical mergers or horizontal mergers with substantial vertical concerns:

	Never	**At least once**	**Sometimes**	**Always**
Vertical arithmetic				
Vertical Gross Upward Pricing Pressure Index (VGUPPI)				
Anything else (please explain)				

13. Do you consider efficiencies as part of your assessment of vertical mergers?

Yes/No

(a) If yes, how do you take merger specific efficiencies into account when assessing vertical mergers?

Views

14. How do you prioritise vertical theories of harm relative to horizontal theories of harm?

	Same priority	**Lower priority**	**Much lower priority**	**Don't examine verticals**
Tick:				

15. Is your agency's approach to the assessment of vertical mergers fairly well established and fixed, or has it/ is it still evolving? Please explain.

16. Do you think there any industries in which vertical concerns are greater or seem to arise more often?

Statistics

17. How many mergers in total across the last three years did your agency undertake an 'in-depth' investigation?[31] This should include all mergers (i.e. horizontal), and any cases where behavioural remedies / a settlement was reached before this stage of the process was reached.

Number of mergers:	

[31] The definition of an 'in-depth investigation' will differ between agencies, but could constitute a 'Phase 2' investigation or equivalent, including investigations in which a statement of objection is issued, or investigations that are challenged in court.

18. How many mergers in total across the last three years were not cleared without remedies and/or conditions? Again, this should include relevant horizontal mergers. [32]

Number of mergers:	

19. How many mergers in total across the last three years were not cleared without remedies and/or conditions as a result of a vertical concern? This should exclude cases which initially raised both horizontal and vertical issues, but for which concerns were ultimately found only as a result of the horizontal issue.

Number of mergers:	

20. In relation to the mergers from the previous question, those not cleared free of conditions as a result of a vertical concern, what was the outcome?[33]

	Full prohibition	**Structural remedies short of full prohibition**	**Behavioural remedies**	**Other outcome (explain)**[34]
Number of cases				

Case studies

21. We are looking for case studies that can be used to show in more detail how different authorities have assessed and addressed vertical mergers.

[32] This could include cases where your agency concluded that the transaction would harm competition and required remedies; or alternatively cases you successfully prosecuted in addition to those where remedies were agreed as part of a settlement.
[33] The total in the table may exceed the number of cases mentioned in the previous question, because some cases may have featured both behavioural and structural remedies.
[34] This could potentially include mergers that were abandoned.

We are primarily interested in cases where your investigation led you to conclude that the vertical element of the merger would cause harm. We would like these case studies to discuss the most important pieces of evidence and analysis, and the details and reasoning behind the remedies that were adopted.

However, we are also interested in cases where your initial analysis suggested the vertical merger would cause harm, but a more detailed subsequent stage of investigation concluded that there was no concern.

Please provide brief details of cases that you think may be relevant and we may contact you regarding a case study.

22. With regards to vertical mergers, have you carried out any ex-post evaluation, research, working papers or thinking that could be shared with the ICN? If so please provide a brief summary of this work or a link.

International cooperation

23. How often have you cooperated with other competition agencies in your assessment of international mergers raising vertical theories of harm?

	Frequently	**Quite often**	**Occasionally**	**Never**
Tick:				

24. Has your agency faced any challenges when cooperating on the review of the international vertical mergers?

Yes/No

(a) If yes, please briefly elaborate.

Future work

25. Should the ICN do further work around vertical mergers?

    Yes/No

26. What specific areas, topics or industries within vertical mergers should the ICN focus on between April 2018 and 2019? Please select all that apply:

    Input foreclosure

    Customer foreclosure

    Other theories of harm

    Assessment tools

    Assessing efficiencies

    Remedies

    Big data

    Innovation

    Ex-post evaluation

    Other (please state)

ANNEX A

Definitions

Vertical mergers refer to mergers that happen between an upstream supplier and a downstream customer which purchases the supplier's goods or services either as an input into its own production or for resale. By 'pure' vertical merger we mean where the merging parties only operate at different levels of the supply chain pre-merger.

Vertical theory of harm refers to harm to competition that arises, because the merging parties operate at different levels of the supply chain pre-merger.

Input foreclosure refers to (i) a refusal by the upstream division of the integrating firm to supply an input to rivals of its downstream division (i.e. total input foreclosure); or (ii) the supply of the input on 'worse terms' than prior to the merger (i.e. partial input foreclosure). 'Worse terms' include higher prices, lower quality or service for the same price, or choosing to use technology that is not compatible with rivals' technologies.

Customer foreclosure refers to (i) the vertically integrated firm refusing to purchase products or inputs from rival upstream suppliers (i.e. total customer foreclosure); or (ii) the vertically integrated firm purchasing inputs from an upstream rival at a lower price (that is, it reduces the upstream rival's revenues) or degrading the terms (increases the price or degrades the quality) at which it sells to final consumers the products incorporating the inputs supplied from the upstream rival.

Total and partial foreclosure refers to the differentiation between (i) refusing to deal with other market participants and (ii) worsening the terms based on which to deal with other market participants (see input and customer foreclosure).

Ex-post evaluation refers to the assessment of an agency's decision whether to clear or block a merger conducted after a certain period has passed since the completion of the investigation with emphasis on the effectiveness of the decision.

Pass-through refers to the extent to which the higher costs faced by the merged entity's rivals in the downstream market are passed-through to their customers.

Vertical arithmetic refers to the use of empirical evidence in vertical mergers.

Ability, incentive and effect framework refers to an assessment of a vertical merger based on three questions: (i) Would the merged firm have the ability to harm rivals, for example through raising prices or refusing to supply them (i.e. ability)?, (ii) Would it find it profitable to do so (i.e. incentive)?, and (iii) Would the effect of any action by the merged firm be sufficient to reduce competition in the affected market (i.e. effect)?

VGUPPI refers to the Vertical Gross Upward Pricing Pressure Index, which estimates the incentive of a merged firm to raise upstream prices. It measures the percentage value of diverted sales by balancing two main price effects resulting from a merger, which are (i) the pressure to increase prices following the loss of competition between the merged firms, and (ii) the pressure to lower prices as merger efficiencies reduce incremental costs.