# LSEG/Refinitiv: Modelling of efficiencies in non-horizontal mergers

The Commission's non-horizontal merger guidelines acknowledge that vertical mergers provide substantial scope for efficiencies but also outline an efficiencies assessment based on the framework developed in horizontal merger guidelines, namely that the efficiencies have to *benefit consumers, be merger-specific and be verifiable*. Holding the efficiencies in non-horizontal mergers that arise due to the well-established elimination of double marginalization ("EDM") to the same standard as efficiencies in horizontal mergers misses a key difference between these two settings.

In a horizontal merger, incentives to increase price due to internalization of competition between the merging parties and incentives to reduce price due to efficiencies (e.g. a reduction in production costs) can be assessed separately given that these two effects arise independently of each other. This is not the case in a non-horizontal merger, where both the (static) incentive to raise rivals' cost ("RRC") and the EDM are driven by the (downstream) merging partner's unit margin. A higher margin makes an incremental sale generated by RRC more profitable but also makes EDM larger as a larger margin is eliminated. Conversely, if the merging partner's unit margin is zero both effects disappear. There is therefore no greater need to substantiate EDM effects than there is to substantiate RRC effects, except for some special and rare circumstances that were recently discussed in two recent articles by the members of European Commission's Chief Economist's Team ("CET") and which we also consider below.

This issue came up again in the recent LSEG/Refinitiv merger in which one of non-horizontal links involved the clearing and over-the-counter ("OTC") trading of interest rate derivatives ("IRDs"). LSEG was involved in OTC IRD clearing via its 83% interest in LCH SwapClear ("LCH") while Refinitiv was involved in OTC IRD trading via its 54% interest in Tradeweb. While Tradeweb faced competition in trading particularly from Bloomberg, LCH competed with other central clearing parties ("CCPs") such as Eurex. A simplified overview of the relationship between the merging parties and their primary competitors is depicted in the below figure.

Figure 1: OTC IRD market structure
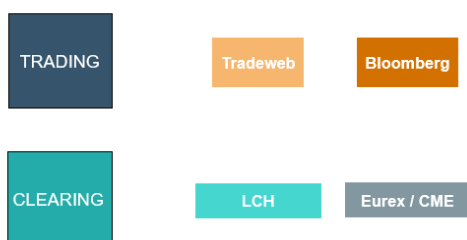
Even though LCH and Tradeweb had minority investors to which they had fiduciary obligations, the Commission assumed that each was controlled by its majority investor and that their operations would be coordinated post-merger to maximize the profits of the merged firm. The Commission also concluded that LCH was dominant in clearing and was concerned that the merged firm would engage in RRC strategies when clearing trades that would foreclose Tradeweb's competitors in trading.

Interaction between EDM and RRC

The intuition for the interaction between the EDM and RRC effects is simplest to follow when considering a hypothetical situation in which LCH is a monopolist of OTC IRD clearing services, Tradeweb competes with Bloomberg in OTC IRD trading platform services, and LCH offers customers two packages of trading and clearing services:

- LCH clearing services combined with Tradeweb trading services, and

- LCH clearing services combined with Bloomberg trading services.

In this hypothetical example, customers pay a package price to LCH and LCH then pays the trading fee of the platform the customer choses to that platform.

Assuming that LSEG fully owns LCH while Refinitiv fully owns Tradeweb, a merger between LSEG and Refinitiv will result in two competing incentives for the combined entity from economic perspective vis-à-vis OTC IRD clearing and trading:

- **RRC effect:** Tradeweb's unit margin provides the merged firm with an incentive to set a higher price for the package for trades originating from Bloomberg. This is because some of the sales of the package for trades originating from Bloomberg lost due to an increase in its price would be captured by the package for trades originating from Tradeweb. The merged firm earns a higher margin from these diverted sales compared to the pre-merger situation (i.e. the merged firm earns the Tradeweb margin in addition to the clearing margin), which provides an incentive to set a higher price for the package of trades originating from Bloomberg.

- **EDM effect:** Because the merged firm will want to "sell" Tradeweb clearing services to LCH at marginal cost (rather than selling at a price that includes a Tradeweb unit margin), the merged firm's unit cost of providing the package for trades originating on Tradeweb is lower than pre-merger LCH's unit cost. The difference is Tradeweb's unit margin which is now internalized. Tradeweb's unit margin therefore provides the merged firm with an incentive to set a lower price for the package for trades originating from Tradeweb.

The EDM effect that lowers the price of the package for trades originating from Tradeweb *reduces* the incentive for RRC on the package of trades originating from Bloomberg – and does so for two reasons. First, the lower price of trading on Tradeweb and clearing on LCH resulting from EDM effects reduces the merged firm's benefits of diverting trades from Bloomberg to Tradeweb compared to those at the pre-merger prices and thus reduces the upwards price pressure due to the RRC effect. Second, the lower price of trading on Tradeweb and clearing on LCH resulting from EDM effects reduces the demand for trading on Bloomberg compared to that at the pre-merger prices leading to a downward pressure on LCH prices for trades originating on Bloomberg that counters the upwards price pressure due to the RRC effect.

A numerical example is useful for illustrating the EDM effect and how it interacts with the RRC effect. Suppose that:

- The pre-merger prices for LCH clearing, Tradeweb trading and Bloomberg trading were each EUR 10 (implying a pre-merger price of EUR 20 for both packages), and

- The pre-merger costs for LCH clearing and Tradeweb trading were each EUR 4.

LCH's pre-merger unit margin was EUR 6 (= 20 – 10 – 4) for both packages. With the same prices, the merged firm's unit margin jumps to EUR 12 for the package for trades originating on Tradeweb. Increasing the sales of that package by reducing its price will increase the merged firm's profits compared to using the pre-merger price. This is the EDM effect.

Suppose that when the price of the package for trades originating on Bloomberg is EUR 20, the combined firm's optimal price of the package for trades originating on Tradeweb is EUR 17 post-merger.[1] Then, because of the EDM effect, the incremental margin generated by diverting a trade from Bloomberg to Tradeweb falls from EUR 6 to EUR 3 and the upwards price pressure due to RRC is halved. Further, a reduction of EUR 3 on the price of the package for trades originating on Tradeweb reduces sales of the package for trades originating on Bloomberg. This fall in sales leads to a negative price pressure on the price of the package for trades originating on Bloomberg.

The net result in standard models implies that the merger in this hypothetical setting *would not increase* (due the interactions between the EDM and RRC effects) the price of the package for trades originating on Bloomberg while it reduces the price of the other (LCH/Tradeweb) package. Therefore, the merger unambiguously benefits consumers in the case of a hypothetical clearing monopoly.

Our modelling work in the LSEG/Refinitiv merger

As LCH faced competition in clearing from other rival CCPs, we considered a more realistic structure with Eurex as a competitor in clearing to understand how the EDM-RRC linkage is affected. This changes the analysis in two ways:

- First, the trading platforms can set prices depending on which CCP clears the trade irrespective of the obligations placed on them by financial regulation. Under these circumstances, the RRC effects can arise not only for Bloomberg trades cleared by LCH, but also for Tradeweb trades cleared by Eurex given that a higher price for each of these two packages leads to some diversion to the package where a trade on Tradeweb is cleared on LCH.

- Second, increasing the price of the package where a trade on Bloomberg is cleared on LCH diverts sales to two packages on which the merged firm earns the Tradeweb margin as opposed to the single package in the hypothetical clearing monopoly example. These are the package where a trade on Tradeweb is cleared on LCH (as before) and the package where a trade on Tradeweb is cleared on Eurex.

If pre-merger price and cost of Eurex were the same as LCH, the marginal profits of the merged firm from increasing price of the package where a trade on Bloomberg is cleared on LCH would now be positive, because the additional diversion to the package where a trade on Tradeweb is cleared on Eurex would generate incremental Tradeweb margins. The merged firm would therefore increase price of the package where a trade on Bloomberg is cleared on LCH. The same would also apply to the price of the package where a trade on Tradeweb is cleared on Eurex given that the pre-merger clearing prices and costs are the same. Hence, the merged firm would increase prices of the two packages in which it provides either clearing or trading services, while it would reduce the price of the package, in which it provides both services. As a result, the impact on consumers cannot be determined just by looking at the price changes of the various packages.

We therefore needed to rely on analytical modelling to gauge the magnitudes of these offsetting effects. Specifically, we used equilibrium modelling with a linear demand system to calculate the total consumer surplus and hence the *net* impact of the merger on customers of OTC IRD trading and clearing services. With such modelling we could consider the following two questions:[2]

- The extent to which the net impact on consumers from this merger is expected to be negative, and

- Whether the merging parties' large market shares in their respective services made those negative effects more or less likely.

Our findings led to three key economic intuitions. First, our modelling showed that, even with the additional scope for RRC, the impact on consumer surplus remained positive in an overwhelming proportion of the cases.

Second, the average magnitude of positive impacts was larger than the average magnitude of negative impacts – hence, the proportion of cases with a positive consumer impact underestimated the expected benefit to consumers if

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[1] This will be the case when demand is linear because the rate of pass-through of a firm-specific cost reduction is 50%. Other commonly used demand forms will lead to larger price reductions.

[2] We generated an exhaustive set of 17 million parameter combinations that were restricted to 1,280,590 specifications with valid profit-maximizing behaviour both pre- and post-merger.

all cases were equally likely. This can be seen in Figure 2 below which plots on the horizontal axis the pre-merger share of LCH in clearing under a specific set of parameter values and, on the vertical axis, the impact on consumer surplus. Most of the blue dots lie above the x-axis, and the average distance to x-axis is larger for the dots that lie above it than for the dots that lie below it.

Figure 2: Merger impact on consumer surplus (full parameter range)
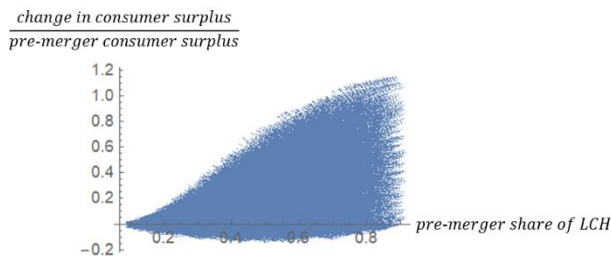
Source: CRA.

Third, the model allowed us to consider whether the circumstances in the present case made the merger more likely to benefit or harm consumers. Restricting the dots in Figure 2 to realistic market shares for LCH and Tradeweb resulted in no dots below the x-axis as seen in Figure 3 below. Given that the pre-merger market shares of the merging parties were above these levels, our model suggested that OTC IRD consumers were likely to benefit from the merger.

Figure 3: Merger impact on consumer surplus (restricted parameter range)
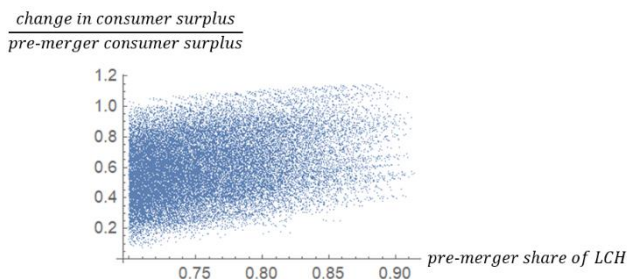
Source: CRA.

The Commission's view of our model and key takeaways for future cases

The Commission did not place much weight on the results from our analysis and instead relied on its own vertical arithmetic that completely omitted the EDM effect mainly for the following two reasons:

- There was no evidence provided by the Notifying Party in its internal documents that it would lower prices as a result of the EDM; and

- There was not much of a scope for EDM given that LCH with its very large share of notional trades almost covered the total market in the Commission's view ("full market coverage").[3]

Taking these points in turn, the Commission's disregard for the EDM effect seems to be (as in many other cases when efficiencies are discussed) driven by the lack of evidence in the Parties' internal documents on the elimination of double marginalization. While such an approach to efficiencies may be understandable in case of horizontal mergers, it is inappropriate for non-horizontal mergers. After all (and as discussed in more detail below), the Parties' documents in this case have not alluded to any plans to raise rival's costs post-merger either, yet the Commission concluded the merger would give rise to the RRC using standard vertical arithmetic that ignores EDM. Once the Commission establishes the RRC effects, it must however automatically adjust this RRC effect by the EDM effect given that both effects are driven by the downstream margin of the merging partner regardless of whether EDM is acknowledged by the Parties' documents. Doing otherwise would be inconsistent with the incentive assessment framework used by the Commission in the non-horizontal merger guidelines, and incorrectly places the burden of proving EDM effects on the merging parties in this scenario (when, in fact, the EDM effects are simply part of the Commission's own economic model when applied correctly).

The full market coverage argument is one of three situations recently raised by two articles[4] by members of the CET in which there is scope for RRC effects but little or no scope for EDM effects:

- **Diagonal merger:** If a merger combines a firm that is already vertically integrated with a non-integrated upstream firm that supplies downstream rivals, then RRC incentives will exist but there will be no EDM.[5]

- **Full market coverage:** If the quantity that customers are purchasing at pre-merger prices is nearly the same as the quantity they would demand if prices were at cost (which is what the CET economists seem to mean by "full market coverage"), then EDM cannot materially expand the sales of that product and hence there is allegedly little scope for welfare-enhancing EDM effects.[6]

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[3] The Commission also raised concerns about the appropriateness of the various assumptions we made on the demand structure, pass-through rates, the extent of competition between various types of trading and whether LCH was a profit-maximising firm.

[4] See Section V of Zenger, H. (2020) "Analysing Vertical Mergers", *CPI Antitrust Chronicle,* October and Section 4.2 of V of Karlinger, L., Magos, D., Régibeau, P. and Zenger, H. (2020) "Recent Developments at DG Competition: 2019/2020", *Review of Industrial Organization*, 57:783–814.

[5] The Commission argued this set-up applied to the prohibited Deutsche Börse/LSEG merger (Case M.7995), because Deutsche Börse was vertically integrated into clearing services which customers of its exchange rivals would need to buy from LSEG.

[6] In the Telia/Bonnier Broadcasting merger (Case M.9064 cleared subject to remedies) the Commission argued that reducing the price of TV channels, to which almost all potential viewers already had access pre-transaction, would not meaningfully increase Telia's sales as a distributor and so EDM effects were limited.

- **Efficient pre-merger contracting:** If the merging parties have fully solved the double marginalization problem pre-merger through contracts, there will be no EDM.[7]

While we agree there will be no EDM in both diagonal mergers and efficient pre-merger contracting cases, such cases are likely to be rare. The "exception" that the Commission seems more likely to emphasize is the full market coverage exception. As mentioned, this was the exception emphasized by the Commission in LSEG/Refinitiv.[8]

The argument that EDM can be ignored when there is so-called full market coverage has little relevance in markets in which firms set posted prices. A firm that is a price-setter will always want to price on the elastic portion of the demand facing that firm – it is more profitable to increase prices and sell to a subset of customers rather than to supply all potential customers at a given price. If the marginal cost for a price-setting firm declines – because of EDM effects or for any other reason – it will have an incentive to reduce price which in turn will reduce sales of the other competing products at their pre-merger prices.

The full market coverage argument thus appears to relate only to markets in which input prices are not set by the upstream firm but are negotiated bilaterally with downstream firms, and in which end consumers each use a single unit of the downstream product. Under these circumstances, there may indeed be no demand expansion via EDM effects, but there is also unlikely to be any upward pressure on consumers prices via RRC effects. Instead, only rents may shift from the downstream rivals to the merged firm but without creating any consumer harm (as all consumers would continue to buy one unit each at the same price). Thus, the circumstances in which the full market coverage exception seems most applicable are also circumstances in which a merger is unlikely to result in any harm to consumers.

Conclusions

The LSEG/Refinitiv merger has again underscored the somewhat rigid and uneven treatment of efficiencies by the Commission's non-horizontal merger guidelines. On one hand, the Commission recognizes the substantial scope for efficiencies in non-horizontal mergers, while, on the other hand, it holds the assessment of these efficiencies to the same standard as in horizontal mergers. Such approach is not justified due to the linkages between the RRC and EDM effects.

In our experience, merging parties' internal documents rarely mention EDM effects. However, they equally rarely mention RRC effects. One view might be that the absence of any reference to RRC effects merely means that the merging firms paid attention when they received their antitrust

compliance lectures – whereas the absence of any reference to EDM effects indicates while economists may attach significance to such effects, real-world companies do not. We have heard it suggested that in companies in which managers are assessed based on the P&L of their divisions, no manager of an upstream division is going to want to reduce profits in his or her division by transferring inputs to a newly acquired downstream arm at marginal cost.

A difficulty with this managerial explanation is that, if this is the reason for the absence of references to EDM in internal documents, then competition authorities also should have no concern about RRC effects. RRC effects require the manager of the upstream division to raise prices to non-integrated downstream rivals to levels that reduce the profits of the upstream division – for the greater corporate good of higher profits in the merged firm's downstream arm. Yet if upstream managers are unwilling to reduce upstream profits by transferring inputs to the downstream division, they should also be unwilling to reduce upstream profits by raising input prices to non-integrated rivals that are above the level that would maximize the standalone profits of the upstream division. There are thus no grounds – either from the perspective of economics or based on internal documents – for considering RRC effects while ignoring EDM effects.

Because the Commission still seems inclined to require more evidence of EDM effects than of RRC effects, parties to a non-horizontal merger who plan to emphasize EDM effects need to engage with the Commission early and explain the linkage between EDM and RRC in their specific case. Similarly, the merging parties need to address the three "EDM exceptions" raised in the papers by the CET members early enough in the process so that Commission cannot cite one or more of these arguments in passing at a late stage of the procedure as grounds for disregarding EDM effects. Leaving discussions of either of these topics to a later stage in the proceedings risks that the Commission will instead rely on a "plain-vanilla" vertical arithmetic analysis that fails to consider the interaction between RRC and EDM effects.

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[7] In the prohibited Wieland/Aurubis transaction (Case M.8900) the Commission argued that the existing JV between the merging parties allowing Wieland to receive incremental units at cost meant EDM did not exist. Note maintaining RRC in an efficient pre-merger contracting case requires that pre-merger prices to downstream merger partner's rivals are set without considering the profits generated by the contract

and the Commission considered the JV between Wieland and Aurubis behaved in this way.

[8] Note, however, that if customers purchase multiple units (as was the case in LSEG/Refinitiv) then, even if all customers buy just from LCH, this does not imply full market coverage – because customers may be buying fewer units than they could have potentially bought if the service was provided at cost.