Response to the "Request for Information on Merger Enforcement"

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The Antitrust Division of the Department of Justice (DOJ) and the Federal Trade Commission (FTC) play critical roles in enforcing laws that prohibit anticompetitive mergers. I am an academic economist with research that has analyzed the effects of mergers, both theoretically and empirically. I have also enjoyed time at both agencies, including as Director of the Bureau of Economics at the FTC in 2020. I welcome this opportunity to contribute to the debate about how merger enforcement and the guidance that the agencies provide can be improved.

I am only going to comment on a small subset of the issues raised by the RFI. I strongly encourage the agencies:

- To hold public hearings where all issues can be debated.
- To request public comments on drafts of new guidance, especially new "Guidelines" documents.

Hearings and comments will improve the accuracy and the durability of guidance.

A few themes will run through my comments.

- There are several areas where additional guidance would be valuable, and current guidance could be improved.
- Agencies should publish different types of guidance with different revision frequencies and with different intended audiences.
- When challenging a merger, clarity about the alleged theory of harm is critical.

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- "Guidelines" should be high-level and largely non-technical documents that outline agencies' approach to analyzing mergers. They should explain the importance of different incentives and potential theories of harm, without being tied to particular analytical tools that may only quantify certain incentives. The strengths and weaknesses of different tools should be addressed in other types of guidance.
- The discussion of unilateral and coordinated effects in the 2010 Horizontal Merger Guidelines (HMG) is an incomplete characterization of incentives. This may lead, for example, to incorrect presumptions about the pass-through of efficiencies. The discussion of when considerations of post-merger entry or repositioning are relevant could also be improved.
- Mergers almost always involve uncertainties, for merging firms, their competitors and their customers, as well as agencies. These uncertainties can have implications for both merger analysis and post-merger competition, and should not be ignored.
- Merger analysis would be benefit from greater integration of the analysis of efficiencies and the economic analysis of competitive effects.

I have organized my comments as follows. Section I addresses the types of guidance that may be useful, and the specific role of "Guidelines". Section II describes what I see as the strengths and limitations of the discussion of incentives in the 2010 HMG and the 2020 Vertical Merger Guidelines (2020 VMG). Section III discusses efficiencies and pass-through of efficiencies, drawing on the material in Section II. Section IV discusses the treatment of entry as a possibility that may reduce concerns about anticompetitive effects. Section V briefly discusses two additional issues raised by the RFI that have not been addressed in earlier sections.

I. Guidance And The Role of "Guidelines" (RFI Section 1)

Agencies could potentially issue at least five types of guidance.

a. "Explainers" intended to guide, at a fairly high-level and in a largely non-technical way, parties, outside counsel and the courts about the framework that agencies currently use to analyze mergers, the thresholds they use when making screening and enforcement decisions and how they are likely to argue cases that proceed to court based on accepted case law.
b. More detailed guides to the issues that experts representing agencies or parties should be expected to address, and the analytical tools that they might use to address them.
c. Summaries of the state of knowledge from past merger cases and the academic literature, and explanations for how this guides agency thinking. Courts could find these summaries useful when evaluating evidence.
d. Indicators of how agencies believe that statutes and case law should be interpreted.
e. Signals of agency priorities.

The RFI includes questions that seem relevant for guidance playing all of these roles. Guidance of these different forms would all be useful, but I sincerely hope that no-one is planning to include all of them in a single document, because doing so will create a great deal of confusion. The following comments relate to the content of different types of guidance that could be issued.

- "Guidelines" documents should be of type (a). I would suggest that the 2010 HMG went too far into trying to serve other types of roles. For example, as I will suggest below, the 2010 HMG tie discussion of competitive effects too closely to models of upwards pricing pressure and collusion, omitting other relevant incentives.
- When specifying HHI thresholds as the basis for presumptions about the net competitive effects of mergers, Guidelines should be clear what they are based on (a preferred model, empirical evidence about typical efficiencies or agency experience of levels of concentration at which other types of evidence of anticompetitive effects tend to be found).
- Guidance of types (b)-(e) would be very useful and should be published. It would broaden understanding of merger policy by researchers, promote informed research and reduce the entry barriers that exist to providing expert advice. The need for guidance is strengthened by how US

agencies publish much less detailed case analyses than administrative merger review agencies, such as the UK's CMA.

- Publishing more guidance has to overcome the concern that publishing more could weaken an agency's position in future litigation. This risk may be real, but it must be set against the probability that, in the long-run, transparency will lead to higher quality analysis, better decision making and, possibly, more clearly reasoned case law.
- Guidance of type (b) would also help *within* the agencies. As an example, consider compensating marginal cost reductions (CMCRs). CMCRs are very useful measures of a type of anticompetitive unilateral incentive in horizontal mergers. They measure how much the marginal costs of the merging firms' products would need to fall (i.e., the required efficiencies) to offset the incentives that the merger creates to raise prices (due to the loss of competition) when rivals prices (or quantities) are held fixed. But CMCRs also have properties that are not intuitive. For example, it is not unusual for predicted CMCRs to be large (say 20%), even when the same behavioral assumptions predict price increases without efficiencies that are much smaller in percentage terms (say 3%). This disparity can lead non-economists within agencies to doubt the analysis. Public guidance that explains why this disparity can happen and why it should not be a concern would promote consistent decision making.
- Guidance of type (b) would also be suitable for seeking input on methods that the agencies are *developing* to address more novel but important theories of harm (for example, the possibility that some mergers may significantly reduce competition in labor markets, resulting in lower wages). In addition to the topics that I will mention below, guidance on the application of algorithms for market definition, guidance on when it is appropriate not to focus on the narrowest possible market, and when it is appropriate to define cluster markets could also be presented in type (b) guidance, with detailed examples to explain the often quite subtle differences in reasoning.
- Guidance of type (b) should also include discussions of how efficiencies are evaluated. In particular, the fact that agency efficiencies analysis will sometimes produce wide ranges of "likely" efficiencies, not all of which may meet the standard of being cognizable, and how these ranges will be interpreted, should be discussed. Approaches that parties could use to provide better evidence of efficiencies, including through the use of "clean rooms", should be described.
- Guidance of different forms should be updated with different frequencies. For example, technical guidance and reviews of the academic literature and learning from cases could be updated every one

or two years, reflecting new results in the literature, new methods and case experience. One would expect Guidelines to be revised less frequently.

- The purpose of the "Commentaries" should be re-considered. I use the Commentaries for teaching undergraduate economics students, but, even for this, they contain too little detail. For example, several transactions appearing in the 2020 vertical merger commentary involved settlements that imposed some type of restriction on the use of information. It is unclear what the restriction was intended to achieve in each case, why a restriction was agreed in some settlements and not others, how the restrictions worked, how they were monitored and whether the agency that was involved believes the restriction to have been successful.[2]

[2]The 2020 Merger Remedies Manual (justice.gov) contains some additional information, but not much.

II. Economic Incentives And The Use of Models To Predict Effects (RFI Sections 1g, 2, 3 and 4)

In merger analysis, economics plays at least two roles.

a. It identifies firms' abilities and incentives. The 2020 VMG were written to emphasize this point. For example, a vertical merger may only give the merged firm the *ability* to exclude (foreclose) a downstream rival if that rival lacks adequate substitutes to the merged firm's supply, and the merged firm will only have *incentives* to foreclose the rival, or raise its costs, if this will cause enough of the rival's demand to be diverted to the merged firm's downstream division. Otherwise, the incentive to try to sell more upstream units through the rival may prevail. Identifying incentives is important because economists believe that, in the long-run, firms will tend to act in way that is consistent with their *net* incentives (i.e., they will choose actions that will increase their expected future profits) even if they do not do so immediately because swift changes in strategy are costly. The same approach can be applied to horizontal mergers. For example, a theory of harm might involve the incentive to raise prices through increased price discrimination, and one can then ask the extent to which the merged firm would have the ability to price discriminate (e.g., to identify different customer groups and prevent arbitrage), and the profitability of maintaining higher prices in the face of possible entry.
b. The quantification of the likely effects of those incentives (for example, on prices or output) using calculations.

Some incentives are easier to capture in straightforward calculations. Academic research places a premium on tractability and the quantifiability of effects, so some incentives receive more attention. This does not mean that other incentives, when plausible and significant, should be ignored, just because they are less easily quantifiable. The following considerations relate to questions of incentives and effects.

A. The Difference Between Horizontal And Vertical Mergers Is Best Understood In Terms Of Incentives.

RFI 1g. appears to suggest that a key distinction is identifying whether a merger is horizontal or vertical. A better framing would be to say that one must identify whether the theory of potential anticompetitive harm involves (i) a direct loss of competition (direct rivals now owned by a single firm), or (ii) an indirect mechanism (e.g., where control of another level of production allows and incentivizes a merged firm to place a rival in a less competitive position by increasing its costs). While many mergers can be described as both horizontal and vertical, because both parties are

already active at multiple levels of supply chains, it is important to clearly define the exact theory of harm to understand the types of evidence that will be relevant.

B. **Focusing On Incentives Can Help To Clarify When Mergers, Including Certain Non-Horizontal Mergers, Should Be Presumed To Be Anti-Competitive.** It is natural to form a presumption that a merger is anti-competitive when a plausible anticompetitive theory of harm can be supported, and no plausible procompetitive theory can be identified.[3] For example, suppose that two firms compete in a market, and that one of them acquires a critical upstream supplier of its rival from which it does not currently source any of its own inputs and which it is not likely to buy from in the future. This is a so-called "diagonal" merger, and, as described, the merged firm is likely to have an anticompetitive incentive to raise its rivals' costs, but there is no clear theory for how the merger could generate procompetitive benefits. The theory of harm is indirect, but the fact that it is indirect does not mean that it cannot provide a sound basis for concluding that the merger may substantially harm competition in the downstream market. However, in the *Sabre* case, the DOJ chose to frame a merger that, to me, appears to have followed this fact pattern quite closely as a horizontal merger, involving a direct loss of competition, an approach which required a market definition that the district court ultimately found unconvincing.[4]

C. **Unilateral And Coordinated Effects.** The framing of anticompetitive theories of harm in the 2010 HMG suggests that it is sufficient to focus on two types of "effects". For simplicity, I will focus on the discussion of these effects in differentiated product markets.

a. The incentive of the parties to change their prices (or "quality") when the prices of rivals are held fixed. These are described as "unilateral effects". These are quantified using either pricing pressure calculations, which literally treat rivals' prices as fixed, or merger simulations, which look at the equilibrium effects when all rivals can change their prices, but each firm is optimizing its prices treating rivals' prices as fixed (the "static Nash" assumption); and,

[3] In contrast, the structural presumption implied by the concentration thresholds in the 2010 HMG is not based on saying that no procompetitive incentive exists, but, it seems, on a view that when concentration is sufficiently high, anticompetitive incentives are likely to dominate procompetitive ones.

[4] Sabre was attempting to buy Farelogix, a firm that can be viewed as an input supplier to airlines that wanted to self-supply some or all of the services that they would otherwise buy from global distribution services, such as Sabre. See the discussion in Sweeting and Corus (2021).

b. The incentives of the parties and their rivals to "collude", either in a cartel or tacitly. These are described as "coordinated effects". The key feature of collusion is that firms raise prices above the levels that would maximize their short-run profits taking the prices of rivals as given, because they *fear punishments where rivals will qualitatively change their behavior* (e.g., return to "Nash" pricing forever). The potential for coordinated effects is often considered in the light of checklists for industry characteristics (e.g., the transparency of pricing) that are believed to make collusion easier to sustain.

While the focus on models of static Nash competition and collusion is consistent with the way that we teach basic Industrial Organization to undergraduates, this characterization of incentives is **clearly** not exhaustive. Specifically, sophisticated firms are likely to consider the reactions of rivals (and maybe the reactions of their own suppliers and the suppliers of rivals) even when they are not threatened by rivals' qualitatively changing their behavior/punishing. Many plausible features of the real-world (e.g., costs of changing prices, asynchronous price setting, uncertainties about aspects of rivals' costs or demand) will lead to **any** rational price or quantity-setting strategy having dynamic elements.[5] Firms may also structure themselves, maybe because of the way that internal incentives will combine with competition to affect prices and profits, in a way that is not consistent with static profit-maximizing assumptions. For example, many firms that engage in "revenue management" use heuristics that appear difficult to rationalize if they are maximizing profits taking the prices of rivals as given (Hortaçsu et al., 2021).

Academics may assume away these types of dynamic incentives and strategic effects to preserve tractability, but these incentives may matter in the types of concentrated oligopolies where mergers are often subject to scrutiny. Dynamic incentives may themselves become more important after a merger.

The maintained assumption in how the 2010 HMG and 2020 VMG are framed appears to be that the effects of dynamic incentives must be too small to really matter. In two recent academic papers, I have explored how dynamic considerations could affect post-merger pricing, finding them to be

[5] For example, the pioneering work of Nobel Prize winning economists Maskin and Tirole (1988a) on Markov Perfect equilibria shows that, for example, asynchronous timing of price-setting can raise prices above static Nash levels significantly. However, the implications of this type of logic for mergers has received very little attention.

quantitatively important given empirically relevant parameters. The papers are attached to my submission, but I will summarize their logic here. **Note that, while in the examples discussed below, dynamic considerations will tend to raise prices, it is <u>not</u> necessarily the case that dynamic incentives will always push in this direction.** Indeed, this is an important difference from product market collusion which will always tend to make consumers worse off**.** For example, if firms set quantities, rather than prices, dynamic incentives will often tend to lead firms producing more because this may cause their rivals to reduce their output (Maskin and Tirole (1988b), Mester (1992)). In on-going work in a quantity-setting game, I am also finding that these incentives, that lower prices, can become significantly stronger after a merger.

In Sweeting, Tao and Yao (2022, STY hereafter), we consider a model where oligopolists set prices for differentiated products and each oligopolist has some private information about the level of its marginal costs (i.e., a firm knows its true marginal cost, but rivals do not). A firm's price can therefore act a signal of its marginal cost, and, when marginal costs are positively serially correlated (e.g., a higher marginal cost this quarter implies that a higher marginal cost in the next quarter is more likely), a firm's current price also provides rivals with a signal of what prices the firm is likely to set in the future. When a higher price will tend to lead rivals wanting to set higher prices, this dynamic can lead to higher equilibrium prices. For current purposes, our key findings are that (i) the incentive of *both merging and non-merging* firms to raise their prices in order to raise rivals' future prices increases after a horizontal merger, and, (ii) for plausible parameters, this can lead to post-merger price increases that are at least several percentage points higher than a static Nash model would predict. Note, however, that the strategies of firms are not "collusive" in the way that collusion or coordinated effects is usually understood: these price increases are sustained without threats of price wars or qualitative changes in rivals' behavior.

In Sweeting, Leccese and Tao (2022, SLT hereafter), we consider a model where there is complete information about marginal costs before a merger, but a merger can create a marginal cost efficiency, the exact value of which is private information to the merged firm.[6] Ex-ante, rivals only know that the efficiency will lie within some range, but they can make further inferences about the realized efficiency from the merged firm's prices. We show that it will often be possible to sustain

[6] In independent work, Harrington (2021) provides a simple horizontal merger example that makes the same point. SLT show that the effects can be quantitatively important realistic demand and supply assumptions and may also limit the pass-through of EDM in vertical mergers.

an equilibrium where the merged firm always prices as if the smallest possible efficiency (i.e., the one at the lower bound of the range of efficiencies) has been realized, even if its marginal costs have actually fallen by a much larger amount. Such equilibria can exist even when the range of possible synergies is quite large. For instance, we provide examples, using the beer demand system of Miller and Weinberg (2017), where a firm that benefits from a synergy that is much larger than the "compensating marginal cost reduction" predicted by standard calculations, that assume complete information, will price as if there is no synergy at all.

We also provide examples (and we are in the process of developing additional examples where there are both raising rivals' costs and EDM incentives) where similar logic leads to the smallest possible level of EDM being passed through to consumers in a vertical transaction when there is upstream and downstream oligopoly. Once again, it is important to emphasize that behavior in our model is not "collusive" and so is not captured by discussions of coordinated effects in the existing Guidelines: in particular, rivals of the merged firm always set prices that are static best responses to the prices that they expect the merged firm to set.

There is also suggestive empirical evidence that the models we develop have some empirical relevance. In particular, we look at changes in transportation cost pass-through after the Miller-Coors joint venture that affected the brewing industry. This is an interesting example because documented post-merger price increases have been interpreted as reflecting collusion (Miller and Weinberg (2017)**,** Miller, Sheu and Weinberg (2021)). We show that there are changes in cost pass-through that are inconsistent with both static Nash and standard models of collusive conduct, but which are consistent with our models.[7]

I would also note that while the leading models discussed in STY and SLT assume asymmetries of information about marginal costs, this is not the only way to construct models that give similar implications. As one example, uncertainty about other aspects of the profit function (e.g., demand, or how much weight managers place on revenues rather than profits) can give the same implications.

[7] Whether one views the empirical results as being more consistent with the model in SLT or the model in STY depends on how one views coefficients that are statistically significant in some, but not all, specifications. Coefficients that are always significant can be used to reject the predictions of static Nash and tacit collusion models.

Or, firms may choose to structure themselves in order to achieve a rate of cost or efficiency pass-through that, as a result of oligopoly interactions, will ultimately raise profits.[8]

Section III will make a suggestion for how the insights of SLT can be incorporated into analysis of the pass-through of efficiencies. While this line of research is clearly too nascent to be explicitly incorporated into a "Guidelines" document, it is very important that Guidelines should not foreclose considering non-collusive dynamic incentives when other evidence (e.g., company documents that evaluate alternative pricing strategies or the organization of the firm) suggest that firms consider how the reactions of their rivals will affect the profitability of price or quantity changes. I would make the following suggestions for appropriate language in the Guidelines.

a. Current language refers to "unilateral effects" and "coordinated effects". I would change language to "static incentives" and "dynamic incentives". The emphasis on incentives would be helpful because it does not tie the discussion to the subset of models where "effects" are most easily calculated.[9] The focus on incentives would also help to integrate the discussion of horizontal/direct and non-horizontal/indirect theories of harm.
b. The static incentives discussion should contain most of the existing discussion of unilateral effects, while being clear that some calculations assume that rivals' prices are really held fixed, while others allow rivals' prices to change, but under the behavioral assumption that firms choose their optimal prices treating rivals' prices as given. Technical guidance would explain how these two approaches (roughly pricing pressure and merger simulations) relate to each other.
c. The dynamic incentives discussion should be written to recognize that many additional incentives can be introduced when rivals recognize their strategic interdependence. Collusive incentives provide *one example* of dynamic considerations, although there is little empirical evidence on whether the type of tacit collusion described in textbooks is a widespread phenomenon, compared to other types of dynamic competition. The discussion of dynamic incentives should be clear that non-collusive dynamic incentives can raise or lower prices, relative to a static model, depending on facts that will be industry-specific, and possibly merger-specific.

[8] For example, a merged firm may be able to set the incentives of its downstream division so that it achieves the most profitable rate of pass-through of EDM, which, under some circumstances, may be different to the rate which would be most profitable when the prices of downstream rivals are held fixed.

[9] One might also write "effects of static incentives" or "effects of dynamic incentives".

d. It should be acknowledged that dynamic incentives can be especially relevant for evaluating the likely pass-through of efficiencies, especially when the level of efficiencies is uncertain. As I discuss below, it is important to focus on what is really profitable, which is the basis of incentives, rather than what is implied by a convenient first-order condition.

III. Efficiencies (RFI Section 14)

Evaluating efficiencies, and their effects, is crucial to many enforcement decisions, as, in both horizontal and non-horizontal mergers, both procompetitive (i.e., efficiencies-based) and anticompetitive theories often have some plausibility. I begin with some broad comments before discussing the question of what we should assume about the pass-through of efficiencies. In general, I believe that there is considerable scope to (i) provide parties and researchers with more guidance about how efficiencies are analyzed, and (ii) to integrate the analysis of efficiencies, which is typically performed by non-economists, into the economic analysis of the likely effects of a merger.

A. **What Do We Know About The Realization Of Efficiencies?** A small but growing empirical literature has tried to assess whether mergers are followed by decreases in costs or increases in productivity at either acquiring or acquired plants (e.g., Haynes and Thompson (1999), Groff, Lien and Su (2007), Braguinsky et al. (2015), Blonigen and Pierce (2016), Kulick (2017), Grieco, Pinkse and Slade (2018), Walia and Boudreaux (2019) and Yan et al. (2019)). This literature applies methods that have been used in "merger retrospectives" looking at prices to productivity measures. This literature faces several challenges that are common to the price literature: for example, (i) the need to identify "control" groups of plants to which productivity changes at the merging plants can be compared, and, (ii) the possibility that mergers are endogenous and, in particular, may reflect anticipated productivity changes. Additional challenges come from how data on productivity and costs is often more aggregated (across cost categories, products and time) than price data, making it hard to detect the effect of a single transaction on marginal or variable costs with confidence.

While other experts would disagree (e.g., Rose and Sallet (2019)), my interpretation of this literature is that the most common finding is that mergers do realize significant efficiencies, i.e., they tend to raise productivity at either acquired or acquiring plants.[10] The agencies should do all that they can to promote further research in this area, including requiring parties to make post-merger cost data available to agency researchers.

[10] The cross-industry study of Blonigen and Pierce (2016) does not find systematic evidence of efficiencies, whereas studies that have focused on specific industries in more detail have typically found evidence of post-merger efficiencies. However, both types of studies face the limitations listed above.

However, note that, under a consumer welfare standard, crediting procompetitive theories of mergers when the potential for anticompetitive harm exists usually requires both that efficiencies are realized and that the benefits of those efficiencies are passed through, in some way, to customers.

B. **Recognize That The EDM *Incentive* Applies More Broadly Than Upstream Monopoly-Downstream Monopoly Vertical Mergers.** When withdrawing support for the 2020 VMG, the Commission majority suggested that the *theory* of the elimination of double marginalization only applies in cases where an upstream monopolist and a downstream monopolist merge. This is clearly incorrect: a supply-chain merger, or a merger of complements, will create an *incentive* to lower downstream prices whenever there are margins at both levels, including when the firms have competitors. It would be more accurate to say that in the upstream monopolist-downstream monopolist case, EDM is the *only* incentive relevant after the merger, so we can be quite confident that firms will act on it and pass-through the benefit in the way a static model predicts. However, when there is oligopoly at one or both levels, other incentives may exist that may offset the incentive to pass-through EDM.

C. **Evidence For Cognizable And Likely Efficiencies.** It is sometimes suggested that parties should bear more of the burden of proving that efficiencies will be realized. The feasibility of this suggestion should be considered in light of the fact that merging parties cannot share detailed cost information before the merger is consummated. This may make it difficult or impossible for management to make precise claims about efficiencies. Parties may be able to provide additional evidence using "clean rooms" that are staffed by consultants, and guidance could usefully explain the types of evidence that clean rooms can produce and the types of work that firms may need to do when agreeing a transaction in order to facilitate timely review of efficiencies claims. More technical guidance could also provide more discussion of the types of questions that efficiencies analysis will ask. For example, it may not be sufficient to claim that transportation costs can be reduced by re-allocating production or distribution across plants or warehouses. Instead, the parties should be able to show that they will have incentives to spend whatever fixed costs are needed to achieve this re-allocation and that, in practice, they do make this type of re-allocation decision in the normal course.

D. **Be Clear About How Alternative Methods For Achieving Efficiencies Are Evaluated.** One of the criteria for an efficiency to be cognizable is that it should not be achievable by means other than the merger. It is often suggested that firms could achieve some types of efficiency, including EDM, using suitable contracts. This may be true, but it should also be recognized that contracts could also be used to achieve anticompetitive objectives, such as raising rivals' costs.

E. **Out Of Market Efficiencies.** The Agencies believe that they have discretion when crediting "out of market" efficiencies, i.e., efficiencies that can very likely only be realized with the merger, but which will not create procompetitive benefits in a market where the merger is expected to generate anticompetitive effects. Guidance about the principles that affect this use of discretion would be valuable.

F. **Uncertainty And The Pass-Through of Efficiencies.** The discussion in Section II has already indicated that dynamic considerations can affect the pass-through of efficiencies, when pass-through is expected to affect the prices that rivals set. It is particularly easy to write down a model that predicts limited pass-through when firms set prices and the level of efficiencies is uncertain (i.e., rivals, as well as the agency, do not know how much marginal costs have fallen or the exact size of one of the margins that may be eliminated). A number of considerations follow from recognizing that uncertainty is a common feature of mergers.

(a) What is an agency's approach to uncertainty about the size of efficiencies? Even when they assume that realized efficiencies will be passed through, my perception is that agencies tend to be quite "risk averse" in the sense of only crediting efficiencies that are close to certain. But it is unclear to me that, in many industries, customers themselves would be so risk averse. If agencies do believe a more risk averse attitude is appropriate, they should explain the extent of this risk aversion and its basis.

(b) On the other hand, as suggested in Section II, uncertainty about the realization of efficiencies can affect pass-through of efficiencies after both horizontal and vertical mergers. As noted above, if, *once a merger is completed*, rivals do not how much the merged firm's marginal costs have fallen, it is straightforward to construct a model of firm behavior where, when firms set prices, the benefits of only some share (and possibly none) of the realized reduction is passed through to consumers,

because the merged firm anticipates that more complete pass-through would cause rivals' prices to fall.

It is fairly straightforward to incorporate this type of consideration into the analysis, under an additional assumption. Consider the following stylized horizontal merger example. Suppose that, using standard (i.e., static Nash type) calculations, agency economists calculate that the merged firm's marginal costs would have to fall by 8% to offset anticompetitive effects. Agency financial analysts assess a range of 4-9% for likely efficiencies, and, as the additional assumption, suppose that rivals, who, in practice, are not likely to have much better information than the financial analysts, share this view. Using a conventional analysis, the merger might well not be challenged on the basis that there is a reasonable probability that the efficiencies will be large enough to prevent at least substantial anticompetitive effects. But this presumes that efficiencies in the higher part of the likely range will be passed through in the same way as efficiencies at the lower end. Instead, agency economists, using calculations of rivals' "best response pricing functions" that they already calculate when doing merger simulations, can assess whether if the merged firm benefits from an 8% marginal cost reduction, it will make higher variable profits if it (i) passes through this synergy (and rivals best respond to it doing so) or it (ii) prices as if it only has a 4% marginal cost reduction (and rivals best respond to this). If variable profits are higher in (ii) than in (i) (i.e., there is an incentive not to pass-through), then it may be appropriate to require the parties to provide additional evidence that they really do plan to pass-through the largest plausible efficiencies (e.g., the merged firm has credible commitments to expand production).

IV. Entry (RFI 13).

I believe there is scope to improve the discussion of entry, or product repositioning, that appears in the 2010 HMG.

A. **Clarify When Ease-of-Entry Arguments Are Relevant**. The presentation in Section 9 of the 2010 HMG is unclear about when ease-of-entry arguments are really relevant. Specifically, Section 9 could be read to imply that agencies sometimes engage in the following logic: "the proposed merger will certainly be anticompetitive if we hold the set of firms fixed, but the anticompetitive merger will induce timely entry, so that the merger will not actually be anticompetitive, and may be procompetitive."

I would be surprised if parties have ever made this argument or if agencies have ever taken this position, for at least three reasons: (i) it is unlikely that such a merger would be profitable for the merging firms (a point made by Caradonna et al. (2021)); (ii) everything we know about entry is that it is hard to predict and its success is usually uncertain, whereas the suggested logic seems to imply close to certain success. Of course, this point is implicit in the "likely" and "sufficient" criteria that do appear in the Guidelines, but, in my experience, people often fail to see that the sufficiency is also probabilistic; (iii) if entry was certain to be successful, it would very likely have been profitable before, or without, the merger.

Instead, arguments about entry typically become relevant in two (related) situations: (i) the merger has some probability of being anticompetitive and some probability of being procompetitive. For example, the merger may create the possibility of a very large synergy, but the synergy will only be realized with some probability (for this purpose, assume that success of the synergy project is not under the merged firm's control). If the synergy is not realized, then the possibility of entry, which will be more profitable, may offset some of the expected harm in this "bad state of the world", making the potential upside from allowing the merger to proceed more attractive; (ii) the merger may affect a large number of markets, and, because of synergies, it is expected to be procompetitive in some markets, but it may be anticompetitive in other markets. If it is not possible to create structural remedies for the second group of markets, an agency will likely need to weigh benefits and harms in different markets against each other. The possibility of entry in the markets where the merger may be harmful may alleviate some of these concerns. For example, this scenario may fit airline markets, where many consumers will benefit from larger networks, but some markets may experience the loss of head-to-head competition between the only firms that serve them.

B. **Techniques Available For Assessing Entry Arguments.** These two scenarios place an agency in the position of having to weigh a range of possible outcomes. Academic research is beginning to develop methods for prospectively assessing the probability and the effects of post-merger entry or repositioning using the type of probabilistic framework that has been used to study market entry in other contexts.

In this regard, I would highlight Li, Mazur, Park, Roberts, Sweeting and Zhang (2022), who perform merger simulations that allow for service changes using data from the US airline industry. The simulations assess both the probability of service changes and the effectiveness of mergers in constraining the market power of two nonstop carriers that merge. In particular, the paper shows that accounting for the fact that carriers that offered only connecting service before the merger *did not find it profitable to provide nonstop service* can significantly affect assessments of the probability and the effectiveness (at constraining the exercise of market power) of post-merger repositioning. It can also affect the assessed effectiveness of remedies. Ciliberto, Murry and Tamer (2021, also applied to airlines), Yang and Fan (2021a, mobile devices) and Yang and Fan (2021b, craft beer) also provide methodologies for performing merger simulations that allow for changes in entry.[11]

Agency economists often assume that the methodologies in these papers are too complicated to be used in merger analysis. These papers do have complicated sections, but the difficulties arise because academic work requires the *estimation* of the parameters of the model. But agencies rarely estimate parameters: instead, they calibrate them or assume values that are consistent with company documents. Once parameters have been chosen, performing the simulations for assessing mergers is often quite simple. I would encourage the agencies to discuss these methods in technical guidance.

C. **Consider Entry In The Context of Auctions (RFI 12b).** The discussion of auctions in the 2010 HMG is contained inside the section on unilateral effects, where the set of rival participants is

[11] An important distinction between these papers concerns what entrants know about their quality and marginal costs before they take their entry decisions, and whether the merger simulations "condition on'' the observed market structure in the data. In the airline example, conditioning appears to improve the performance of the simulations at predicting the rates and the effectiveness of repositioning that are observed after actual mergers (Li et al., 2022).

implicitly treated as given. However, academic research tells us that entry is often a *very* important margin for determining auction outcomes (Bulow and Klemperer, 1996).

For merger analysis, it is worth noting that auction entry can be thought about in two different ways. In some auctions (e.g., an auction for a timber contract), entry is really a choice of the potential bidders, i.e., they choose to enter based on whether they expect entry to be profitable. This is analogous to how we think about entry in other settings, and some of the considerations suggested above apply. For example, if potential bidders have good information about how competitive they are likely to be, then the most competitive bidders will typically be the ones that enter before a merger, and a merger of two of the strongest bidders is only likely to induce limited new entry. See, for example, related simulations in Sweeting and Bhattacharya (2015).

On the other hand, if an RFP-type of process is used, it may be that it is the *customer* that selects which firms to send the RFP to, and it will often actively select the subset of firms to compete in the final round. In this case, the customer may be able to restore the number of competitors after a merger by asking an additional firm to participate, and the competitive assessment then needs to ask about the competitiveness of the alternative bidders that the customer may select (who may have wanted to enter the final round if they had been asked to).

In some circumstances it may also be appropriate to ask whether the customer could use other auction design tools, such as bid preference programs, to restore some degree of lost competition.

V. Other Topics Addressed in the RFI

A. **Do The Guidelines Focus Too Much On Price? (RFI 2a)** The focus on price results from (a) an understanding that price increases are bad for customers and will be a likely result of competition being diminished; (b) relatively tractable frameworks for analyzing short-run price effects; (c) party documents that will often discuss what the parties think about when setting prices or bids, or the consequences of price competition (e.g., a recognition that a customer was lost because a particular rival bid more aggressively).

In my experience, other margins of competition **are** considered but they are often less amenable to quantitative analysis, partly because it is less credible that their choices can be easily characterized by first-order conditions. However, it is important to remember that the welfare impact of changes in quality or other attributes can be substantially larger than the welfare impact of changes in price alone, even when the impacts are in the same direction (e.g., Fan (2013)). Focusing on other margins may therefore be important when considering a test of whether the loss of competition is substantial.

More generally, I would support greater emphasis in any guidance on "the protection of competition" and the "competitive process", although I view merger enforcement as trying to prevent mergers that will hurt customers. Overemphasizing customer price changes can lead to too much focus on the short-term effects of a merger, and tend to make it somewhat harder to bring cases where, for example, there is a substantial loss of competition in an input market. We should also remember that circumstances change, and one of the key virtues of vigorous competition is that it can facilitate adaptation to these changes, whereas price analysis often assumes that everything apart from the merger is held fixed.

B. **Structural Remedies (RFI 8)**. The RFI asks about procedures for assessing remedies. My view is that the process of negotiating structural remedies has become more complicated in recent years because of (a) discussions about the suitability of particular divestiture buyers (including aspects that seem tangential to their competitive incentives), and (b) concern about the risks associated with a particular remedy. For example, the divestiture of a particular product line to a buyer may require that buyer to transfer a set of production assets to one of its own plants, and there may be concern that the transfer will, for some reason, fail. I believe it is important to separate cases where there are

concerns about the incentives and the ability (e.g., financial stability) of the buyer, from cases where concerns arise from what might be viewed as “normal business” risk (almost all investments have some probability of going wrong). For normal business risk, I see no reason for agencies to be more risk averse than they would expect customers of the firms to be.

References

Blonigen, Bruce A, and Justin R Pierce (2016), "Evidence for the Effects of Mergers on Market Power and Efficiency," National Bureau of Economic Research, no. 22750.

Braguinsky, Serguey, Atsushi Ohyama, Tetsuji Okazaki, and Chad Syverson (2015), "Acquisitions, Productivity, and Profitability: Evidence from the Japanese Cotton Spinning Industry," *American Economic Review*, 105(7), 2086–2119

Bulow, Jeremy and Paul Klemperer (1996), "Auctions versus Negotiations," *American Economic Review*, 86(1), 180-94.

Caradonna, Peter, Nathan Miller and Gloria Sheu (2021), "Mergers, Entry and Consumer Welfare," working paper, Georgetown University

Ciliberto, Federico, Charles Murry and Elie Tamer (2021), "Market Structure and Competition in Airline Markets," *Journal of Political Economy*, 129(11), 2995-3038.

Fan, Ying (2013), "Ownership Consolidation and Product Characteristics: A Study of the US Daily Newspaper Market," *American Economic Review*, 103(5), 1598-1628.

Fan, Ying and Chenyu Yang (2021a), "Competition, Product Proliferation and Welfare," *American Economic Journal: Microeconomics*, 12(2), 99-134.

Fan, Ying and Chenyu Yang (2021b), "Estimating Discrete Games with Many Firms and Many Decisions: An Application to Mergers and Product Variety," working paper, University of Maryland.

Grieco, Paul, Joris Pinkse, and Margaret Slade (2018), "Brewed in North America: Mergers, Marginal Costs, and Efficiency," *International Journal of Industrial Organization*, 59, 24–65.

Groff, James E, Donald Lien, and Jiwei Su (2007), "Measuring Efficiency Gains from Hospital Mergers," *Research in Healthcare Financial Management*, 11(1), 77–90.

Harrington, Joseph E. (2021), "There May Be No Pass-Through of a Merger-Related Cost Efficiency," *Economic Letters*, 208, 110050, 1-4.

Haynes, Michelle, and Steve Thompson (1999), "The Productivity Effects of Bank Mergers: Evidence from the UK Building Societies," *Journal of Banking & Finance*, 23(5), 825–846.

Hortaçsu, Ali, Olivia R. Natan, Hayden Parsley, Timothy Schwieg, and Kevin R. Williams (2021), "Organizational Structure and Pricing: Evidence from a Large US Airline,". National Bureau of Economic Research, no. 29508.

Kulick, Robert B., (2017), "Ready-to-Mix: Horizontal Mergers, Prices, and Productivity," US Census Bureau Center for Economic Studies, no. CES-WP-17-38.

Li, Sophia, Joe Mazur, Yongjoon Park, James Roberts, Andrew Sweeting and Jun Zhang (2022), "Repositioning and Market Power After Airline Mergers,", RAND Journal of Economics, 53(1), 166-199.

Maskin, Eric, and Jean Tirole (1988a), "A Theory of Dynamic Oligopoly, II: Price Competition, Kinked Demand Curves, and Edgeworth Cycles," *Econometrica*, *56*(3), 571-599.

Maskin, Eric, and Jean Tirole (1988b), "A Theory of Dynamic Oligopoly, III: Cournot Competition," *European Economic Review*, 31(4), 947-968.

Mester, Loretta (1992), "Perpetual Signaling with Imperfectly Correlated Costs", *RAND Journal of Economics*, 23(4), 548-563.

Miller, Nathan and Matthew Weinberg (2017), "Understanding the Price Effects of the MillerCoors Joint Venture," *Econometrica*, 85(6), 1763-1791.

Miller, Nathan, Gloria Sheu and Matthew Weinberg (2021), "Oligopolistic Price Leadership and Mergers: The United States Beer Industry," *American Economic Review*, 111(10), 3123-3159.

Rose, Nancy L., and Jonathan Sallet (2019), "The Dichotomous Treatment of Efficiencies in Horizontal Mergers: Too Much? Too Little? Getting it Right." *University of Pennsylvania Law Review*, 168, 1941–1984.

Sweeting, Andrew, and Vivek Bhattacharya (2015), "Selective Entry and Auction Design," *International Journal of Industrial Organization*, 43, 189-207.

Sweeting, Andrew and Sinan Corus (2021), "Economic Issues in Merger Analysis for Platforms," *Competition Law Insights*.

Sweeting, Andrew, Xuezhen Tao and Xinlu Yao (2022), "Dynamic Oligopoly Pricing with Asymmetric Information: Implications for Mergers," National Bureau of Economic Research, no. 28589. (attached)

Sweeting, Andrew, Mario Leccese and Xuezhen Tao (2022), "Should We Expect Uncertain Merger Synergies to be Passed Through to Consumers?," working paper, University of Maryland. (attached)

Walia, Bhavneet, and Christopher John Boudreaux (2019), "Hospital Mergers, Acquisitions and Regulatory Policy Implications: Price, Cost, Access and Market Power Effects," *Managerial Finance*, 45(10/11), 1354–1362.

Yan, Jia, Xiaowen Fu, Tae Hoon Oum, and Kun Wang (2019), "Airline Horizontal Mergers and Productivity: Empirical Evidence from a Quasi-Natural Experiment in China," International Journal of Industrial Organization, 62, 358–376.