Merger Remedies and the Undersupply of Economic Research

F. David Osinski[1]

I. INTRODUCTION

> *"Yet, while there is a lot of economics literature on the effects of mergers, I am not aware of much on merger fixes and divestitures."*
>
> \- Farrell (2003)

In the 14 years since this quote, the empirical study of merger remedies has seen little advancement despite frequent use of remedies in practice, significant policy interest, and a treasure trove of potential research topics. This article first describes the use of remedies in U.S. merger policy, including a summary of the FTC's recent remedy study. It then provides a review of empirical literature addressing remedy effectiveness, with only two modern retrospectives of domestic merger remedies. The article concludes by highlighting areas where economic research could further advance the study of merger remedies.

II. MERGER REMEDIES IN PRACTICE

The Federal Trade Commission (FTC) and the Antitrust Division of the Department of Justice (DOJ) may choose to challenge a merger deemed harmful to competition. Alternatively, the agencies and merging parties may agree to a remedy, a modification to the transaction that eliminates the competitive harm. Antitrust agencies use remedies to preserve efficiency-enhancing characteristics of a merger while avoiding increases in market power.[2]

Remedies arise frequently in practice. In FY 2015, the most recent year available, the U.S. antitrust agencies challenged 42 mergers, 25 of which ended with remedies.[3] Over the past ten years, more than half of challenged mergers

[1] Economist, Federal Trade Commission. The views expressed in this article are those of the author and do not necessarily reflect those of the U.S. Federal Trade Commission or any individual Commissioner. Thank you to the Economics Committee leadership that supported this work, including Don Stockdale and Dan Weick. Thanks to Liz Callison, Matt Chesnes, Dan Hosken, Naomi Licker, and Jeremy Sandford for helpful comments and to Katie MacAdam for excellent research assistance. The author is responsible for all remaining errors.
[2] DOJ (2011).
[3] Federal Trade Commission and Department of Justice, 2016, "Hart-Scott-Rodino annual report Fiscal Year 2015."

ended in consents, with the number reaching as high as 75% in some years.[4] Even enforcement actions that do not end with a remedy often assess the feasibility of remedies during the investigative process.[5]

Remedies are often classified as structural versus behavioral. Structural remedies entail physical separation or divestiture of overlapping assets. A behavioral remedy, sometimes called a conduct remedy, refers to a transaction allowed to proceed with some restriction on the merged entity's post-merger conduct to constrain the exercise of market power. In contrast to a structural remedy, a conduct remedy does not require physical separation or divestiture of assets. A consent agreement may include both structural and behavioral components.

Under the 1976 HSR Act, mergers exceeding certain size thresholds require pre-merger notification to the FTC and DOJ.[6] This allows the antitrust agencies to assess *ex ante* the likely harm to consumers and identify appropriate remedies before the merger consummates. In some cases, mergers may proceed without notifying the antitrust agencies. This was the case for all mergers prior to HSR, and since then for mergers below the HSR threshold. The remedies available to the agencies pre-consummation are very different from those available post-consummation.[7] For example, after a merger is consummated, the operations may be integrated or some assets repurposed. Restoring a standalone business may entail significant costs and uncertainty, rendering a forced divestiture more damaging to competition than accommodating the harmful merger. The antitrust agencies continue to face challenges with identifying appropriate remedies in consummated mergers.[8]

While the exact remedy may be unique to each transaction, generally structural remedies are the preferred method for alleviating competitive effects of

[4] Hart-Scott-Rodino annual reports for fiscal years 2006 to 2015 show that 57.5% of the 370 challenged mergers ended with consent orders issued simultaneous with a complaint.

[5] For example, the FTC rejected proposed remedies in Sysco/US Foods, Staples/Office Depot, and Superior/Canexus, ultimately challenging all three mergers. Keynote Remarks of FTC Chairwoman Edith Ramirez, 10th Annual Global Antitrust Enforcement Symposium, Washington, DC, September 20, 2016.

[6] For a brief overview of the HSR process, see https://www.ftc.gov/tips-advice/competition-guidance/guide-antitrust-laws/mergers/premerger-notification-and-merger.

[7] See Elzinga (1969) for an early discussion of challenges with obtaining successful remedies in consummated mergers. For a more recent discussion, see Sher (2004).

[8] See FTC (2017): "When a merger is consummated prior to antitrust review, the Commission may face significant challenges in crafting a remedy to resolve competitive concerns, depending on the status of the assets already combined into a single entity. It may be particularly difficult to restore the pre-merger state of competition if the merging parties have commingled, sold, or closed assets; integrated or dismissed employees; transferred customers to the merged entity; or shared confidential information."

horizontal overlaps in mergers.[9] Divestiture transfers pricing control to a separate entity, removing the incentive for upward pricing pressure from internalizing diversion between the products, requiring less oversight by the agencies. Behavioral remedies are more common in vertical mergers, often to restrain foreclosure incentives when a divestiture might preclude efficiencies from the vertical integration, or in consummated mergers, where a divestiture may not restore competition due to the high cost and risk of unscrambling the eggs.

III. THE 2017 FTC REMEDY STUDY

Once a remedy is implemented, no regular process exists for assessing the remedy's effect.[10] How can an agency learn from its successes and failures if it cannot observe outcomes? Knowing not only whether a remedy succeeded, but how and why it succeeded, improves the likelihood of success going forward. The antitrust agency that reviewed the merger is best positioned to assess the competitive effect of a remedied transaction, as it already understands the market, transaction, and remedy. However, the cost of post-remedy evaluation, including the burden on the merging parties (as well as the agencies and other market participants), renders such *ex post* assessment infeasible on a routine basis.

Antitrust agencies occasionally study past remedies with explicit policy objectives: How can historic outcomes improve prospective merger policy? Until recently, the only United States remedy study was released by the FTC in 1999, analyzing 35 Commission orders from 1990 to 1994.[11] At the time, FTC (1999) generated a number of insights and updates to the FTC's remedy practices.

In January 2017, the FTC released the most comprehensive domestic remedy study to date, analyzing 89 consents issued between 2006 and 2012.[12] Its goal was to evaluate the success of each remedy as well as examine the remedy process more generally. The study was a significant undertaking over a two year

---

[9] For the FTC: "Most merger cases involve horizontal mergers, and the Commission prefers structural relief in the form of a divestiture to remedy the anticompetitive effects of an unlawful horizontal merger." Negotiating Merger Remedies," Statement of the Bureau of Competition of the Federal Trade Commission, January 2012, available at https://www.ftc.gov/tips-advice/competition-guidance/merger-remedies. For the DOJ: "Antitrust Division Policy Guide to Merger Remedies," June 2011, available at https://www.justice.gov/atr/public/272350.pdf: "[T]he Division will pursue a divestiture remedy in the vast majority of cases involving horizontal mergers."

[10] For some consents, the FTC/DOJ and parties may assign a third-party monitor to ensure the terms of the consent agreement are followed. The monitor's role does not include the remedy's competitive effect, nor does it consider whether some other remedy might have been more effective.

[11] The DOJ has not performed any retrospective remedy studies, although it provided remedy guidance in 2004, later updated in 2011. Three foreign agencies have conducted their remedy studies, including EU's DG Comp (2005), UK's Competition & Markets Authority (2017), and Canada's CBC (2011).

[12] FTC (2017).

period, listing 120 contributing commission employees (including 33 from the Bureau of Economics) who conducted more than 200 interviews, analyzed annual market-level sales data submitted by almost 200 firms, and examined responses to almost 30 questionnaires.

Staff analyzed orders based on three methodologies (case studies, questionnaires, and pharmaceuticals), each discussed in turn below.

Case studies: Fifty orders covering 184 relevant markets employed a case study method. Staff interviewed industry participants and analyzed sales data provided by the merged firm, the buyer, and significant competitors. The report defined a consent successful if it maintained competition in the relevant market or restored competition to pre-merger levels within two to three years. A qualified success occurred if it maintained competition but took longer than two to three years, or if the market evolved in unexpected ways. A failed consent occurred if it did not restore competition within this period.

Figure 1 summarizes results for all 50 orders, as well as various remedy categories.[13] For all orders, 69% were deemed successful, 14% were qualified successes, and 17% were failures. Two-thirds of the sample were structural remedies in mergers not-consummated at the time of the investigation, where 75% were successful, 6% were qualified successes, and 19% were failures. About one-sixth of the sample were structural remedies in mergers already consummated at the time of the investigation, for which 26% were successful, 52% were qualified successes, and 22% were failures. All four vertical merger remedies were deemed successful. The remaining six orders were horizontal behavioral remedies, for which separate results were not reported.

[13] Some orders involved multiple types of remedies and multiple markets. In these cases, orders may be split across categories, sometimes resulting in fractional orders.

Figure 1: Summary of remedy study results for fifty case studies

Group	Number	Successes	Qualified successes	Failures
All case studies	50	69%	14%	17%
Horizontal structural non-consummated	32.3	75%	6%	19%
Horizontal structural consummated	7.7	26%	52%	22%
Vertical, all non-consummated	4	100%	0%	0%
Horizontal behavioral	6	not reported		

During interviews with industry participants regarding these fifty remedies, staff also solicited feedback with the remedy process more generally. Some expressed concerns with the underlying competitive dynamic: the seller has little incentive to facilitate a smooth transition because it will compete with the buyer post-remedy. When industry participants expressed concerns, remedy success rates were lower (56% successful versus 78% when no concerns were expressed) and failure rates were higher (20% versus 15%). Some more notable conclusions regarding how the remedy process influences post-remedy competition include:

- The study finds that divestitures of ongoing businesses succeeded in 100% of the orders, while selected asset packages succeeded in 56% and failed in 33% of orders.[14]

[14] See FTC (1999) for the definition of "ongoing business," *i.e.*, a business with an established customer base, a fully staffed facility, or a self-contained business unit that could be operational the next day, selling to the same customers, with an almost immediate transfer of market share to the buyer. For FTC (2017), in the nine divestitures of selected assets that failed, all involved upfront buyers, *i.e.*, when the buyer has a purchase agreement with the parties, has been approved by the Commission, and is typically named in the proposed consent order.

- Typically the merging parties select the asset buyer, subject to Commission approval, raising concerns that they might intentionally select a weak buyer. While the 1999 FTC study found that the parties sometimes selected buyers unlikely to offer robust competition, the 2017 FTC study determined proposed buyers were typically committed and familiar with the market.

- Buyers were typically satisfied with access to information, although some expressed concerns due to an expedited timeline or lack of access to facilities and employees.

- Hold separate orders are viewed as important tools to prevent the seller from manipulating or deteriorating the assets pending divestiture. However, buyers mentioned several challenges with hold separate agreements. During this transition period the divested business was sometimes less responsive to market forces and faced increasing departure risk for key employees, among other challenges. This raises concerns that competitors could make inroads during this interim period, weakening the divested asset's post-remedy competitive presence.

Questionnaires: Fifteen orders required divestitures in industries where the FTC has considerable experience.[15] Staff sent voluntary questionnaires to the 43 asset buyers, receiving 27 responses, and reviewed publicly available sources. A remedy was a success if the divested assets are still operating in the market. Of the 43 divested assets, 39 continue to operate, five of which were re-sold to other firms. Some questionnaire responses expressed similar concerns about the remedy process as found in the 50 case studies, most notably challenges with obtaining due diligence information, as well as adverse effects to the divested business during the hold separate period.

Pharmaceuticals: Twenty-four orders involved the transfer of 92 products in the pharmaceutical industry. Staff analyzed these orders using internal and external information and data. Of the 60 divested actively sold products (as opposed to products in research or development phases), staff defined a successful divestiture as one in which the transferred product remained on-market. This applied to three-quarters of the divested products. Success rates varied based on the nature of the manufacturing process. All 18 products involving a third-party

[15] These include supermarkets, funeral homes and cemeteries, and a variety of health care products.

contract manufacturer remained on the market. Of the remaining 42 products, 31 were tablet or capsule form. Of these, 24 remained on the market, while buyers of the other seven were unable to sell the product due to supply problems or a decision not to invest in production. The remaining 11 products involved oral solids requiring more specialized production facilities, with only three continuing to sell post-divestiture. For the 32 "pipeline" products (in development), staff defined a successful remedy as one in which the product development effort was successfully transferred to the new firm, which occurred in all 32 cases.

The report concludes with a discussion of best practices arising from the study across all 89 consents. The more notable include:

- *Defining the asset package*: Selected assets succeed less often, confirming the Commission's preference for divesting an ongoing business. The proposed buyer of selected assets should demonstrate its ability to compete effectively post-divestiture, and the order should sufficiently define and transfer back office functions to support the asset package.

- *Reviewing the proposed buyer*: To ensure the proposed buyer's viability, the Commission seeks to understand how the proposed buyer was selected, and its financing and business plans, among other things.

- *Implementing the remedy*: When implementing the remedy, there should be adequate opportunity for the buyer to conduct due diligence, and to identify any transition services required to maintain any important business relationships, such as supply agreements, customer contracts, or third-party relationships.

IV. ECONOMICS LITERATURE

Some have expressed concern that the antitrust agencies have an incentive to set low bars that exaggerate success rates, with the FTC's recent remedy study potentially suffering from this grade inflation.[16] In this regard, the economics literature provides an important external crosscheck on conclusions from agency studies. Unfortunately, economics literature to date has provided very few

[16] Sagers, C., "The Limits of Divestiture as an Antitrust Remedy," The New York Times, Feb. 14, 2017.

quantitative contributions regarding the effectiveness of merger remedies comparable to the prevailing retrospective merger literature.[17]

Seminal work in this area dates back almost 50 years to Elzinga (1969), which analyzes 39 merger remedies, finding relief unsuccessful in 21 and deficient in eight. When accounting for the time lag from acquisition to remedy,[18] he finds 31 unsuccessful and 4 deficient, leaving only 4 remedies in his sample with sufficient or successful relief. Rogowsky (1986) extends Elzinga's study by including a more recent and larger sample size and measuring welfare effects, finding modest benefits from remedies: more than 70% were unnecessary while fewer than 12% resulted in some gain in consumer welfare. Worth noting is that these studies rely on remedies that predate the HSR Act, with consummated mergers comprising the vast majority of their samples. As stated earlier, obtaining successful relief in consummated mergers can be impeded by the integration and repurposing of assets.

From the 1980s into the 2000s our understanding of merger retrospectives evolved. First, we began to construct mergers as natural experiments, evaluating their effects relative to control groups. This framework, often called the "difference in differences" methodology, has become a widely accepted approach in merger retrospectives.[19] Second, we discovered that idiosyncrasies among markets and the specifics of each merger favored a case study framework, separately examining competitive effects in each relevant market, rather than cross-sectional analysis. More than 15 merger retrospective studies were published during this period.[20] While some of these analyzed mergers ended with consent orders, the remedy itself was not the focus of the study.[21]

---

[17] This article focuses on empirical analysis of merger remedies. Theoretical remedy literature often addresses potential inefficiencies in the remedy process, particularly those generating suboptimal policy outcomes.

[18] Elzinga's sample has an average time span of more than 15 months from acquisition to complaint, and those with structural relief had an average time of five and a half years from acquisition to divestiture.

[19] See Farrell et al. (2009) for a description of the difference in differences methodology, and Greenfield (2015) for a practitioner's guide.

[20] See Kwoka (2015) Appendix I for a summary of merger retrospectives using a difference in differences methodology.

[21] For example, Ashenfelter & Hosken (2010) analyze the overall effect of the 1997 General Mills/Ralcorp merger without separately measuring the effect of the behavioral conditions placed on General Mills. Vita and Sacher (2001) analyze the impact of Dominican/AMI, a consummated hospital merger in 1990, but do not separately measure the effect of the behavioral remedy imposed three years later. Rogers and Hollinger (2004) examine two petroleum mergers (Texaco/Getty and Socal/Gulf) in 1984. They construct a reduced form model of post-merger prices, using the estimated coefficients to predict pre-merger prices, then compare the predictions to actual prices, concluding the mergers inclusive of divestitures did not increase prices.

Cross-sectional or pooled merger studies, while less common, still exist today, typically focused on individual industries.[22] However, during the 1990s and 2000s, while merger retrospectives evolved into case studies, remedy retrospectives still relied on cross-sectional pooling. For example, Burke (1998) and Pillaf (2002) analyze almost one thousand bank branches divested in merger remedies from 1985 to 1992, and 1989 to 1999, respectively. Burke (1998) finds that more than 97% of divested branches remain in business, and while some branches lost share after the merger, approximately half of branches regained and maintained shares. Pillaf (2002) compares survival rates and growth rates for divested branches relative to all other bank branches, finding no discernible long run difference, although divested branches may face an initial drop in deposits post-divestiture. Thus, despite different methodologies and time periods, both studies find that divestitures as a whole have been successful although neither examines the success of any specific transaction or divestiture.

There have been two retrospective studies analyzing domestic merger remedies relative to a control group.[23] First, Tenn and Yun (2011) analyze six brands divested from J&J's 2006 acquisition of Pfizer's consumer health division using both a before-and-after framework as well as a difference in differences model with other brands in each product category as a control group. Subject to certain caveats, they do not find any significant change in the performance of these six brands. They conclude the divestiture did not generate any meaningful change in the competitive environment, suggesting the remedy maintained pre-merger levels of competition. Second, Osinski and Sandford (2017) employ a difference in differences framework to analyze the 2013 Pinnacle/Ameristar merger and the subsequent divestiture of one of Pinnacle's St. Louis casinos, using other Missouri casinos as a control group. They find the merged firm benefited from efficiencies, resulting in lower prices and higher quantity. This stimulated a nearby competitor also to lower its price. However, while the divested casino did not substantially degrade during the hold-separate period, it performed worse post-divestiture. They conclude the transaction as a whole benefited consumers because the increased efficiencies outweighed the reduction in competition from the weaker divested casino.

[22] See Kwoka (2015) Appendix II for a summary of 19 group merger studies, most in the health care sector.
[23] While not the focus of this article, there also are studies analyzing remedies in Europe. Friberg and Romahn (2015) estimate a random coefficients demand model to compare simulated divestiture effects to actual post-merger prices, finding the divestitures constrained beer price increases of merging firms in Sweden. Duso et al. (2011) analyze stock price movements surrounding 151 European merger investigations, finding that remedies only partially reduce abnormal returns from the merger announcement.

Some studies analyze the effect of hypothetical merger remedies. For example, Gowrisankaran et al. (2015) estimate a bargaining model of competition among Northern Virginia hospitals, using the results to evaluate the impact of potential remedies in an abandoned hospital merger challenged by the FTC. The study finds that certain remedies, such as separate bargaining entities for the two hospitals (the remedy adopted in the Evanston/Highland Park merger), would not have alleviated competitive harm. While not a remedy retrospective *per se*, such studies are still valuable for assessing merger policy generally, in this case affirming the FTC's challenge.

Despite such sparse literature, the agencies have faced recent criticism for an overly lax remedy policy. Kwoka (2015) surveys the economic literature of domestic retrospective merger and merger remedy research. He identifies studies of 11 past mergers with remedies that on average show increasing prices, especially the four involving conduct remedies. Kwoka cites this as evidence that "many challenged mergers are subject to remedies that fail to prevent post-merger price increases." However, Vita and Osinski (2016) question whether the underlying studies support this claim: for the four non-HSR consummated mergers, three have underlying studies with no post-remedy data. In addition, studies of four other transactions present mixed results, *i.e.*, price effects vary across specifications or methodologies. Of the three remaining, the most recent was found to be an unequivocal success: J&J/Pfizer in 2006, studied in Tenn and Yun (2011). The two transactions indicating a failure to constrain market power both occurred at least 20 years in the past: General Mills/Ralcorp (1997) and Thompson/West (1995). As noted earlier, for these latter two, the remedy was not the specific focus of the research. Further, the small sample size relative to the population of remedied mergers diminishes the reliability of even preliminary conclusions regarding domestic remedy policy.[24] One should exercise caution when evaluating the effectiveness of domestic merger remedies with such thin literature. More research is required before reaching such judgments.

V. LOOKING AHEAD: THE VALUE OF NON-AGENCY ECONOMIC RESEARCH

Remedies provide rich natural experiments yielding a treasure trove of potential research questions largely unexplored by economic researchers. However, despite an increasing collection of merger retrospectives, analysis of

[24] As stated earlier, more than half of the 370 challenged mergers under HSR over the past ten years ended with consents. Kwoka's sample spans 40 years, yet contains only seven HSR-reviewed mergers with remedies.

merger remedies remains in its infancy with many potential research opportunities.

Perhaps the most obvious topic is simply assessing remedy effectiveness. Given the prospective nature of HSR merger review, and lack of *ex post* evaluation, a question for any transaction is whether the remedy achieved its intended goal. Separate from whether the antitrust agencies correctly identified that the merger was anticompetitive, was the remedy too much, not enough, or just right? What market or remedy characteristics tend to improve or impede remedy success? Did the remedy create any unexpected or nuanced effects, such as product repositioning or entry? A better understanding of these questions can improve future merger enforcement.

Remedies sometimes provide opportunities to test merger theories in a more complex environment. While a merger entails the combination of assets between two firms, a remedy often entails asset transfers among three or more firms within a relevant market. Assets previously separate may become joined, while assets previously joined may separate. Given the internalization or externalization of diversion among these various assets, do post-merger prices react as theory predicts? What magnitude of efficiencies (or disefficiencies) arise from the ownership changes, and do they offset any potential increase in market power? Prior merger retrospectives tend to examine the overall effect of the transaction, only recently attempting to measure a separate remedy effect distinct from the combination.

Perhaps a more fundamental topic is how to define remedy success. As stated earlier, the DOJ cites the goal of a remedy as preserving efficiencies while avoiding market power increases. This raises two separate issues. The first focuses on the remedy: Did the divested asset maintain pre-merger levels of competition? The second considers merger benefits: Did the modified merger create pro-competitive efficiencies? The answer to these two questions may not point in the same direction, raising the question of whether to examine the remedy's effect separately or within the context of the entire transaction. In addition, the relevant period to evaluate a remedy remains untested. The 2017 FTC remedy report defines a successful remedy as restoring pre-merger levels of competition in two to three years. Is this an appropriate time frame?

These and many other questions remain regarding merger remedies. To date, the FTC has been the primary source of domestic remedy assessments with its 1999 and 2017 studies. Contributions from the academic community provide an outside perspective and a valuable cross-check on agency conclusions.

REFERENCES

Ashenfelter, O., and D. Hosken, 2010, "The Effect of Mergers on Consumer Prices: Evidence from Five Mergers on the Enforcement Margin," *Journal of Law and Economics*, 53 (3): 417–66.

Burke, J., 1998, "Divestiture as an antitrust remedy in bank mergers," Federal Reserve FEDS Working Paper No. 1998-14.

Competition Bureau Canada, 2011, "Competition Bureau Merger Remedies Study."

Cosnita, A., and J-P. Tropeano, 2009, "Negotiating remedies: Revealing the merger efficiency gains," *International Journal of Industrial Organization*, 27, 188-196.

Department of Justice, Antitrust Division, 2011, "Antitrust Division Policy Guide to Merger Remedies."

DG COMP, European Commission, 2005, "Merger Remedies Study."

Duso, T., K. Gugler, and B. Yurtoglu, 2011, "How effective is European merger control?," Dusseldorf Institute for Competition Economics, discussion paper no. 15.

Elzinga, K.G., 1969, "The Antimerger Law: Pyrrhic Victories?," *The Journal of Law & Economics*, 12:1, 43-78.

Farrell, J., 2003, "Economic Analysis and the Choice of Remedies," in *Merger Remedies in American and European Union Competition Law* (F. Leveque and H. Shelanski, eds, 2003).

Farrell, J., P. A. Pautler, M. G. Vita, 2009, "Economics at the FTC: Retrospective Merger Analysis with a Focus on Hospitals," *Review of Industrial Organization*, 35:4, 369-385.

Federal Trade Commission, 1999, "A Study of the Commission's Divestiture Process."

Federal Trade Commission, 2017, "The FTC's Merger Remedies 2006-2012."

Friberg, R. and A. Romahn, 2015, "Divestiture requirements as a tool for competition policy: A case from the Swedish beer market," *International Journal of Industrial Organization*, 42, 1-18.

Greenfield, D., 2015, "Guide to Merger Analysis Using Difference in Differences," in *Merger, Merger Control, and Remedies*, (J. Kwoka, 2015), Cambridge: MIT Press.

Gowrisankaran, G., A. Nevo, and R. Town, 2015, "Mergers When Prices Are Negotiated: Evidence from the Hospital Industry," *The American Economic Review*, 105:1, 172–203.

Kwoka, J., 2015, *Merger, Merger Control, and Remedies*, Cambridge: MIT Press.

Osinski, F. D., and J. A. Sandford, 2017, "Merger Remedies: A Retrospective Analysis of Pinnacle/Ameristar," SSRN working paper #3008770.

Pilloff, S. J., 2002, "What's happened at divested bank offices? An empirical analysis of antitrust divestitures in bank mergers," Federal Reserve FEDS Working Paper No. 2002-60.

Rogers, R. P., Hollinger, B., 2004, "The impact on product prices of mergers in the petroleum industry," *Southwestern Economic Review*, 31 (1), 57–78.

Rogowsky, R.A., 1986, "The economic effectiveness of section 7 relief," *The Antitrust Bulletin*, 31, 187-233.

Sher, Scott A., 2004, "Closed But Not Forgotten: Government Review of Consummated Mergers Under Section 7 of the Clayton Act," *Santa Clara Law Review*, 45:1, 41-98.

Tenn, S. and J.M. Yun, 2011, "The success of divestitures in merger enforcement: Evidence from the J&J-Pfizer transaction," *International Journal of Industrial Organization*, 29, 273-282.

UK's Competition & Markets Authority (2017), "Understanding past merger remedies."

Vita, M.G. and F.D. Osinski, 2016, "John Kwoka's Mergers, Merger Control, and Remedies: A Critical Review," SSRN working paper #2888485.

Vita, M.G., and S. Sacher, 2001, "The Competitive Effects of Not-for-Profit Hospital Mergers: A Case Study," *Journal of Industrial Economics*, 49, 63-84.