
THE MERGER CONTROL REVIEW

SIXTH EDITION

EDITOR
ILENE KNABLE GOTTS

LAW BUSINESS RESEARCH

THE MERGER CONTROL REVIEW

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THE MERGER CONTROL REVIEW

Sixth Edition

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EDITOR'S PREFACE

Pre-merger competition review has advanced significantly since its creation in 1976 in the United States. As this book evidences, today almost all competition authorities have a notification process in place – with most requiring pre-merger notification for transactions that meet certain prescribed minimum thresholds. Additional jurisdictions, particularly in Asia, are poised to add pre-merger notification regimes in the next year or so. The 10 Member States of the Association of Southeast Asian Nations, for example, have agreed to introduce national competition policies and laws by year-end 2015. We have expanded the jurisdictions covered by this book to include the newer regimes as well in our endeavour to keep our readers well informed.

Given the ability of most competition agencies with pre-merger notification laws to delay, and even block, a transaction, it is imperative to take each jurisdiction – small or large, new or mature – seriously. China, for instance, in 2009 blocked the Coca-Cola Company's proposed acquisition of China Huiyuan Juice Group Limited and imposed conditions on four mergers involving non-Chinese domiciled firms. In *Phonak/ReSound* (a merger between a Swiss undertaking and a Danish undertaking, each with a German subsidiary), the German Federal Cartel Office blocked the entire merger even though less than 10 per cent of each of the undertakings was attributable to Germany. It is, therefore, imperative that counsel for a transaction develops a comprehensive plan prior to, or immediately upon, execution of the agreement concerning where and when to file notification with competition authorities regarding the transaction. In this regard, this book provides an overview of the process in 43 jurisdictions, as well as a discussion of recent decisions, strategic considerations and likely upcoming developments. Given the number of recent significant M&A transactions involving pharma and high-technology companies, we have added to this year's edition chapters focusing on the US and EU enforcement trends in these important sectors. In addition, as merger review increasingly includes economic analysis in most, if not all, jurisdictions, we have added a chapter discussing the various economic tools used to analyse transactions. The intended

readership of this book comprises both in-house and outside counsel who may be involved in the competition review of cross-border transactions.

Some common threads in institutional design underlie most of the merger review mandates, although there are some outliers as well as nuances that necessitate careful consideration when advising clients on a particular transaction. Almost all jurisdictions vest exclusive authority to review transactions in one agency. The US and China may end up being the exceptions in this regard. Most jurisdictions provide for objective monetary size thresholds (e.g., the turnover of the parties, the size of the transaction) to determine whether a filing is required. Germany, for instance, provides for a *de minimis* exception for transactions occurring in markets with sales of less than €15 million. There are some jurisdictions, however, that still use 'market share' indicia (e.g., Bosnia and Herzegovina, Colombia, Lithuania, Portugal, Spain, Ukraine and the UK). Most jurisdictions require that both parties have some turnover or nexus to their jurisdiction. However, there are some jurisdictions that take a more expansive view. For instance, Turkey recently issued a decision finding that a joint venture (JV) that produced no effect in Turkish markets was reportable because the JV's products 'could be' imported into Turkey. Germany also takes an expansive view by adopting as one of its thresholds a transaction of 'competitively significant influence'. Although a few merger notification jurisdictions remain 'voluntary' (e.g., Australia, Singapore, the UK and Venezuela), the vast majority impose mandatory notification requirements.

The potential consequences for failing to file in jurisdictions with mandatory requirements varies. Almost all jurisdictions require that the notification process be concluded prior to completion (e.g., pre-merger, suspensory regimes), rather than permitting the transaction to close as long as notification is made prior to closing. Many of these jurisdictions can impose a significant fine for failure to notify before closing even where the transaction raises no competition concerns (e.g., Austria, Cyprus, India, the Netherlands, Romania, Spain and Turkey). In France, for instance, the Authority imposed a €4 million fine on Castel Frères for failure to notify its acquisition of part of Patriache group. Some jurisdictions impose strict time frames within which the parties must file their notification. For instance, Cyprus requires filing within one week of signing of the relevant documents and agreements; Serbia and India provide for 15 days after signing the agreement; and Hungary, Ireland and Romania have a 30-calendar-day time limit commencing with the entering into the agreement for filing the notification. Some jurisdictions that mandate filings within specified periods after execution of the agreement also have the authority to impose fines for 'late' notifications (e.g., Bosnia and Herzegovina, India and Serbia). Most jurisdictions also have the ability to impose significant fines for failure to notify or for closing before the end of the waiting period, or both (e.g., Greece, Portugal, Ukraine and the US). In Macedonia, the failure to file can result in a misdemeanour and a monetary fine of up to 10 per cent of the worldwide turnover.

In addition, other jurisdictions have joined the EU and US in focusing on interim conduct of the transaction parties. Brazil, for instance, issued its first 'gun jumping' fine last year and recently issued guidelines on gun jumping violations. In most jurisdictions, a transaction that does not meet the pre-merger notification thresholds is not subject to review and challenge by the competition authority. In Canada – like the US – however, the agency can challenge mergers that were not required to be notified under the

pre-merger statute. In 2014 alone, the Canadian Competition Bureau took enforcement action in three non-notifiable mergers.

In almost all jurisdictions, very few transactions undergo a full investigation, although some require that the notification provide detailed information regarding the markets, competitors, competition, suppliers, customers and entry conditions. Most jurisdictions that have filing fees specify a flat fee or state in advance a schedule of fees based upon the size of the transaction; some jurisdictions, however, determine the fee after filing or provide different fees based on the complexity of the transaction. For instance, Cyprus is now considering charging a higher fee for acquisitions that are subjected to a full Phase II investigation.

Most jurisdictions more closely resemble the EU model than the US model. In these jurisdictions, pre-filing consultations are more common (and even encouraged); parties can offer undertakings during the initial stage to resolve competitive concerns; and there is a set period during the second phase for providing additional information and for the agency to reach a decision. In Japan, however, the Japanese Federal Trade Commission (JFTC) announced in June 2011 that it would abolish the prior consultation procedure option. When combined with the inability to 'stop the clock' on the review periods, counsel may find it more challenging in transactions involving multiple filings to avoid the potential for the entry of conflicting remedies or even a prohibition decision at the end of a JFTC review. Some jurisdictions, such as Croatia, are still aligning their threshold criteria and process with the EU model. There remain some jurisdictions even within the EU that differ procedurally from the EU model. For instance, in Austria, the obligation to file can be triggered if only one of the involved undertakings has sales in Austria, as long as both parties satisfy a minimum global turnover and have a sizeable combined turnover in Austria.

The role of third parties also varies across jurisdictions. In some jurisdictions (e.g., Japan) there is no explicit right of intervention by third parties, but the authorities can choose to allow it on a case-by-case basis. In contrast, in South Africa, registered trade unions or representatives of employees are to be provided with a redacted copy of the merger notification from the outset and have the right to participate in merger hearings before the Competition Tribunal: the Tribunal will typically also permit other third parties to participate. Bulgaria has announced a process by which transaction parties even consent to disclosure of their confidential information to third parties. In some jurisdictions (e.g., Australia, the EU and Germany), third parties may file an objection to a clearance decision. In some jurisdictions (including Canada, the EU and the US), third parties (e.g., competitors) are required to provide information and data if requested by the antitrust authority. In Israel, a third party that did not comply with such a request was recently fined by the Authority.

In almost all jurisdictions, once the authority approves the transaction, it cannot later challenge the transaction's legality. The US is one significant outlier with no bar for subsequent challenge, even decades following the closing, if the transaction is later believed to have substantially lessened competition. Canada, in contrast, provides a more limited time period of one year for challenging a notified transaction (see the recent *CSC/Complete* transaction). Norway is a bit unusual, in that the Authority has the ability to

mandate notification of a transaction for a period of up to three months following the transaction's consummation.

It is becoming the norm in large cross-border transactions raising competition concerns for the US, Canadian, Mexican and EU authorities to work closely together during the investigative stages, and even in determining remedies, minimising the potential of arriving at diverging outcomes. The Korean Fair Trade Commission has stated that it will engage in even greater cooperation with foreign competition authorities, particularly those of China and Japan, which are similar to Korea in their industrial structure. Regional cooperation among some of the newer agencies has also become more common; for example, the Argentinian authority has worked with Brazil's CADE, which in turn has worked with the Chilean authority. Competition authorities in Bosnia and Herzegovina, Bulgaria, Croatia, Macedonia, Montenegro, Serbia, Slovenia and Turkey similarly maintain close ties and cooperate on transactions. Taiwan is part of the Asia-Pacific Economic Cooperation Forum, which shares a database. In transactions not requiring filings in multiple EU jurisdictions, Member States often keep each other informed during the course of an investigation. In addition, transactions not meeting the EU threshold can nevertheless be referred to the Commission in appropriate circumstances. In 2009, the US signed a memorandum of understanding with the Russian Competition Authority to facilitate cooperation; China has 'consulted' with the US and the EU on some mergers and entered into a cooperation agreement with the US authorities in 2011. The US also has recently entered into a cooperation agreement with India.

Although some jurisdictions have recently raised the size threshold at which filings are mandated, others have broadened the scope of their legislation to include, for instance, partial ownership interests. Some jurisdictions continue to have as their threshold test for pre-merger notification whether there is an 'acquisition of control'. Many of these jurisdictions, however, will include as a reportable situation the creation of 'joint control', 'negative (e.g., veto) control' rights to the extent that they may give rise to *de jure* or *de facto* control (e.g., Turkey), or a change from 'joint control' to 'sole control' (e.g., the EU and Lithuania). Minority holdings and concerns over 'creeping acquisitions', in which an industry may consolidate before the agencies become fully aware, have become the focus of many jurisdictions. Some jurisdictions will consider as reviewable acquisitions in which only a 10 per cent or less interest is being acquired (e.g., Serbia for certain financial and insurance mergers), although most jurisdictions have somewhat higher thresholds (e.g., Korea sets the threshold at 15 per cent of a public company and otherwise at 20 per cent of a target; and Japan and Russia at any amount exceeding 20 per cent of the target). Others use as the benchmark the impact that the partial shareholding has on competition; Norway, for instance, can challenge a minority shareholding that creates or strengthens a significant restriction on competition. The UK also focuses on whether the minority shareholder has 'material influence' (i.e., the ability to make or influence commercial policy) over the entity. Several agencies during the past few years have analysed partial ownership acquisitions on a standalone basis as well as in connection with JVs (e.g., Canada, China, Cyprus, Finland and Switzerland). Vertical mergers were also a subject of review (and even resulted in some enforcement actions) in a number of jurisdictions (e.g., Belgium, Canada, China, Sweden and Taiwan). Portugal

even viewed as an 'acquisition' subject to notification the non-binding transfer of a customer base.

For transactions that raise competition issues, the need to plan and to coordinate among counsel has become particularly acute. Multijurisdictional cooperation facilitates the development of cross-border remedies packages that effectively address competitive concerns while permitting the transaction to proceed. The consents adopted by the US and Canada in the *Holcim/Lafarge* merger exemplify such a cross-border package. As discussed in the International Merger Remedies chapter, it is no longer prudent to focus merely on the larger mature authorities, with the expectation that other jurisdictions will follow their lead or defer to their review. In the current environment, obtaining the approval of jurisdictions such as Brazil and China can be as important as the approval of the EU or the US. Moreover, the need to coordinate is particularly acute to the extent that multiple agencies decide to impose conditions on the transaction. Although most jurisdictions indicate that 'structural' remedies are preferable to 'behavioural' conditions, a number of jurisdictions in the past few years have imposed a variety of such behavioural remedies (e.g., China, the EU, France, the Netherlands, Norway, South Africa, Ukraine and the US). For instance, some recent decisions have included as behavioural remedies pricing, sales tariffs and terms of sale conditions (e.g., Ukraine and Serbia), employee retrenchment (South Africa) and restrictions on bringing antidumping suits (e.g., Mexico). Many recent decisions have imposed behavioural remedies to strengthen the effectiveness of divestitures (e.g., Canada's decision in the *Loblaw/Shoppers* transaction, China's MOFCOM remedy in *Glencore/Xstrata*, France's decision in the *Numericable/SFR* transaction). This book should provide a useful starting point in navigating cross-border transactions in the current enforcement environment.

Ilene Knable Gotts

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Chapter 1

ECONOMICS TOOLS USED IN MERGER CONTROL

S Murthy Kambhampaty and James A Langenfeld¹

I INTRODUCTION

Merger control is a growth industry. The very expansion in the number of countries covered in the state-specific sections of this review, and the increasing sophistication of merger control regimes, indicate that merger control is a priority in an increasing number of jurisdictions. Recent experience in merger control demonstrates a trend away from focusing on market definition and structural presumptions based on market shares toward more emphasis on using economic tools to predict the competitive effects of a merger. Safe-harbours based on structural criteria such as measures of concentration, market shares and the number of effective competitors are still used to screen out the vast majority of proposed mergers from further review. However, there has been an increased demand for rigorous economic analysis to inform decision-making regarding investigations of proposed mergers, reflecting the improved reliability and wide acceptance of economics tools for merger control.

For the vast majority of mergers, the initial screening is based on analysing the lines of business that each merging party is involved in, and geographic markets are tentatively defined as regional, national or global based on prevailing shipment patterns. Parties and agencies then calculate market shares based on tentative relevant market definitions and test market shares against established safe-harbours for post-merger concentration levels, and the change in concentration level associated with the merger. Combined shares may also be examined against thresholds for dominance used as informal screens or specified in merger guidelines. Where the exact boundaries of the relevant product and geographic

¹ Murthy Kambhampaty is a director and James Langenfeld is a managing director at Navigant Economics. The authors wish to thank Raleigh Richards for his help in preparing this chapter.

markets do not significantly affect market share and concentration or dominance tests, no further analysis is undertaken. The vast majority of mergers are cleared on this basis.²

In the relatively small number of mergers that do not pass this informal screening approach, merger control authorities increasingly are turning to a structured analysis of market definition and competitive effects to determine investigation decisions. Unfortunately, despite notable efforts to simplify the information needs for testing mergers using theoretically consistent approaches for assessing potential anti-competitive effects, the tools available remain sensitive to data selection and the construction of relevant measures such as margins, elasticity and diversion measures, and potential efficiencies. As a result, available approaches to simplifying merger assessment come with difficult tradeoffs in terms of accuracy versus simplicity. Accordingly, only careful assessment of industry facts using the appropriate analysis tools, guided by stringent reliability standards, both by the merging parties on the one hand as well as the merger control authorities on the other, is likely to minimise potential customer harms, while clearing pro-competitive mergers, subject to available resources for merger control.

Below, we provide a broad review of the economics tools used for analysis of market definition and competitive effects from mergers, including in vertical mergers. Our objective is to provide the reader with some background and insight into a collection of broadly applied tools for analysing mergers, as well as a guide to the many excellent resources discussing specific applications. In particular, we note that along with the publication of merger guidelines, the US and European Commission merger control authorities now provide annual guidance on the use of economic analysis in merger reviews.³ Accordingly, we intend this chapter to provide a helpful bridge between the merger guidelines and annual review articles, as well as detailed discussion of specific tools or approaches for economic analysis of mergers.

II CRITICAL LOSS ANALYSIS

Although controversial, critical loss and critical demand elasticity analyses have often been used as a tool for defining relevant product or geographic markets as an initial step

2 For example, the latest Hart-Scott-Rodino Annual Report jointly published by the US Federal Trade Commission and Department of Justice shows that during the 10-year period from 2004 to 2013, fewer than 5 per cent of reported merger transactions received were investigated in detail (i.e., received a second request), and over 50 per cent of merger reviews in the US were terminated before the initial review period (i.e., were granted early termination). Report available online at www.ftc.gov/system/files/documents/reports/36th-report-fy2013/140521hsrreport.pdf.

3 Ronald Drennan, Matthew Magura and Aviv Nevo, 'The Year in Review: Economics at the Antitrust Division 2012–2013', *Review of Industrial Organization*, Vol. 43, 2013, pp. 291–302; Julie A Carlson, et al., 'Economics at the FTC: Physician Acquisitions, Standard Essential Patents, and Accuracy of Credit Reporting', Federal Trade Commission, 2013; Benno Buehler, et al., 'Recent Developments at DG Competition: 2013-2014', *Review of Industrial Organization*, Vol. 45, 2014, pp. 399–415.

in merger assessment.⁴ As typically practiced, critical loss analysis involves two distinct steps: the first step involves the calculation of the maximum volume of lost sales that a hypothetical monopolist in a putative relevant market could suffer before a specified price increase became unprofitable; the second step involves determination of the likely actual loss that the hypothetical monopolist would suffer if it actually did raise prices by the specified amount.⁵ If the predicted actual loss for a specified price increase, typically 5 per cent, is smaller than the estimated critical loss, the specified price increase can be inferred to be profitable and the relevant antitrust market is inferred to be no broader than the corresponding putative relevant market.

The critical loss analysis is only appropriate for analysing whether a hypothetical monopolist in the supply of goods in a candidate relevant market could profitably increase prices above actual prices, i.e., for implementing the small but significant non-transitory increase in price (SSNIP) test for market definition. While the break-even critical loss analysis approach has been controversial and may not exactly mirror the hypothetical monopolist test specified in the US Department of Justice (DOJ)/US Federal Trade Commission (FTC) Joint Horizontal Merger Guidelines issued in 2010 (US HMGs), assessment of the break-even critical loss analysis is widely used due to several advantages, such as it does not require knowledge or assumption of the shape of consumer demand curves over the relevant price increases; it is equivalent to the profit-maximising critical loss estimate for small changes in prices; and the likely actual loss can reliably be assessed with information from business documents, including surveys, elasticity estimates, and natural experiments – such as customers’ responses to price increases resulting from cost shocks or partial supply interruptions – that may be identified in ordinary course documents.⁶

Profit-maximising critical-loss or critical-elasticity analysis is fully consistent with the hypothetical monopolist test, but requires knowledge or assumption regarding the mathematical form of consumer demand functions. Assuming that consumer preferences generate linear demand curves, for example, allows the estimation of the profit-maximising critical demand elasticity (the maximum elasticity that the hypothetical monopolist could face and still maximise profits at the target price increase). The critical demand elasticity can then be compared with estimated demand elasticities or with direct evidence on customer substitution patterns to test whether the actual aggregate demand elasticity for a given set of products in a given geographic area (i.e., the putative relevant market) is above or below the critical demand elasticity: if above, the putative

4 James Lagenfeld and Wenqing Li, ‘Critical Loss Analysis for Evaluating Mergers’, *The Antitrust Bulletin*, Summer 2001, pp. 299–337; Gregory Werden, ‘Demand Elasticities in Antitrust Analysis’, *Antitrust Law Journal*, 1998, pp. 363–414.

5 Ibid.

6 Ibid.; James Lagenfeld and Wenqing Li, ‘The Use and Misuse of Critical Loss Analysis’, *LECG Perspectives*, Vol. 2, No. 3, July 2001.

market definition is too broad, and if below, the relevant market is no broader than the putative relevant market.⁷

Critical loss analysis is most apt as a tool for market definition in industries where products are homogenous, where the assumption of uniform price increases by the hypothetical monopolist is justified and where screens based on industry concentration measures are likely to provide a reliable assessment of whether a particular merger is likely to raise competitive concerns. Critical loss analysis has also been adapted to test potential coordinated effects and the likelihood of vertical foreclosure.⁸ In industries where products are differentiated, and where suppliers offer a number of differentiated products pre-merger, it is likely that the hypothetical monopolist would maximise its profits by imposing different levels of price increases relative to pre-merger levels. Critical loss analysis has been adapted for industries with multi-product firms,⁹ although the assumptions required are fairly restrictive and may not hold in all cases or even in many cases. Alternative tools such as diversion ratio-based merger screening and merger simulation are substantially more flexible than critical loss analysis, and thus more widely used in assessing the effects of mergers in differentiated products industries.¹⁰

III SUBSTITUTION, DEMAND ELASTICITY AND DIVERSION RATIOS

Measuring customer responses to relative price changes is currently a central focus of economic analysis in merger control investigations, whether the issue being addressed is traditional market definition or an attempt to directly measure the competitive effects of a merger. The market definition exercise is based on customer choice among alternatives inside and outside the candidate relevant market,¹¹ and the assessment of anti-competitive effects, net of efficiencies, involves the assessment of customer

7 Langenfeld and Li discuss potential pitfalls in the application of critical loss and critical demand elasticity analysis.

8 US Submission to OECD on Economics Evidence in Merger Analysis, 9 February 2011, pp. 1–16, available at www.justice.gov/atr/public/international/268683.pdf; Steven Salop and Daniel P Culley, 'Potential Competitive Effects of Vertical Mergers: A How-To Guide for Practitioners', Georgetown University Law Center, 2014, pp. 1–65.

9 Serge Moresi, Steven Salop and John Woodbury, 'Implementing the Hypothetical Monopolist SSNIP Test With Multi-Product Firms', *The Antitrust Source*, February 2008, pp. 1–8.

10 Joseph Farrell and Carl Shapiro, 'Antitrust Evaluation of Horizontal Mergers: An Economic Alternative to Market Definition', *The B.E. Journal of Theoretical Economics*, Vol. 10, No. 1, 2010, pp. 1–39; Carl Shapiro, 'The 2010 Horizontal Merger Guidelines: From Hedgehog to Fox in Forty Years', *Antitrust Law Journal*, Vol. 77, 2010, pp. 701–758.

11 'Horizontal Merger Guidelines', US Department of Justice and the Federal Trade Commission, 19 August 2010 (US HMG); 'European Union, Guidelines on the Assessment of Horizontal Mergers under the Council Regulation on the Control of Concentration between Undertakings', Official Journal, C 31, 2 May 2004, pp. 5–18, available at [eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52004XC0205\(02\)](http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52004XC0205(02)) (EU HMG).

responses to merger-induced changes in pricing, quality and product choice. Demand elasticities, and the related measures labelled diversion ratios,¹² may be derived from an understanding of consumer preferences and utility maximisation, or from business customers' technology and downstream competitive conditions.

Economists use a wide array of tools to assess customer substitution patterns, depending on the facts of the industry and the available data. In consumer products industries, where grocery store scanner data or other detailed purchasing data are commercially available, economists often estimate demand elasticities using appropriate econometric modelling techniques.¹³ However, where detailed, industry-wide transactions data are unavailable, and where the competitive effects of interest do not involve merely incremental changes to prices of existing products, economists may analyse evidence from business documents or rely on analysis of customers' response to price shocks, switching costs, win/loss reports, discount requests and salespeople call reports, customer switching patterns or customer surveys to infer patterns of substitution, including diversion ratios.¹⁴ In instances where companies maintain win/loss reports of bid data, the information can be used to test the relative frequency of head-to-head bidding among the merging parties, as well as the rate at which each of the merging parties wins among the other's losses.¹⁵

Demand elasticities or diversion ratios are typically used, as discussed below, in merger screens based on gross upward pricing pressure index (GUPPI) calculations, or

12 For a useful definition of diversion ratio, see Carl Shapiro, 'Mergers with Differentiated Products', *Antitrust*, ABA, Spring 1996, pp. 23–30; see also Gregory Werden, 'A Robust Test For Consumer Welfare Enhancing Mergers Among Sellers Of Differentiated Products', *Journal of Industrial Economics*, Vol. 44, 1996, pp. 409–413, 1996.

13 Hausman, Leonard and Zona provide examples of demand elasticity estimation. See also Werden (1998). Consumer demand elasticity estimation requires assumptions regarding the mathematical form of consumer utility functions. Traditionally, economists specified (indirect) utility functions in terms of the (prices) quantities of various products consumed in the choice set, and solved necessary conditions for optimisation to derive a system of demand equations specifying the demand for each product in the choice set is determined by the price of the product, as well as the prices of all other products in the choice set, and a demand shifter. While this form of estimation gives rise to direct estimation of demand elasticities, it involves the estimation of a lot of unknown parameters, which presents significant challenges in most real-world mergers. An alternative approach, based on discrete choice modelling of the likelihood of purchase of each product in the choice set based on respective products' price, other relevant product attributes and information about customers requires the estimation of far fewer parameters. However, identification of the relevant attributes for accurately estimating demand elasticities can be time consuming and even imprecise. Thus, elasticity estimation tends to require careful assessment of the available data, and interpretation of elasticity estimates must take account of data limitations and assumptions used.

14 Farrell and Shapiro (2010); US HMG, Sections 4.1.3 and 6.1.

15 US HMG.

in merger simulations. However, demand elasticities and other analyses of substitution patterns can, in certain cases, be used directly to infer the competitive effects of a merger. For example, when substitution patterns suggest that customer preferences are accurately reflected in the market shares of individual suppliers, agencies may infer likely competitive effects from the post-merger level of concentration, and the change in concentration levels from before the merger.¹⁶ In industries with negotiated prices, or structured auctions, mergers can have anti-competitive effects when they involve suppliers with a high relative frequency of head-to-head bidding, and a pattern where the one party often emerges as the runner-up in opportunities that the other wins, and vice versa. When the above fact pattern bears out, the merger can reduce customers' ability to pit the suppliers against each other to obtain favourable terms.¹⁷

IV DIVERSION ANALYSIS, UPWARD PRICING PRESSURE (UPP) AND MERGER SIMULATION

In differentiated products industries, unilateral competitive effects, rather than coordinated effects, typically are the focus of the merger control investigation. Moreover, the unilateral competitive effects of mergers in differentiated products industries are determined by the relative closeness of competition among the merging parties' products rather than by the level of concentration in the industry.¹⁸ Economists use diversion ratios to measure the closeness of competition among differentiated products, and to derive the likely unilateral competitive effects, whether by merger screens or by merger simulation.¹⁹

Merger screens involving UPP were adopted in the latest version of the US HMG, which were published in 2010. Advocates for UPP screens point to their theoretical consistency and computational simplicity as providing a useful approach for screening mergers based on limited information available during merger review. The information needed for quantifying the UPP index in a given merger are the diversion ratio and pre-merger margins. However, critics point out that UPP, including its many forms, does not quantify the likely effects of mergers on prices or consumer welfare, but only indicates whether prices are likely to rise; since antitrust policy is defined in terms of likely price and consumer welfare effects, UPP analysis is criticised as an insufficient basis for regulating mergers.²⁰ Accordingly, we would argue that information on diversion ratios, margins, efficiencies and even pass-through rates, along with the underlying information used to calculate diversion ratios and margins, namely pre-merger prices and average incremental costs, be used to simulate the price effects of mergers. Merger simulation may build on the UPP analysis, adding information on pass-through rates

16 US Submission to OECD on Economics Evidence in Merger Analysis.

17 US HMG.

18 Shapiro (1996).

19 Farrell and Shapiro (2010); Richard Schmalensee, 'Should New Merger Guidelines Give UPP Market Definition?' *CPI Antitrust Chronicle*, Vol. 12, No. 1, December 2009, pp. 1–7.

20 Schmalensee (2009); Jerry Hausman, '2010 Merger Guidelines: Empirical Analysis', *The Antitrust Source*, October 2010, pp. 1–7 (Hausman (2010)).

to determine likely price effects.²¹ Merger simulations may also be based on solving first-order conditions for profit maximisation pre and post-merger to derive price-change predictions.²² Diversion ratio-based pricing-pressure indices, of which UPP is an example, when combined with empirically estimated pass-through rates, potentially give a more flexible approach to simulating the effects of mergers than merger simulations based on solving the Bertrand-Nash conditions for profit maximisation.²³ On the other hand, assuming that suppliers maximise profits according to Bertrand-Nash pricing rules, merger simulation can be used to develop upper and lower-bounds for merger-induced priced effects under broadly applicable assumptions regarding the shape of consumer demand curves.²⁴ Merger simulations can be adapted to take account of entry and repositioning, and also to take account of efficiencies. UPP analysis can also be adapted to take account of efficiencies, but the analysis of entry and repositioning is not as readily integrated into the UPP analysis.²⁵

Merger simulations based on econometric estimates of demand and cost relations are well established in the economics literature,²⁶ but have not been used in litigated merger cases. Estimated price effects in at least some of these published merger simulations have not been borne out by retrospective analyses conducted by merger control authorities.²⁷ Thus, while there is a broad consensus on the theoretical foundations for analysing likely competitive effects of mergers in differentiated products industries, there is not a lot of accumulated evidence that practical application of these methods leads to reliable merger enforcement decisions. Economists have turned to natural experiments to test hypotheses about price effects and other hypotheses related to competitive effects of

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- 21 Farrell and Shapiro (2010); Sonia Jaffe and E Glen Weyl, 'The First-Order Approach to Merger Analysis', *American Economic Journal: Microeconomics*, Vol. 5, No. 4, December 2011, pp. 188–218 (Jaffe and Weyl (2011)).
- 22 Jerry Hausman and Gregory Leonard, 'Economic Analysis of Differentiated Products Mergers Using Real World Data', *George Mason Law Review*, Vol. 5, 1997, pp. 321–343.
- 23 See Jaffe and Weyl (2011).
- 24 Hausman (2010).
- 25 However, if the UPP measures are based on estimation of the elasticity matrix, then the elasticity matrix can be recomputed under reasonable assumptions regarding the likely effects of entry or repositioning consumption patterns, and diversion ratios and UPP indexes can then be recalculated.
- 26 Hausman, Leonard and Zona (1994); Hausman and Leonard (1997); Aviv Nevo, 'Mergers with Differentiated Products: The Case of the Ready-To-Eat Cereal Industry', *Rand Journal of Economics*, Vol. 31, 2000, pp. 395–421; Gautam Gowrisankaran, Aviv Nevo and Robert Town, 'Mergers When Prices Are Negotiated: Evidence from the Hospital Industry', *American Economic Review*, Vol. 105, No. 1, 2015, pp. 172–203.
- 27 Malcolm Coate and Jeffrey Fischer, 'Daubert, Science and Modern Game Theory: Implications for Merger Analysis', 2008, available at SSRN: ssrn.com/abstract=1268386; also, Joshua D Angrist and Jörn-Steffen Pischke, 'The Credibility Revolution in Empirical Economics: How Better Research Design Is Taking the Con out of Econometrics', *Journal of Economic Perspectives*, Vol. 24, No. 2, 2010, pp. 3–30.

mergers, combining direct evidence with empirical tests to inform assessment of the likely competitive effects of mergers.

V NATURAL EXPERIMENTS

Economists use the term ‘natural experiment’ to describe a broad array of study designs based on observed data.²⁸ Analysis of natural experiments has been used to examine the effects of changes in market structure, entry or cost shocks to assess issues of market definition, competitive effects and other issues in guidelines analysis of mergers.²⁹ While economists often use multiple regression analysis to obtain statistical tests of inferences regarding the effects of merger, graphical analysis has sometimes been used to analyse natural experiments and quantify the potential effect of merger.³⁰ Natural experiments useful for testing hypotheses about the effect of a merger involve careful research design to construct a dataset and hypothesis tests regarding the effects of mergers and related events on economic outcomes relevant to consumer welfare, such as pricing, product choice, product quality or industry output.³¹ Consider an example from the literature:

Economists Christopher Taylor and Daniel Hosken at the FTC examined the effects of a merger among gasoline refiners on prices using the natural experiments approach. In studying the effects of a consummated merger among two regional gasoline suppliers, the authors had insufficient data to directly estimate the impact of the merger on prices in the areas affected by the merger.³² Hosken and Taylor investigated the effects of the merger using a natural experiment in which they defined the area experiencing the greatest change in concentration from the merger as the ‘treatment’ area, and several areas with otherwise similar characteristics but that did not experience a merger as ‘control’ areas. Using data for both control and treatment areas from before and after the merger, Hosken and Taylor tested whether the change in price post-merger in the treatment

28 US Submission to OECD on Economics Evidence in Merger Analysis; Mary Coleman and James Langenfeld, ‘Natural Experiments’, *Issues in Competition Law and Policy*, ABA Section of Antitrust Law, Vol. 1, 2008, pp. 743–772; see also Orley Ashenfelter, ‘Econometric Methods in Staples’, Princeton Law & Public Affairs, Paper No. 04-007, April 2004. Recent scholarship has associated the term natural experiments with the use of instrumental variables techniques, along with fixed effect and difference-in-differences estimators for testing hypotheses in the presence of latent variables or omitted variables. See Joshua Angrist and Jorn-Steffen Pischke, *Mostly Harmless Econometrics: An Empiricist’s Companion*, Princeton, NJ: Princeton University Press, 2008.

29 Malcolm Coate, ‘The Use of Natural Experiments in Merger Analysis, 2013, available at SSRN: papers.ssrn.com/sol3/papers.cfm?abstract_id=1853705.

30 Coleman and Langenfeld (2008).

31 Angrist and Pischke (2008).

32 Christopher Taylor and Daniel Hosken, ‘The Economic Effects of the Marathon - Ashland Joint Venture: The Importance of Industry Supply Shocks and Vertical Market Structure’, *Journal of Industrial Economics*, Vol. 55, 2007, pp. 419–451; see also Coleman and Langenfeld (2008).

area exceeded the change in price post-merger in the respective control areas, using multiple regression analysis.³³ The change in price in the control area illustrates how prices would change absent the merger, thus providing a benchmark against which to test the post-merger price change in areas affected by the merger: a finding that the change (difference) in price in the treatment area is no different than the change (difference) in price in the control area supports the inference that the merger did not have an anti-competitive effect, whereas if the change in price in the area affected by the merger exceeded the change in price in the area unaffected by the merger, the merger is inferred to have had the anti-competitive effect of raising prices. Analysis of natural experiments using the above approach has been aptly labelled ‘difference-in-difference regression’. As is typically the case in the analysis of natural experiments, Taylor and Hosken faced a variety of issues that resulted in a complex analysis, which we do not attempt to summarise here, except to mention that they did not find an anti-competitive price increase from the merger analysed in their study. Analysis of natural experiments using difference-in-difference regressions has been used to assess the effects of consummated mergers in a variety of industries, including wholesale and retail gasoline³⁴ and hospitals.³⁵ While typically the economist analyses the effect of the merger on the post-merger conduct of the merged firm, some authors have proposed tests of whether rivals raised prices post-merger, to assess the effects of merger on competition.³⁶

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- 33 Taylor and Hosken (2007) used multiple control areas to address differences in regulatory requirements for gasoline blends at the various control areas and the treatment area.
- 34 Taylor and Hosken (2007); Justine S Hastings, ‘Vertical Relationships and Competition in Retail Gasoline Markets: Empirical Evidence from Contract Changes in Southern California’, *American Economic Review*, Vol. 94, No. 1, 2004, pp. 317–28; Nicholas Kriesle, ‘Merger Policy at the Margin: Western Refining’s Acquisition of Giant Industries’, US Federal Trade Commission, Working Paper No. 319, September 2013.
- 35 Michael Vita and Seth Sacher, ‘The Competitive Effects of Not-for-Profit Hospital Mergers: A Case Study’, *Journal of Industrial Economics*, No. 49, Vol. 1, pp. 63–84; Deborah Haas-Wilson, and Christopher Garmon, ‘Hospital Mergers and Competitive Effects: Two Retrospective Analyses’, *International Journal of the Economics of Business*, Vol. 18, No. 1, February 2011, pp. 17–32; Patrick Romano and David Balan, ‘A Retrospective Analysis of the Clinical Quality Effects of the Acquisition of Highland Park Hospital by Evanston Northwestern Healthcare’, *International Journal of the Economics of Business*, Vol. 18, No. 1, February 2011, pp. 45–64; Steven Tenn, ‘The Price Effects of Hospital Mergers: A Case Study of the Sutter-Summit Transaction’, *International Journal of the Economics of Business*, Vol. 18, No. 1, February 2011, pp. 65–82; Aileen Thompson, ‘The Effect of Hospital Mergers on Inpatient Prices: A Case Study of the New Hanover–Cape Fear Transaction’, *International Journal of the Economics of Business*, Vol. 18, No. 1, February 2011, pp. 91–101; Leemore Dafny, ‘Estimation and Identification of Merger Effects: An Application to Hospital Mergers’, *Journal of Law and Economics*, Vol. 52, No. 3, August 2009, pp. 523–550.
- 36 See Hastings (2004) and Dafny (2009); see also Christopher Taylor, Nicholas Kreisle and Paul Zimmerman. ‘Vertical Relationships and Competition in Retail Gasoline Markets: Comment’. The Federal Trade Commission, Bureau of Economics Working Paper 291, 2007.

In contrast to analysis of consummated mergers, for analysis of a proposed merger, the natural experiment must carefully be chosen to identify a treatment that mimics the change in structure that results from the merger, such as a regulatory constraint imposed on a supplier in certain markets but not others, prior entry in selected markets, or a prior merger among suppliers present in certain geographic markets for a given product but not in other geographic markets for the same product. Alternatively, the natural experiment may be used to test key assumptions in the guidelines analysis, such as market definition or the likelihood of entry.³⁷

VI ANALYSIS OF HEALTH-CARE PROVIDER MERGERS

Over the past decade, the FTC has overhauled its approach to regulating hospital and physician group mergers based on an assessment of the effects of consummated mergers among hospitals. Analysis based on natural experiments involving mergers in the hospital industry, utilising the difference-in-difference regressions discussed above, demonstrated that hospital mergers had a high likelihood of resulting in higher prices and lower quality care.³⁸ Among the mergers that resulted in higher prices were ones in which the courts had denied FTC efforts to block the merger on the basis of flawed application of patient flow analysis to define geographic markets, and of flawed application of critical loss analysis.³⁹

As an alternative, economists working at the FTC collaborated with academic experts to produce a series of papers for testing the effects of health-care mergers⁴⁰ and developing a merger simulation approach based on the potential effect of hospital mergers on the willingness to pay (WTP) for health plans by participants, which is related to the closeness of substitution between the merging hospitals; and the effect of an increase in WTP on hospitals' ability to negotiate increases in the in-network price for the merged hospitals' services with health plans, net of costly improvements in hospital service quality.⁴¹ This WTP approach to simulating the effects of hospital mergers involves estimation of demand parameters from a rich set of patient discharge data, typically available from state agencies, and related data from managed care organisations,

37 Coate (2013).

38 David Dranove and Andrew Sfekas, 'The Revolution in Health Care Antitrust: New Methods and Provocative Implications', *The Milbank Quarterly*, Vol. 87, No. 3, September 2009, pp. 607–632.

39 Dranove and Sfekas (2009); Langenfeld and Li (2001).

40 Robert Town and Gregory Vistnes, 'Hospital Competition in HMO Networks', *Journal of Health Economics*, Vol. 20, No. 5, 2001, pp. 733–753; Cory Capps, David Dranove and Mark Satterthwaite, 'Competition and Market Power in Option Demand Markets', *Rand Journal of Economics*, Vol. 34, No. 4, 2003, pp. 737–763.

41 Town and Vistnes (2001) and Capps, Dranove and Satterthwaite (2003). See also Joseph Farrell, et al., 'Economics at the FTC: Hospital Mergers, Authorized Generic Drugs, and Consumer Credit Markets', *Review of Industrial Organization*, Vol. 39, No. 4, October 2011, pp. 271–296.

and a regression-based approximation to merger simulation, to ease the computation of the price effects of the merger. The approach has been extended to analysis of physician group mergers, with the added innovation of deriving WTP from providers shares by patient segment or microsegment, rather than an econometric estimation of a choice model.⁴²

VII ANALYSIS OF CONSUMMATED MERGERS

As is apparent from the discussion above regarding regulation of health-care mergers, US agencies have relied on analysis of consummated mergers to develop direct evidence on the anti-competitive effects of mergers,⁴³ although in some recent cases the agencies have relied on structural presumptions to regulate the breakup of consummated mergers. Jurisdictions with voluntary notification regimes intrinsically have post-consummation review authority, while jurisdictions with mandatory merger control review may also have post-consummation merger control authority, as in the United States.⁴⁴

Recent transactions in which US merger control agencies have exercised post-consummation review authority include *US v. BazaarVoice, Inc* (DOJ) and *In The Matter of Polypore International, Inc* (FTC).⁴⁵ In both of these cases, the finding was that the merger was likely to result in a substantial lessening of competition based on market share presumptions. Another recent post-consummation review, *US and New York v. Twin America, LLC*, involved concerns regarding a merger to monopoly in ‘hop-on, hop-off bus tours in New York City’, and the DOJ also found a substantial increase in post-merger prices as an anti-competitive effect of the merger.⁴⁶ The remedies in the *BazaarVoice* and *Polypore* cases were asset sales and licence or intellectual property transfers sufficient for asset purchasers to compete vigorously; however, in *TwinAmerica*, the DOJ demanded that the acquiring party surrender all of the target’s bus stop authorisations to the relevant regulatory authority, and also to pay \$7.5 million as disgorgement of profits flowing from the monopoly power acquired through an anti-competitive merger. Thus,

42 Julie Carlson, et al. (2013).

43 See also Richard Liebeskind, ‘Challenges to Consummated Mergers: Making the Game Worth the Candle’, *ABA Mergers and Acquisitions Newsletter*, Vol. 4, No. 2, Spring 2004.

44 See OECD Secretariat, ‘Executive Summary of the Roundtable on Investigations of Consummated and Non-Notifiable Mergers’, OECD, 2015. Available online at www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DAF/COMP/WP3/M%282014%291/ANN3/FINAL&docLanguage=En.

45 See Memorandum Opinion in *United States of America v. BazaarVoice, Inc*, Case No. 13-cv-00133-WHO, United States District Court, Northern District of California; and Opinion of the Commission, *In the Matter of Polypore International, Inc*, a corporation; Docket No. 9327.

46 See Competitive Impact Statement, *United States of America and State of New York v. Twin America LLC, et al.*, defendants, Civil Action No. 12-CV-8989 (ALC) (GWG), United States District Court for the Southern District of New York.

post-consummation merger review can result in substantial asset divestitures as well as significant financial penalties to the merged firm.

Where the agencies focus solely on evidence of post-merger price increases by the merged firms, the analysis may be incomplete and give misleading results regarding the welfare effects of the merger. In Evanston Northwestern Hospital Corp's 2000 acquisition of Highland Park Hospital, the FTC found several years later that the merger led to higher prices for acute in-patient health-care services.⁴⁷ Controversy over the FTC's regulation of the *Evanston/Highland Park* merger involved both the FTC's econometric analysis and the FTC's interpretation of evidence on post-merger price increases.⁴⁸ One issue with the interpretation of the FTC's finding of post-merger price increases was whether the price increase flowed from anti-competitive conduct or from factors independent of the merger.⁴⁹ Generally speaking, merging parties may enhance product quality or marketing post-merger, which may result in a price increase as well as offsetting customer benefits. Thus, analysis of industry and merging firms' output, after adjusting for changes in quality as relevant, is helpful for more fully assessing whether any observed post-merger price increases are anti-competitive or are offset by accompanying customer benefits.

VIII VERTICAL MERGERS

Vertical mergers are receiving an increasing amount of regulatory scrutiny, and there have been a series of high profile cases involving vertical effects analysis in the US, including *Comcast/NBCU*, and the pair of mergers involving map data suppliers in *TomTom/TeleAtlas* and *Nokia/NavTEQ*. While the European Commission has released merger guidelines related to regulation of vertical mergers,⁵⁰ merger control authorities in the US have not published guidelines on the regulation of vertical mergers since the 1984 US Merger Guidelines. While enforcement actions against certain mergers in the US have addressed concerns identified in the 1984 US Merger Guidelines, several others have identified potential anti-competitive effects from vertical mergers by applying economic principles and methods that differ substantially from those discussed in the

47 The FTC argued that ordering the breakup of the merged firm would be unduly costly to Highland Park.

48 See Barry Harris and David Argue, 'FTC v. Evanston Northwestern: A Change from Traditional Hospital Merger Analysis', *Antitrust*, Spring 2006, pp. 34–40. See also Joseph Farrell, Paul Pautler and Michael Vita, 'Economics at the FTC: Retrospective Merger Analysis with a Focus on Hospitals', *Review of Industrial Organization*, Vol. 35, No. 4, October 2009, pp. 369–85 for other studies analysing the effects of mergers on prices.

49 Ibid.

50 'European Union, Guidelines on the Assessment of Non-Horizontal Mergers under the Council Regulation on the Control of Concentration between Undertakings', Official Journal, C 265, October 2008, pp. 5–18, available at eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2008:265:0006:0025:en:PDF.

US Merger Guidelines of 1984.⁵¹ Vertical effects of concern according to the 1984 US Merger Guidelines involve the creation of barriers to entry, the potential to increase coordination among upstream suppliers and elimination of a disruptive buyer.⁵² More recently, economists have applied transactions cost analysis to show that, in certain circumstances, vertical integration may increase upstream suppliers' monopoly power, or allow integrated suppliers to raise the costs of either upstream or downstream rivals.⁵³ Issues of input and customer foreclosure, as well as analysis of conditions of entry and the likely efficiencies from the merger, were the focus of the merger control investigation of the proposed merger between Comcast, an operator of cable television systems, and NBC Universal, a supplier of a wide variety of television programming including the NBC network and several specialised cable television channels, and feature films.⁵⁴ The Federal Communications Commission, which reviewed the transaction along with the DOJ, undertook a series of analyses regarding the likelihood that the merged firm would foreclose rivals of the Comcast cable network from content of NBC Universal. These analyses included:

- a* a financial assessment (vertical arithmetic) of whether, at pre-merger demand elasticities and margins, the merged firm would find it profitable to withhold content of NBC Universal from Comcast's downstream rivals, making up for the lost profits from this action in profits from diverting dissatisfied customers of rival cable networks that switch to Comcast;
- b* whether the merger would affect the bargaining power between the integrated firm and rivals of the Comcast cable and result in higher prices for bundles of programming;
- c* an analysis of natural experiments to test whether past vertical integration has resulted in higher prices to consumers; and
- d* a hypothesis test, based on a stylised economic model, of whether Comcast had previously foreclosed rival cable networks of content to disadvantage its rivals rather than merely for efficiency reasons.⁵⁵

An alternative to the vertical arithmetic is to perform merger simulations that assess the profit-maximising prices that the merged firm would charge, taking account of

51 James Langenfeld, 'Non-Horizontal Merger Guidelines in the United States and the European Commission: Time for the United States to Catch Up?', *George Mason Law Review*, Vol. 16, No. 4, 2009, pp. 851–884; Salop and Culley (2014).

52 Michael Riordan, 'Competitive Effects of Vertical Integration', in *Handbook of Antitrust Economics*, Paolo Buccirossi editor, MIT Press, 2008.

53 Ibid.

54 See, the US Department of Justice Competitive Impact Statement, www.justice.gov/atr/cases/f266100/266158.htm; Jonathan Baker, 'The FCC Provides a Roadmap for Vertical Merger Analysis', *Antitrust*, Vol. 25, No. 2, Spring 2011, pp. 36–42. In the United States, mergers in the telecommunications and broadcast industries are reviewed by both the Federal Communications Commission as well as the Department of Justice.

55 Baker (2011).

the potential to divert customers lost to upstream and downstream rivals to its own upstream and downstream affiliates.⁵⁶ Critical loss analysis and UPP indices have also been proposed to assess the potential anti-competitive effects of vertical mergers.

As in the *Comcast/NBCU* merger, enforcement action in purely vertical mergers involves conduct remedies that limit the likelihood of strategic anti-competitive conduct post-merger, thereby maximising the likely gains to consumer welfare.

IX ANALYSIS OF ENTRY

‘When entering a market is sufficiently easy, a merger is unlikely to pose any significant anti-competitive risk’.⁵⁷ However, entry is only considered effectively to replace the competition lost due to merger if it would be timely, likely and sufficient. Although a two-year time frame had been considered as the typical duration for timely entry,⁵⁸ merger control authorities may recognise the competitive constraints of entry over a shorter or longer duration. For example, in heavy industries where competitors qualify a product, or where product development involves extensive customer trials, entry may involve a longer period of time that may significantly restrain incumbents’ pricing.

The likelihood of entry can be assessed using a discounted cash flow analysis to assess whether a potential entrant would find profitable the investment needed to enter, in the sense that the aggregate margin earned from entry net of the terminal value of the assets of the entrant would exceed the initial investment needed to enter (i.e., whether the net present value of entry would be greater than zero).⁵⁹ A break-even version of the analysis could be used to assess the level of output the firm must attain over a specified period in order to render the investment in entry profitable; if the break-even level is not very high relative to the size of the relevant market, and there are no impediments to the entrants achieving the break-even level of output, entry can be considered likely. Moreover, if entry is likely, and the entrant can be expected to attain the size of one of the merging parties, it can be expected to replace the competition lost due to the merger, and hence would be considered sufficient to prevent anti-competitive effects from the merger. Depending on demand elasticities and margins, and the oligopoly conduct of firms in the industry, further analysis of the pricing conduct of the merging firms may show that more limited entry could also effectively constrain the merged firms’ prices post-merger by cannibalising a sufficiently large share of the merged firms’ sales to render a price increase unprofitable.

56 Salop and Cully (2014); Anthony Bush, ‘Bridging the Gap between Horizontal and Vertical Merger Simulation: Modifications and Extensions of PCAIDS’, Kiel Institute for the World Economy, Economics Discussion Papers, No. 2014-33, 2014, available at www.economics-ejournal.org/economics/discussionpapers/2014-33.

57 EU HMG, Section VI; see also US HMG, Section 9.

58 EU HMG; note that in the 2010 version of the US HMG, the specification of a two-year time frame for assessing the timeliness of entry was deleted.

59 Malcolm Coate, ‘Theory Meets Practice: Barriers to Entry in Merger Analysis’, *Review of Law & Economics*, Vol. 4, No. 1, June 2008, pp. 183–212.

In practice, agencies typically require evidence of past entry, or documentary evidence of planned entry such as in corporate press releases or articles in the trade press, to consider entry.⁶⁰ Past and current entry can be important in evaluating barriers to entry. A relatively large number of entrants may suggest ease of entry, at least through the period when that entry occurred. However, if many of these entrants have since exited the market and it appears the market conditions for entry have become more difficult, then that can be evidence of barriers to entry. Analysis of natural experiments can be effective for demonstrating pro-competitive effects of entry in similar products, or in other geographic markets involving the same relevant product. Analysis of natural experiments can also be used to test the likelihood of entry.⁶¹

In differentiated products industries, repositioning and line extensions can result in adequate competitive constraints for the merged firm, despite entry not entirely replacing the competition lost due to the merger.⁶² Methods used for analysing repositioning and line extensions are similar to the analysis of entry; however, the additional effect of cannibalisation of existing products may need to be taken into account in analysing the likelihood of entry.

In vertical mergers, a showing that entry in either the upstream or the downstream market, or through backward or forward integration by market participants, typically alleviates concerns related to potential input foreclosure or customer foreclosure.

A demonstration that entry would be timely, likely and sufficient almost invariably results, as indicated in the quotation at the beginning of this section, in the merger being cleared by the merger control agency. In data from 1996 to 2011, the FTC reports that in all mergers with an affirmative showing on the ease of entry, the FTC closed the investigation with no further enforcement action.⁶³

X ANALYSIS OF EFFICIENCIES

Economic analysis of merger-induced efficiencies includes the identification of cost savings likely to result from the merger and passed on to consumers in lower prices, as well as output expansion and product introduction that would not be feasible absent the merger.⁶⁴ In vertical mergers, efficiencies may be particularly likely to be merger-specific and substantial, such as investments in new product introduction or enhanced distribution from a merger with a downstream entity, as well as potential

60 US HMG, Section 9: ‘Recent examples of entry, whether successful or unsuccessful, generally provide the starting point for identifying the elements of practical entry efforts’.

61 See *Competitive Impact Statement in United States v. Dairy Farmers of America*, No. 6:03-206-KS, Eastern District of Kentucky, October 2006, available at www.justice.gov/atr/cases/f221700/221713.htm.

62 US HMG.

63 See p. 6, ‘Horizontal Merger Investigation Data: Fiscal Years 1996–2011’, US Federal Trade Commission, available at www.ftc.gov/os/2013/01/130104horizontalmergerreport.pdf.

64 Joseph Farrell and Carl Shapiro, ‘Scale Economies and Synergies in Horizontal Merger Analysis’, *Antitrust Law*.

greater innovation resulting from eliminating transaction costs in sharing knowhow between the supplier and customer, while the elimination of double-marginalisation is potentially also an efficiency due to vertical merger.⁶⁵

Evidence from merger data published by enforcement agencies and in review articles⁶⁶ shows that a significant number of merger reviews include an analysis of efficiencies. However, merger control agencies tend to consider efficiencies as likely to overcome only moderate anti-competitive effects.⁶⁷

Efficiencies analysis may include models showing cost reductions due to, *inter alia*, plant or route reorganisation by the merged firm, introduction of new products or services, and the combination of intellectual property with manufacturing and distribution.⁶⁸ In order to be given due weight, efficiencies claims must be shown to be merger-specific, and sufficiently detailed and supported by data and analysis so as to be verifiable. While merger-induced cost savings may be expressed as a percentage of revenues, agencies typically assess efficiencies claims in detail rather than simply offsetting a percentage increase due to the anti-competitive effects of merger against the percentage cost savings. Among the issues analysed in assessing efficiency claims is whether the cost savings are likely to be passed through in lower prices, and the net effect of the cost-savings taking account of the pass-through rate; however, it has been shown that the pass-through rate is high when anti-competitive effects are most likely, and a finding of significant merger effects absent efficiencies is inconsistent with a finding of a low pass-through rate for merger-specific efficiencies.⁶⁹ Where claimed efficiencies involve new products, evaluation of the net effects of the merger involves quantifying the welfare gains from new product introduction as well as the welfare loss from potential anti-competitive effects from the merger absent efficiencies, to quantify the net effect on consumer welfare.⁷⁰

65 'Other possible efficiencies of vertical integration are better coordination of design and production decisions, improved incentives for relationship-specific investments, and better provision of point of sale services', Riordan (2008).

66 Malcolm Coate and Andrew Heimert, 'Merger Efficiencies At The Federal Trade Commission, 1997–2007', US Federal Trade Commission, Bureau of Economics, February 2009.

67 'In the Agencies' experience, efficiencies are most likely to make a difference in merger analysis when the likely adverse competitive effects, absent the efficiencies, are not great.' US HMG.

68 US Submission to OECD on Economics Evidence in Merger Analysis; Farrell and Shapiro (2001).

69 Luke Froeb, Steven Tschantz and Gregory Werden, 'Pass-Through Rates and the Price Effects of Mergers', *International Journal of Industrial Organization*, Vol. 23, 2005, pp. 703–715.

70 US Submission to OECD on Economics Evidence in Merger Analysis.

XI CONCLUSIONS

There is broad consensus regarding the need to base merger control on reliable economic evidence. Matching the economic analysis to the facts of the case, and relying on the appropriate tools for conducting the analysis, are critical to developing reliable economic evidence on which agencies base merger control decisions, and for parties to contribute to regulators' review of proposed mergers.

Appendix 1

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Murthy Kambhampaty is a director and principal with Navigant Economics. He specialises in the economic analyses of mergers and antitrust issues, class certification, regulation, commercial damages, patents, infrastructure investment and economic impact analysis. He has testified or provided expert economic analysis in cartel, merger and other antitrust investigations before European and US agencies, in US litigation and arbitration, and on other economic policy issues before US federal and state agencies or legislative bodies.

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