Impact Evaluation of Merger Decisions

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Abstract

This paper provides a comparative analysis of methods for the empirical ex post evaluation of merger control decisions. It develops a competition-policy oriented framework of assessment criteria for the leading evaluation methods and applies them to structural modeling and simulation, differences-in-differences methods, event studies as well as survey-based methods. It concludes that a method-mix is recommendable, however, under the exclusion of event studies that fail to secure a minimum level of reliability regarding the evaluation results. Furthermore, it warns against overly optimistic expectations about the effects of systematic impact evaluations of merger decisions.

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1. The Impact of Merger Decisions

Competition is a self-organized, decentralized coordination process. It coordinates suppliers and customers on markets through price signals reflecting changing scarcities. Without requiring individual knowledge on overall allocation issues and without requiring the individual goal to balance supply and demand, competition sets incentives for both market sides to adjust the individual supply and demand plans according to the scarcity relations just by acting self-interested (profit and utility maximization). Consequently, *allocative efficiency* is achieved through individual interaction in competition and without intervention or ex ante planning by any centralized authority (government, economic planning commission, etc.). Furthermore, competition provides incentives for producers and other suppliers to innovate. Only in competitive marketplaces, firms can benefit from being innovative by dragging customers away from competing firms and increasing their own market shares. At the same time, non-innovative firms must fear that more innovative competitors drag their customers away by providing innovative products or services better suiting the preferences of customers. This 'double incentive' adds on the intrinsic motivation to innovate because of engineering curiosity and, thus, considerably increases the incentives to innovate compared to non-competitive 'market'places. Further on, this innovation effect of competition is turned into a permanent incentive by the incentive to imitate innovators. This entails the procompetitive effect of allowing only temporary competitive advantages through innovation, maintaining the incentive to further innovate for hitherto successful innovators. Next to the allocation effect (*stationary efficiency*) and the innovation effect (*dynamic efficiency*), competition keeps markets flexible and creates and maintains a high ability of markets to adapt to changing market environments. Firms (and customers) in competitive markets are trained to adjust their business behavior creatively and adaptively to each other (strategic interdependency) and, thus, are better capable of coping with external shocks (changing market environment) than firms in non-competitive settings (*evolutionary efficiency*). Through all three avenues, competition serves the normative goal of increasing economic welfare.

In addition to these economic welfare-related competition effects, there is one more effect relating to societal goals. Competition is inevitably intertwined with economic freedom. Having competition among suppliers requires the freedom of choice on the side of the customers as well as the freedom to choose strategies (pricing, innovation, product design, service, industry, etc.) on the side of the enterprises. And, the other way around, economic freedom for enterprises and customers automatically and inevitably creates competition.

All these beneficial effects of competition are achieved in a decentralized and self-organized way in the absence of centralized, political planning or organization of the economy. However, the notion of free markets unleashing the beneficial forces of competition is also misleading to some extent. Competitive markets require an institutional framework in order to be sustainable and workable and this turns them into a social construction. Among the institutional preconditions for competitive markets are property rights, commercial laws and many more. Among the necessary institutions for the sustainable existence and functioning of competitive markets are competition rules. Unfortunately, competition possesses an inherent tendency towards self-destruction. Instead of aiming to be better than its competitors, any enterprise can alternatively attempt to improve its market situation by eroding competition, for instance by colluding with its competitors (cartelization), predating and deterring competitors (abuse of market power and unfair competition) or by merging with its competitors into one entity (mergers and acquisitions). This incentive to circumvent and erode the forces of competition requires competition rules and its enforcement through competition policy. Therefore, the ‘impact’ of merger decisions (as part of competition policy) should be to protect and maintain competition by preventing the occurrence of anticompetitive mergers. As such, merger decisions should exercise a low degree of interventionism into markets by ‘just’ preventing anticompetitive combinations of enterprise ownership (negative interven-

tion). In contrast, merger decisions should not attempt to design or mould competitive market structures (positive, creative intervention).[1]

Now, in an imperfect world, merger decisions can be mistaken. Although the task at hand might look easy at first sight – procompetitive or anticompetitive, harm to competition or not – it is made rather complicated by the multidimensional character of competition (allocation, innovation, diversity, etc.). Competition can be harmed in many ways: price increases and output reduction, slowing down innovation, making markets more sclerotic, etc. From an economic theory perspective, it cannot be discriminated between the different dimensions of competition regarding their importance for overall welfare. The fact that emphasis of analysis and policy is oftentimes more put on prices and quantities (allocative efficiency) merely follows practical limitations regarding measurability and assessability of the other dimensions. In summary, the question when a merger has a negative impact on competition is far away from being trivial!

Consequently, merger decisions can be wrong in two different ways: (i) merger decisions may erroneously prohibit procompetitive mergers (type I errors), or (ii) merger decisions may erroneously allow anticompetitive mergers (type II errors). Both error types change the impact of merger decisions. In case of type II errors, the merger decision fails to protect competition on the market in question. In case of type I errors, the merger decision represents an unnecessary intervention into competition and efficiency effects of procompetitive mergers may be discarded.

1 Drawing the borderline between these two types of intervention may at times be difficult in practice, for instance, when it comes to conditional approvals of mergers.

2. Methods of Ex Post Impact Evaluation

2.1. Controlling of Merger Policy

Merger control decisions are ex ante decisions. They attempt to estimate the effect that a notified merger will have on the underlying markets if it was cleared by the competition authority. If we assume that competition authorities aim to make correct merger decisions in the sense of avoiding both type I and type II errors, then an ex post evaluation of past merger decisions represents an instrument to improve future decisions by learning from past mistakes.[2] As soon as merger effects display sufficient regularities (i.e. mergers do not represent unique single events), such a *controlling* of merger policy possesses the potential of beneficial improvements of merger decisions and, thus, welfare.[3]

However, conducting an ex post impact evaluation of merger decisions is not automatically advantageous. A disadvantage occurs if many decisions of a competition authority are found to have been erroneous. Firstly, this may damage the reputation of the authority and, thereby, harming the deterrence effect of competition rules and policies as well as the acceptance of future merger decisions by the norm addressees. Secondly, the question of damage claims by enterprises (type I errors) or by customers and competitors (type II errors) being harmed by an erroneous decision must be taken into consideration (depending on the jurisdiction in question). Furthermore, it must be considered that the evaluation results themselves set incentives for competition authorities regarding the future selection of cases, possibly entailing a selection bias: rational

2 See for an excellent and much more elaborated discussion of the basic fundaments, motivations and processes of ex post evaluation of competition authorities (but not so much of the evaluation methods) *Kovacic* (2006).

3 Note that although competition authorities usually follow some type of welfare goal, the specificity of the welfare goal can differ, for instance and most famously between a consumer welfare standard and a total welfare standard. Also, goals like public interest or freedom of competition at least implicitly target a welfare goal, albeit through intermediate goals.

agencies experience incentives to go for the easy options, i.e. cases with a high probability of receiving enforcement success and positive ex post evaluation (*Davies & Ormosi* 2010: 40). Instead of aiming for the protection of competition or for improving welfare, competition authorities may for receiving favorable evaluation results. As long as ex post evaluation works perfectly, this need not be a problem.

Another important disadvantage, however, occurs if agencies rely on unreliable evaluation methods, systematically displaying erroneous results regarding the accuracy of past merger decisions. Then, the decision quality could actually deteriorate as a consequence of learning from to the deficient ex post evaluation. In contrast to science, the rule 'bad or weak information is still better than no information' does not hold here since the 'bad' information triggers a behavioral response (*Neven & Zenger* 2008) by the competition authorities. Therefore, any ex post impact evaluation must guarantee a sufficient reliability of its results. In other words, reliability becomes a knock-out criterion for the usability of any given evaluation method. Given a sufficient minimum reliability, additional criteria can be applied to comparatively evaluate the usefulness of ex post evaluation methods for competition authorities wanting to engage in systematic ex post evaluations of their merger decisions.

Method Evaluation Categories

- *Reliability of results: competence of the method to identify decision errors. This is a prior category (knock-out criterion); any method that fails to meet a minimum reliability cannot be recommended.*
- *Applicability: can the method be applied to all types of cases, all types of markets, etc.?*
- *Agency resource intensity: what are the resource requirements of applying the method for the agency ("costs" of applying the method)?*

- *Academic mainstream: acceptance of a method within economics science ('mainstream'); for instance, number of (ranked) publications, etc.*

In contrast to other studies, these evaluation categories partly possess a hierarchical structure. *Buccirossi* et al. (2008: 464) argue that ex post evaluation "techniques cannot be ranked, as each has its advantages and drawbacks"; "they are not mutually exclusive, and it is possible, or even advisable, to use more than one simultaneously in order to minimize the probability of errors in the evaluation" (465). However, if a technique is not reliable to minimum standards, it cannot contribute to better evaluation – even within a mix of instruments. Quite in contrast, it actually jeopardizes any beneficial effect of an ex post impact evaluation and might even generate harmful effects (increase in type I and type II errors). This danger is particularly high if additionally a feasibility bias comes into play. A comparatively unreliable but cheap and easy-to-do technique is likely to get an inappropriate high weight in practice because of economics of administration – it is easily feasible. For these reasons, reliability receives the accentuated position of being a knock-out criterion: a failure in reliability cannot be compensated by a good performance in the other categories. For instance, it does not help that any given method can be easily applied with very few resources required if the results are not sufficiently reliable!

The scientific mainstream criterion, on the other hand, resumes a downward position within the category hierarchy, since the frequency of method appearance in the scientific literature, inter alia, follows motivations that need not go along with the goals of ex post impact evaluation of merger decisions (e.g. writing papers that are publishable in high-ranked academic journals for career considerations).[4]

4 Due to space limitations, this criterion is left out in this paper version. It will be included in a forthcoming, substantially longer version.

The main methods that are available for conducting ex post impact evaluation of merger decisions can be categorized in the following types:

- *structural models and simulations,*
- *difference-in-differences (DiD) approaches,*
- *event studies, and*
- *surveys.*

These methods are analyzed in the following sections according to the evaluation categories developed in this section.

2.2. Structural Models and Simulations

Overviews: *Buccirossi* et al. (2008: 465-466); *Budzinski* & *Ruhmer* (2010: 312-314); *Davies* & *Ormosi* (2010: 12-15).

Applications (examples): *Nevo* (2000); *Pinske* & *Slade* (2004); *Peters* (2006); *Weinberg* & *Hosken* (2008).

This method of ex post impact evaluation is based on (i) an explicit formal model of the nature of competition in the relevant market(s) of the merger, (ii) calibrating this model with real world data, and (iii) an assessment how the actual equilibrium would change if a counterfactual scenario (e.g. merger vs. no merger; remedy x vs. remedy y, etc.) is simulated (*Davies* & *Ormosi* 2010: 12).[5]

5 Merger simulations may also be used by the competition authority when deciding upon a merger (overview: *Budzinski* & *Ruhmer* 2010). These ex ante simulations serve to predict the post-merger equilibrium, whereas ex post simulation compares the actual post-merger decision market equilibrium with counterfactual equilibria.

Reliability

The main advantage of this method is its reliance on a sound and up-to-date game-theoretical foundation (*Buccirossi* et al. 2008: 465; *Davies & Ormosi* 2010: 14; *Budzinski* 2011). Furthermore, the accuracy of the underlying model can be tested through the calibration with real market data. This is in particular true for an ex post analysis. Only a fine-tuned calibration of the estimated model to the characteristics of the underlying market will reproduce the actual market development (*Buccirossi* et al. 2008: 465). In contrast to ex ante simulation where the extrapolation of the pre-merger market model to the – at the time of the decision – hypothetical post-merger equilibrium generates several shortcomings regarding the predictive power of simulation models (*Budzinski & Ruhmer* 2010; *Budzinski* 2011), ex post simulation alleviates many of these limitations. Insofar, criticism that this method requires a large set of assumptions whose fit to the actual market is sensitive for the reliability of the results (*Buccirossi* et al. 2008: 466; *Davies & Ormosi* 2010: 14) appears to be more fitting to ex ante simulations as to ex post simulations. This can actually be controlled rather well. Furthermore, the accuracy of the assumptions made at the time of the decision/intervention by the competition authority can be evaluated with this method (*Davies & Ormosi* 2010: 14).

However, this is strictly true only for the actual market development. In order to assess whether the merger decision has been correct, the actual post-merger development must be compared to a counterfactual. It is one of the advantages of this method that it allows for simulating alternative scenarios (counterfactuals), corresponding to different changes in the underlying market environment (*Buccirossi* et al. 2008: 465). To some limited extent, the pre-merger market may provide guidance for the counterfactuals, however, more accurately, the model should be used to simulate alternative post-decision scenarios. These simulations, then, rely on the assumption that the underlying competition model would have been the same if the counterfactual scenarios actually happened. While this assumption may be true for many cases, it is well possible that a big merger

impacts a market to an extent that it changes the fundamental nature of competition (*Budzinski* 2011).

In this context, it certainly is a shortcoming of this method that a reliable evaluation requires the underlying market to match one of the popular standard models of modern oligopoly economics, in particular the game-theoretic homogeneous Cournot oligopoly model (quantity competition with rather homogenous goods) or the game-theoretic heterogeneous Bertrand oligopoly model (price competition with differentiated products). If real-market competition differs from these standard models, the reliability of evaluation results suffers. Furthermore and therefore, ex post evaluation of merger decisions through structural models and simulation focuses on price and quantity effects. It tends to neglect other dimensions of competition, like innovation, repositioning, structural breaks, market entry, etc. (*Davies* & *Ormosi* 2010: 14; *Budzinski* & *Ruhmer* 2010). In particular, the inclusion of several of these dimensions and the interaction between the dimensions represent a near-to-impossible task (*Budzinski* 2011).

If done seriously and with a view to the limitations, however, structural models and ex post simulation produce reliable results, providing valuable insights in the accuracy of merger control decisions from an ex post perspective.

Applicability

The applicability range is firstly limited by the requirement that the relevant markets must be sufficiently matched by available structural models. As a result, the simulation method is skewed towards certain types of markets and suffers from a likely sample selection bias (*Davies* & *Ormosi* 2010: 14). Secondly, the extensive and ambitious data requirements regarding both quantity and quality of the data further narrow down the number of cases where this method can be applied for ex post evaluations (*Buccirossi* et al. 2008: 466; *Davies* & *Ormosi* 2010: 14). Furthermore, this method is said to be not applicable to cases

involving behavioral remedies as a special type of merger clearances under conditions or with commitments (*Buccirossi* et al. 2008: 465-466). In summary, the restrictions regarding applicability are considerable.

Resource Intensity

Structural modeling and simulation probably represents the most sophisticated method to assess competitive impacts. Moreover, the evaluation must be done on a case-by-case level. Consequently, it requires extensive agency resources to either engage in producing this type of ex post evaluations or commission respective studies. A full-blown ex post merger decision impact analysis involves high-end economic expertise, time-intensive data collection and generation as well as in most cases comprehensive cooperation from companies within the relevant market. While the latter can normally be enforced in the context of a merger decision without considerable problems, any cooperation of companies regarding ex post analyses is voluntary and may require some compensation.[6] Notwithstanding, simplified simulation approaches have been and are being developed ('back-of-the-envelope simulations') in order to reduce the resource intensity and data requirements. However, there is trade-off between ease of applicability and precision of estimated results (*Buccirossi* et al. 2008: 465).

2.3. Difference-in-Differences

Overviews: *Bergman* (2008: 394-396); *Buccirossi* et al. (2008: 466-467); *Weinberg* (2008); *Davies* & *Ormosi* (2010: 20-24).

Applications (examples): *Ashenfelter* & *Hosken* (2011); *Ashenfelter* et al. (2011); *Dobson* & *Piga* (2011); *Tenn* & *Yunn* (2011).

6 This is different, of course, if a competition policy regime can mandate companies to cooperate in ex post analyses.

Difference-in-Differences (DiD) methods encompass roughly all methods that evaluate a merger control decision by comparing the post-decision performance of fundamental market data (like prices or market shares) with (i) the pre-decision market development and (ii) a control market, which is sufficiently similar to the relevant market but unaffected by the event (the merger control decision). Many studies belonging to this method are direct econometric analysis of price and market share evolution with the control market serving to isolate the impact of the merger control decision from other influences on prices and market shares (often called 'external shocks').

Reliability

The charm of DiD methods is that they analyze *actually observed* data from the relevant product market. Thus, it represents an analysis of what actually happened on the post-decision market. Moreover, the counterfactual is also real and does not depend on non-testable and restrictive (or even heroic) theoretical assumptions (*Davies & Ormosi* 2010: 22). However, the sensitive problem is to find a suitable control group (markets, companies, etc.) that is (i) close enough to the relevant market in order to display the same 'external' influences but (ii) sufficiently far away not to be influenced by the event (the merger control decision). Furthermore, the same 'external' influences must also exert the same impact on prices (etc.) in the relevant market and in the control market (*Simpson & Schmidt* 2008; *Davies & Ormosi* 2010: 21-22). While this is often challenging, modern econometric techniques provide suitable instruments to alleviate these problems – albeit, not erasing them.

Another issue with DiD methods is that they are inherently atheoretical (*Davies & Ormosi* 2010: 22-23). While this is a disadvantage in terms of understanding and learning from the evaluation results, it represents an advantage to the extent that complex competition dimensions that are rarely incorporated into modeling and simulation are implicitly accounted for by 'just' measuring the actual effects. However, this is only true to the extent that these competition dimensions

(dynamic and evolutionary efficiencies of the competitive process) are reflected in measurable variables, like prices, elasticities, measures for the number and variety of products, etc.

Applicability

The applicability is firstly constrained by the requirement of the existence of a sufficiently appropriate control group (*Davies* & *Ormosi* 2010: 23). Secondly, it is much more difficult to ex post evaluate merger prohibitions with this method compared to cleared mergers wherefore a selection bias to analyzing clearances is likely to occur. Counterfactuals can be more easily constructed with cleared mergers because the market development prior and after the merger provides guidance for evaluation (prior to the merger the counterfactual actually existed, albeit at a different point in time). In contrast, in case of prohibited mergers, the market development does not provide much guidance. How the market would have been with the merger cannot be inferred from any real situation, neither from the pre-decision period, nor from a control market (*Neven* & *Zenger* 2008: 478).

On the other hand, from a data availability perspective, the range of applicability is rather comprehensive since the required data should be comparatively easily collectable for most markets. In summary, the most severe restriction appears to be the bias towards merger clearance decisions and, thus, towards detecting type-II errors (false allowances).

Resource Intensity

Like structural modeling and simulations, DiD methods must be done on a case-by-case level and require sophisticated econometric knowledge. However, DiD analyses enjoy the advantage that they require comparatively fewer resources than simulations because of their atheoretical character (no sophisticat-

ed modeling is required) and the laxer data requirements. Furthermore, cooperation with companies in the market is usually not needed.

2.4. Event Studies

Overviews: *Bergman* (2008: 392-394); *Buccirossi* et al. (2008: 467-469); *Davies* & *Ormosi* (2010: 15-20).

Applications (examples): *Ellert* (1976); *Eckbo* (1983, 1992); *Stillman* (1983); *Eckbo* & *Wier* (1985); *Aktas*, *Bodt* & *Roll* (2007); *Duso*, *Neven* & *Röller* (2007); *Diepold* et al. (2008); *Serdarević* & *Teplý* (2009); *Duso*, *Gugler* & *Szücs* (2010); *Duso*, *Gugler* & *Yurtoglu* (2011).

The basic concept behind event studies is that welfare effects of horizontal mergers can be evaluated by looking at the stock price reactions (abnormal returns) of the willing-to-merger companies (*Ellert* 1976) and, in particular, of the rivals of the merging firms (*Eckbo* 1983). In a nutshell, an increase in rivals' share prices implies an anticompetitive merger (price-increasing), a decrease implies a procompetitive merger (efficiency-enhancing).

Reliability

The event study method crucially relies on the efficient financial markets hypothesis (EFMH): if financial markets work perfectly and all actors on these markets act perfectly rational (actually: hyper-rational) under perfect information (or at least under full knowledge of all relevant information), then share prices instantly reflect the 'true' values to investors. Thus, changes in stock prices that occur as a reaction to merger decision-related events (merger announcement, announcement of investigation by competition authority, merger control decision) reveal the respective market assessment, which under the condition of the EFMH can be thought of reflecting unbiased and superior ('inside') information. However, the plausibility of the EFMH is questionable at

best. Neither do agents on financial markets act hyper-rational, nor do the markets in total reflect superior knowledge about competitive effects that, furthermore, at the time of the stock market reaction lie in the future. The implausibility and fundamental flaws of the EFMH, actually well-accepted in modern financial economics, alone render this method inappropriate to base policy decision on it.

However, the reliability is further put into doubt (if still possible) by a couple of additional problems, for instance, ambiguities in interpreting the observed stock price changes (*Davies & Ormosi* 2010: 18) and the unclear causal relationship of stock market movements with merger announcements and control decisions (*Neven & Zenger* 2008: 487). The fields of business activity that are affected by the merger decision must have a sufficiently high importance within the merging companies, which are oftentimes multi-product and multi-subsidiary-companies (i.e. groups of companies or concerns), whereas non-prohibition merger control decisions (conditional approvals, which is the vast majority of decisions) usually merely affects few of the market involved. Furthermore, many studies assume a price-umbrella effect. Rivals' profits benefit from an anticompetitive merger because of the 'rule of one price': the price for all companies in the market increases. In contrast, rivals' profits suffer from a procompetitive merger because the merged entity is more efficient now. However, this refers to a specific oligopoly model (quantity competition with homogeneous goods) that (i) hardly reflects the nature of competition in many merger markets (heterogeneous product markets) and (ii) may not be the way that financial markets' agents think about competitive effects from mergers. Consequently, a sound theoretical foundation, rooted in modern competition economics, is missing. Even furthermore, inextricable feedback loops occur in particular if the EFMH would hold. If financial markets are efficient, then they will anticipate (i) merger control decisions and (ii) their own influence on ex post evaluation and decisions – and reflect this in the stock prices!

Eventually, stock price reactions to merger announcements do not actually represent an ex post evaluation as they happen before or at the time of the merger decision. With the exception of the stock market reactions to the final merger control decision, the information is available to competition authorities during the decision process.[7]

In summary, the event study method fails to meet the knock-out criterion of providing a sufficient minimum reliability. There is no indication that financial market reactions represent an accurate prediction of the competitive effects,[8] however, there is ample indication to the contrary.

Applicability

The applicability is promoted by easy-to-access data (stock market prices). An obvious – but also practically relevant – limitation is that merging companies and their rivals need to be stock market companies with a sufficient trade volume and frequency (*Davies* & *Ormosi* 2010: 20). Furthermore, non-horizontal mergers are difficult to assess because of the many and ambiguous ways that anticompetitive or procompetitive effects can affect the relevant markets.

Resource Intensity

Event studies can be done on large samples of mergers and without looking into many case details they can still provide results about type I and type II errors on

7 Competition authorities have additional information (internal documents, etc.) and are better informed than the stock market. Thus, they may decide deliberately and for a reason not to follow stock market reactions (*Neven* & *Zenger* 2008: 487).

8 Even *Duso*, *Gugler* & *Yurtoglu* (2010) – with a research design driven by the purpose to demonstrate the usefulness of the event study – do not find convincing evidence (inter alia, sensitive reliance on long pre-announcement event windows that are arbitrarily delineated as well as sensitive reliance on the price umbrella effect even with differentiated product markets). See for more critical discussion *McAfee* & *Williams* (1988), *Eckbo* (1989), *Werden* & *Williams* (1989), *Davies* & *Ormosi* (2010: 19) and *Fridolfsson* & *Stennek* (2010).

a case level. The event study method does require econometric expertise. However, the easy access to data and the lack of theoretical modeling imply that comparatively few resources are needed to conduct these studies. Furthermore, cooperation with companies in the market is not needed.

2.5. Surveys

Overviews: *Buccirossi* et al. (2008: 469-470); *Davies* & *Ormosi* (2010: 24-25).

Applications: *PricewaterhouseCoopers* (2005); *Deloitte* (2009).

Survey-based ex post impact evaluations are merger decision reviews based on follow-up questionnaires and/or interviews. Two types can be distinguished. Firstly, the opinions and perceptions of involved companies (merging parties, competitors, suppliers, customers, etc.) and other interested parties are collected. Secondly, surveys among experts, peers and/or among practitioners can be conducted.

Reliability

The economics rationale behind conducting survey-based impact evaluations is rooted in information asymmetries. If market participants in the first type or experts and peers in the second type have superior explicit and/or tacit (ex post) knowledge about the impact of a merger decision on the underlying competitive process, then questionnaires and interviews serve to collect and reveal this knowledge to the evaluators. The nature of the asymmetric information implies an atheoretical character of this method, which at the same time means that all types of competitive effects, whether quantitatively measurable or not, can potentially be captured.

On the downside, surveys depend on the assumption that insiders and/or experts (i) actually have superior information and (ii) are willing to offer these infor-

mation without strategic distortions. The danger of a respondent bias is particularly high in the case of market participants because they will rationally anticipate that their information influences future merger control decisions. At first sight, expert commentaries should be less prone to respondent bias, however, this is only true when the expert has no party interest and is not looking for future assignments either from norm addressees or the competition authority.

Another issue refers to the number of potential survey participants. Since individual opinions are rather likely to suffer from strategic or cognitive perception biases, a sufficiently large number of potential respondents is required. Regarding expert commentaries, this implies that case reviews by single experts are less valuable than surveys among a larger number of experts.

Applicability

This method is applicable to all types of merger cases and demands virtually no data requirements. Thus, this method can also be applied when virtually no 'hard' data is available (*Buccirossi* et al. 2008: 469). The applicability may be limited because of low respondent rates, however. Although this method has so far predominantly been done to assess the total performance of a competition authority (benchmarking, best practices) and not to evaluate merger decision on a case level (*Davies* & *Ormosi* 2010: 25), both types (insider-based and experts-based surveys) can also be applied to evaluate single cases. Once the relevant questionnaires are available, it is comparatively easy to repeat the survey, so that this method is also realistically dynamically applicable in order to capture more long-run effects and changes.

Resource Intensity

Developing questionnaires, conducting interviews, motivating respondents and professionally analyzing the responses require manpower and statistical expert knowledge. However, the resource intensity is comparatively low.

3. Conclusions and Recommendations

With a view to the potential benefits and pitfalls of ex post evaluations of the impact of merger control decisions, two main problem areas must be considered:

- *the danger of the employment of insufficiently reliable methods, and*
- *excessive expectations from and/or interpretations of evaluations.*

The first issue, employment of insufficiently reliable methods, highlights the higher importance of minimum reliability standards for employed methods compared to applicability and resource intensity arguments. Obviously, all methods can be designed and executed in inaccurate and insufficient ways. Therefore, this is not the issue at hand. Instead, the question is whether any method in question produces minimum reliable results *given* a serious and accurate employment. Since all described methods display strengths and weakness, the literature consequently favors employing a method-mix (*Buccirossi* et al. 2008; *Davies* & *Ormosi* 2010: 25-26). While *Davies* and *Ormosi* (2010) emphasize the benefits of employing alternative methods to the same cases in order to learn from differences in the assessment, *Buccirossi* et al. (2008) put a stronger focus on relating the methods to case types that suit their individual strengths and weaknesses. Furthermore, they emphasize the role of surveys. "Whenever feasible, a survey should always be carried out to add insights and help the interpretation of the results obtained through other techniques, as well as to investigate some aspects of the development of a market that are difficult to understand from hard data" (*Buccirossi* et al. 2008: 469). While principally agreeing to advocate methods-mixes, my analysis deviates from the results of the previous literature by rejecting the event study method due to a lack of reliability (see section 2.4). As argued in section 2.1, if a technique is not sufficiently minimum reliable, it cannot contribute to better evaluation within any method-mix. Instead, it might generate harmful effects (increase in type I and

type II errors), in particular if combined with a feasibility bias – which is the case with respect to the comparatively easy-to-apply event method.

The second issue deals with expectations about impact evaluation results and their interpretation. Since neither perfect methods nor a perfect method-mix are available, a cautious approach towards ex post evaluation of merger decisions seems appropriate.[9] It should focus on generating knowledge and learning about actual effects of merger decisions (*regime learning*). However, the focus should be not so much on counting mistakes or successes of competition authorities (*agency accountability*). Instead, it should focus on how both the merger control framework and the decision practices can be improved for future decisions. The reason for this shift in focus is threefold. Firstly, attempting to record the past mistake-success-balance of competition authorities requires to strictly acknowledge the original constraints for the decision (timeframes, available resources, available information, institutional flaws, standard of proofs, etc.). If an 'erroneous' decision was due to such constraints, the competition authority cannot really be blamed. However, secondly, such an approach overburdens the available methods and, moreover, limits the learning potential from ex post evaluations. Thirdly, if ex post evaluation is driven by the desire of external accountability of the competition authority, then a rational behavioral response of the authority would be to maximize evaluation success instead of consumer or social welfare (see 2.1).

It is more beneficial to conduct ex post merger decision impact evaluations with a focus on broad learning about all the effects of these decisions (irrespective of contemporary decision constraints for the authority) in order to generate knowledge about improving the merger control framework *and* the actual decision practice. As this implies 'learning from many cases for general policy' instead of attempting to 'conclude from single cases to other single cases'. Such an approach is also a better fit to the capacities of the available evaluation

9 Much in the same spirit, *Davies* and *Ormosi* (2010: 26) emphasize the problems, shortcomings and limitations of all available evaluation methods rather than the merits and demand further research.

methods. For instance, if a result of many case studies is that anticompetitive mergers are allowed because the standard of proof and the allocation of the burden to proof are too ambitious for the competition authority to succeed in blocking such mergers, then consequences for the rules about proof standards and burdens should be drawn. It would be dissatisfying 'only' to conclude that the competition authority committed no mistakes because it had no choice but to allow the anticompetitive merger due to institutional flaws outside its competence.

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