

# Economics at DG Competition, 2009–2010

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**Abstract** This paper discusses a selection of cases and important policy developments in the enforcement activities of the Directorate General for Competition at the European Commission during the past year (2009–2010).

**Keywords** Antitrust · Merger control · Best practices

## 1 Introduction

As is now tradition, this report on EU competition enforcement offers insights into part of the economic analysis that was undertaken by the Directorate General for Competition (DG COMP) at the European Commission during the past year, both in the assessment of high-profile cases or to inform and guide policy development.

On the merger control front the Oracle/Sun Microsystems raised significant attention and interest, not least because the US Department of Justice (DOJ) and the Commission focused on somewhat different competition issues in their respective assessments of this merger. Limited aspects of this case are discussed first. Next we present the econometric analysis that was conducted for the first time in assessing the

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competitive effects of a horizontal cooperation agreement (Article 101, formerly 81): the OneWorld airline alliance.

As regards the enforcement of Article 102 (formerly 82), three long-standing and challenging cases that involved dominant firms in high-tech markets were concluded with three different outcomes: *Intel* (with a prohibition or Article 7 decision), *Rambus* (with a commitments or Article 9 decision), and *Qualcomm* (proceedings were formally closed). We also briefly discuss a recent decision to close proceedings against Velux for allegedly offering rebates leading to anti-competitive foreclosure. This case illustrates how to apply in practice the approach laid down in the Commission's Guidance Paper on Article 102 concerning rebate practices.

We conclude with a summary of the Best Practices for the Submission of Economic Evidence adopted in early 2010 and report on first reactions by practitioners to this important document intended to ensure the effective use of economic and econometric analysis in EU competition cases.

## 2 Mergers: Oracle/Sun Microsystems

The acquisition of Sun by Oracle was one of the major cases that were reviewed by DG COMP in the past year. Oracle is one of the world's leading software companies, while Sun provides hardware and software, Java technology, middleware, and related services. The investigation focused on the database market. In this market Oracle is a market leader, with several offerings that are centred on its database flagship product: the 11g Release.

Sun's database product is MySQL. It is a general purpose database and is available in different editions under the so-called dual license model. MySQL Community Server edition is available as a free download on the Sun website under the open source General Public License v2 ("GPLv2"), while MySQL Enterprise edition is available upon subscription for users who wish to benefit from continued product support.

After an in-depth investigation, the acquisition was cleared unconditionally, but the decision is currently under appeal at the General Court. Consequently, in this paper we will not provide a comprehensive overview of the competitive assessment but rather focus on some specific features of the competition between databases and in particular between proprietary and open-source software.

As a general remark it is worth pointing out that following the adoption in 2004 of a revised Merger Regulation and accompanying guidelines for the assessment of horizontal mergers, the legal test applied is not whether the merger leads to the creation or strengthening of a dominant position. Rather, the substantive test is whether (1) MySQL exerts an important competitive constraint on proprietary databases, in particular Oracle's (or would be expected to do so over the relevant horizon); and (2) whether Oracle would likely have the ability and incentive to reduce or eliminate such competitive force after the acquisition. Indeed, the EU Horizontal Merger Guidelines recognize that some firms, despite having a relatively small market share may exert significant competitive pressure on its rivals and that a merger involving such a firm may change the competitive dynamics in a significant, anti-competitive way, leading to a significant impediment of effective competition.

Competition between databases seems to be affected both by the significance of network effects and switching costs. First, the development of databases is subject to at least two indirect network effects. A higher number of users will make it more attractive for service providers to invest in expert knowledge of the database product; and the higher is the number of users, the more attractive it will be for software developers to integrate, or embed, the database products in their own offerings. As a result, the range of applications that the database can handle will be enhanced and this will in turn make adoption more attractive for users.

Second, the adoption of a database by a buyer often requires significant specific and irrecoverable investments. This implies that in making a choice between alternative databases buyers will consider a long horizon, taking into consideration the prospect that they may be held up in the future. Buyers will form expectations about future market developments, and these expectations will be informed by the future incentives that market participants will have.

Switching costs and network effects introduce market dynamics such that users and other network participants adopt a product only if they expect others to endorse it now and on a continued basis in the future. In such an environment, large “devaluations” of a product relative to its substitutes may occur as a result of small perturbations in expectations as regards future market conditions and relative performance. A change in the perception that users have of the incentives of other market participants may lead to self reinforcing devaluations and rejection of a product. This underlies the vulnerability of even a highly successful database software. Hence, the perception that a new owner will have weaker incentives to support the software may have large consequences.

Furthermore, the open source character of MySQL has implications for the continued supply of support services and the ability for the owner to raise the total cost of ownership to locked-in customers. First, given the open source character of MySQL, anyone can inspect and change the code in order to customize it. Indeed, because the source code is freely available independent developers within the community (or the customers themselves) are able to provide alternative upgrades and patches.<sup>1</sup> This often results in relatively strong competition in the market for support services, to the benefit of current and future users.

Second, as mentioned above, MySQL operates under the GPL dual licensing model, where both commercial and GPL licenses are available. This is a common form of licensing such that the code is often publicly available to end users (but not to resellers, OEM, customers, etc.) for free use, with certain restrictions. Dual licensing models allow commercial licensees to resell in closed source the modified code or any applications/products that embed the original code, while GPL licensees cannot do so without also releasing the code in the open source form with the modifications.

A contributor who is not the owner of the IP is generally less able to appropriate returns to its improvement than is the owner of the IP, as only the IP owner can issue commercial licenses, which limits the incentives of independent developers to

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<sup>1</sup> Such upgrades may be of lower quality and less frequent than those provided by the IP owner, but ensure that the user cannot be held up for the full value of its investment, thereby considerably reducing the risk and hence the attractiveness of adopting an open-source alternative to a commercial database.

participate in the development. A developer who obtains a commercial licence and embeds the software in new applications will be able to obtain licensing fees for his application, but a significant share of it can be expected to accrue to the IP owner (through the terms of the commercial licence).

Sun has employed dual licensing as the distribution model for MySQL, which enabled many users to use the product for free, with certain restrictions, as discussed earlier. Dual licensing and MySQL's modular architecture enabled MySQL to benefit from a wide adoption and user's feedback and to capture the associated network effects. At the same time the dual licensing model meant that Sun was able to appropriate some of the returns to its development efforts directly through licensing, and not only via sales of complementary products.

DG COMP analysed various sources of information to assess the competitive constraint that was exerted by MySQL on Oracle's flagship database. These sources comprised in particular two internal and contemporaneous Oracle datasets,<sup>2</sup> internal documents of Oracle and Sun, and surveys, as well as input provided by competitors and customers of Oracle and MySQL that responded to the Commission's questionnaires. In making such assessment it was important to bear in mind that proprietary software vendors would not always be directly alerted to the competitive presence of open source vendors since customers can simply download the software for free. This means that a significant number of customers adopting MySQL may never have approached Oracle before making a decision.

On the other hand, as regards potential customers that do approach Oracle, or existing customers wishing to upgrade, the argument was made that MySQL may not be a credible alternative. As a result, at least with respect to these customers Oracle would face limited competitive pressure from MySQL. To assess this argument DG COMP analysed an internal "dataset" of Oracle (HQ Apps) that contains the communications between sales teams and Oracle headquarters relating to non-standard rebates offered by Oracle. This database allows counting the number of customers that mention a certain database, such as MySQL, as a competitor to Oracle. DG COMP's analysis indicated that MySQL could not be dismissed as a current competitive constraint, even for customers that enter into negotiations with Oracle for the purchase of database products and services.<sup>3</sup>

Ultimately, DG COMP concluded, on the basis of all available evidence, that MySQL has the potential to exert an important competitive constraint on Oracle and other proprietary database vendors—in particular in some segments like the small and medium enterprise or low-end segment and some parts of the embedded segment. Furthermore, this constraint is also dynamic, in the sense that MySQL's specific modular architecture was considered to favour innovation by third parties that develop

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<sup>2</sup> The two contemporaneous internal datasets submitted by Oracle that the Commission analysed were (1) the Customer Relationship Management Database (CRM) and (2) a dataset that consisted of e-mail requests that were submitted by sales personnel to a centralized email address (HQ Apps) for executive approval of price discounts to customers.

<sup>3</sup> Further, the conclusions drawn from HQ Apps were confirmed by industry surveys. In particular a 2009 survey by Evans Data Corporation, a research firm, reported that overall MySQL was the second-most-used database by a number of developers and IT managers in the Europe, Middle East, and Africa (EMEA) region in the past year, just behind Microsoft's SQL Server.

complementary products such as storage engines that enhance MySQL's functionalities, allowing it to target higher-end applications, where Oracle is the market leader.

We do not discuss here the further issue of whether, as a result of the merger, Oracle would have an incentive to change the existing licensing model for MySQL, its pricing, or its development policy. This depends on a larger set of considerations, including the prospect of entry and the relative incentives of customers and developers to support other open source alternatives, including forks of MySQL. It follows that we do not discuss whether and what kind of remedies would be appropriate in this case. This section has merely highlighted the significance of present and anticipated network effects and the role of the IP holders for the development of software that is distributed under a dual licensing policy. Our main point is that any actual change in the licensing and development policies of the IP owner, or even the perception that the incentives of the IP owner have changed, could have large consequences for the continued adoption of the software. In other words, the amplifying dynamics that stem from network effects and expectations could lead to a rapid devaluation of even a well-established open-source database.<sup>4</sup>

### 3 Horizontal Agreements: OneWorld Airline Alliance

This case concerned a set of agreements that were concluded between British Airways (BA), American Airlines (AA), and Iberia (IB) to establish a revenue-sharing joint venture that would cover all three parties' passenger air transport services on routes between Europe and North America. The agreements foresee cooperation on pricing, capacity, and scheduling coordination, as well as sharing of revenues.

#### 3.1 Market Definition

In airline cases, the Commission has traditionally defined markets based on the origin-and-destination (O&D) city-pair approach: a demand-side perspective whereby customers consider all possible alternatives of travelling from a city of origin to a city of destination, which they generally do not consider substitutable with a different city-pair. Whilst the O&D approach remains appropriate in assessing the competitive effects of airline alliances, one should recall that market definition is just a means to identify the set of firms that exert an important and immediate competitive constraint on each other. Where airlines operate a hub-and-spoke network the competitive assessment must take into consideration the fact that airlines' competitive decisions on a given route may be directly influenced by first- and second-order effects on other routes. This is particularly relevant for the assessment of potential competition and efficiencies.

Markets may further be differentiated between non-stop services and one-stop services. It depends on the assessment in each particular case whether both of these types of services are in the same market and to which extent they exert a competitive

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<sup>4</sup> MySQL was—at the time of the merger and according to multiple sources—the most popular open source database, with more than 11 million active installations and over 60,000 downloads per day.

constraint on each other. For example, on short-haul routes one-stop services would not generally be deemed to provide a significant competitive constraint to non-stop services. Furthermore, particularly in long-haul, it may be necessary to differentiate between services for premium and non-premium passengers. Demands of each of these groups differ in terms of travel comfort, service frequency, travel time, etc.

Supported by extensive qualitative evidence, DG COMP first showed that for the affected routes, premium and non-premium services are parts of separate markets. DG COMP also conducted a price correlation analysis that was based on data submitted by the parties<sup>5</sup> (BA, IB, AA) and a competitor Virgin Atlantic (VA) as well as a customer survey at Heathrow Airport that complemented and ultimately reinforced this conclusion.

The parties had argued that all tickets irrespective of class cabin and flexibility (in terms of changes and refunds) could be considered as part of the same market, since tickets are differentiated by characteristics along a continuum. Hence, changes in the price of a given set of tickets would influence the demand for a second set of tickets that are similar in some dimension, in turn this leading to second-order effects on the demand for a third set of tickets, similar to the second set, and so on, until the whole market is covered.<sup>6</sup> According to this argument, it is thus not possible to delineate clear boundaries between different sets of tickets such that a hypothetical monopolist would find it profitable to increase significantly and permanently the price of the tickets included in one well-defined set. The purpose of the fare correlation analysis was to test this hypothesis and was limited only to assess whether different sets of non-stop fares within a route could indeed constitute different markets.

We used monthly average net return fares, across cabin class, ticket flexibility and type of customer (tickets sold under a corporate contract were separate from tickets sold to individual passengers). The analysis was done using alternative standard correlation techniques to address in varying ways the potential problem of spurious correlation: the risk that correlation coefficients are biased due to factors such as common costs, seasonality, or other common patterns in demand. The results of this analysis indicated that the prices of non-fully flexible (i.e., restricted) corporate and non-corporate economy tickets are statistically independent from the prices of (1) business and first class tickets or (2) the fully flexible premium economy booking class. This provides an additional indication that non-fully flexible (restricted) corporate and non-corporate economy tickets do not belong to the same product market as business or first-class tickets.

By contrast, the results also showed that the prices in the three low-fare booking classes<sup>7</sup> tend to show a relatively strong co-movement, indirectly validating the methodology. At the same time, the price correlations in the higher fare classes (first and

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<sup>5</sup> It is worth stressing that the data required lengthy discussions with the involved parties and an extensive data cleaning process in order to allow reliable inference.

<sup>6</sup> In some settings this reasoning is referred to as the “overlapping circles” theory.

<sup>7</sup> These were (1) the non-fully flexible and flexible economy, (2) the non-fully flexible premium economy classes, and (3) the restricted non-corporate economy and restricted non-corporate premium economy classes.

business classes and the fully flexible premium economy class) tend to be weaker than those in the lower classes. This might indicate that non-price, yet relevant, dimensions of competition such as quality of service and schedule convenience are more important in the high-fare classes than in the lower fares. One explanation is that among higher-priced tickets there is more product differentiation and thus greater scope for segmentation.

A customer survey was also conducted at Heathrow Airport. DG COMP designed the questionnaire and processed and analyzed the responses. The purpose of the survey was to obtain a representative sample of responses from non-stop passengers who were departing from London and flying to a number of destinations in the US. The questionnaire was intentionally short, and all questions were “multiple choice” and were aimed at collecting information on passengers’ characteristics, passengers’ past behavior (“revealed preference” questions), and passengers’ likely reaction to hypothetical situations, such as a price increase in their flight ticket (stated preference questions).

The results of the survey provided further evidence as regards the definition of the boundaries of the product market in terms of the substitutability between premium and non-premium tickets and between non-stop and one-stop flights. In particular, the results indicate that *first class* and *business class* passengers share common travel preferences, which differ from the travel preferences of passengers travelling in *restricted economy class*—particularly as regards the purpose of travel, the time at which the ticket was booked and the length of stay at destination. Furthermore, upper class passengers appear to be much more likely to switch airline in the event of a price increase instead of reducing the comfort or the flexibility of their travel by switching to a lower fare class.<sup>8</sup>

### 3.2 Competitive Assessment

The Commission issued a Statement of Objections (SO) on 29 September 2009, expressing its concerns as to the compatibility of these agreements with Article 101 of the Treaty on the Functioning of the European Union (TFEU). In the SO, the Commission took the preliminary view that the parties’ cooperation was likely to produce appreciable anti-competitive effects on seven routes where (1) the parties held a strong market position, (2) barriers to entry or expansion were significant, and (3) the parties faced little constraint from actual and potential competitors: London-Dallas, London-Boston, London-Miami, London-Chicago, London-New York, Madrid-Miami, and Madrid-Chicago.<sup>9</sup>

An important consideration in validating the general theory of harm was whether a reduction in the number of independent competitors on the affected routes could

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<sup>8</sup> In response to an hypothetical price increase, between 30 and 40% of passengers travelling in *business class* responded they would be willing to switch airline, while just 4–15% would switch to a lower class of travel.

<sup>9</sup> In light of the parties’ reply to the SO and additional evidence the Commission considered that its preliminary competition concerns on Madrid-Chicago and Madrid-Miami (non-premium market) were no longer justified.

be systematically associated with an increase in fares. To assess this, we performed a price concentration regression in order to complement and support the route-by-route analysis that otherwise relied on qualitative evidence that was related to route-specific supply and demand factors. The main goal of the price-concentration regressions was to measure the strength and the sign of the historical association between price (fare) and market concentration. In particular, the logarithm of ticket prices were regressed on the number of independent competitors (as a measure of market concentration) and other controlling factors, such as average frequency, aircraft size, slot concentration at origin and destination cities, GDP, population, and time effects. We set up separate models for the fares in *restricted economy* and for fares in *fully flexible business*.<sup>10</sup>

The results showed a negative and statistically significant relationship between ticket fares and the number of competing carriers on a given route, other factors being kept unchanged. The association was estimated to be stronger for the *economy restricted* than for the *fully flexible business* tickets. A likely explanation for this result is that in the *restricted economy* class, price is the primary dimension of competition. On the other hand, in higher classes, such as business fully flexible, other non-price aspects such as quality of service are relatively more important.

Furthermore, one could have a sense of the economic significance of the results, in particular on the affected routes, by asking the following question: by what extent prices would have been higher in the sample period on average if (1) concentration had increased by an extent implied by the scale of the proposed alliance on the seven non-stop overlap routes mentioned in the Statement of Objections, (2) other variables had been unchanged, and (3) the estimated price-concentration link applied?

The econometric model indicated that under the above assumptions prices for economy restricted tickets would be on average 5.5% higher with one fewer independent competitor present on the affected routes, with a 95% confidence interval ranging from 1.5 to 9.4%. Similarly as regards fully flexible business class tickets, the point estimate was 2.2%, with a 95% confidence interval between 0.1 and 4.2%.

In response to the Commission's objections the parties claimed, *inter alia*, that their agreements would bring efficiencies for consumers within the meaning of Article 101(3) TFEU. In particular, the parties alleged that their cooperation would result in lower fares, due to the elimination of double marginalization for so-called behind-and-beyond passengers and cost savings arising from economies of density. Furthermore, the parties submitted that they would have the ability and incentive to supply a higher quality service in terms of scheduling, reciprocity of frequent flyer programs (FFPs), fare combinability, and joint corporate contracts.

The Commission found that the parties' arguments in support of quantifying these claimed efficiencies needed further development. Besides several technical difficulties, the analysis was incomplete since important route specificities were not taken into consideration. Moreover, the economic and legal arguments in support of considering efficiencies that would arise in markets otherwise not negatively affected by the agreement were not, at that stage, convincing. This does not mean that the conditions for taking efficiencies into account under Article 101(3) TFEU could not be

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<sup>10</sup> The estimation has used standard panel data estimators (fixed effects, first differences, GMM fixed effects and first differences, and the Arellano-Bond estimator).



met—at least as regards a number of the alleged efficiencies. Both economic theory and past empirical analyses provide strong grounds to expect that, in certain circumstances, revenue-sharing would generate efficiencies, such as economies of density, that can benefit passengers. Revenue-sharing may also lead to lower prices for interconnecting behind-and-beyond passengers that otherwise would have to purchase separate tickets from different airlines, and thus pay multiple mark-ups. Further, some of the efficiencies that were alleged by the parties in this case could be reasonably quantified or at least approximated and indeed may not have been realistically attainable through other means. However, the parties did not submit any further analysis that could be considered sufficient to discharge fully their burden in demonstrating that their agreements met all the criteria for application of Article 101(3) TFEU. Instead the parties decided to offer a remedies package and requested that it be market tested.

On June 25, 2010, the parties submitted their final commitments proposal that were aimed at addressing the Commission's preliminary concerns. Market participants were consulted and provided the Commission with comments on the proposed remedies package. The Commission finally accepted the parties proposed commitments and issued an Article 9 decision on 14 July.<sup>11</sup> The commitment package contains, in particular, the release of a number of takeoff and landing slots at Heathrow Airport to a competing airline that wishes to increase the frequency of its services on the routes of concern. Further, under certain conditions, a number of slots (namely those initially earmarked to the routes London-Dallas and London-Miami) could eventually be allocated to an applicant carrier that is willing to operate only an indirect service on the route of concern. In recognition of the possible difficulties in the divestment of slot remedies sometimes encountered in past cases, a review clause is also included that would allow the Commission to evaluate their impact at a fixed later date.

## 4 Abuse of Dominance (Article 102 TFEU)

### 4.1 Exploitative Abuses

It can be argued that absent exclusionary behavior, monopolistic rents should be of no concern to antitrust regulators or courts. Indeed the Commission and the Courts have explicitly stated that it is legal to hold a dominant or monopoly position. A profit-maximizing firm in such position can be expected to charge higher than competitive prices. It would appear inconsistent to allow substantial market power but to prohibit its exercise.

Not surprisingly, the Commission has been cautious in bringing excessive pricing cases. They were generally decided in the early years of antitrust enforcement at the EU level and were motivated by broad policy objectives related to the integration of the Single Market. The drive to support integration led the Commission to pursue cases

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<sup>11</sup> Under Article 9 of Regulation No 1/2003, where the undertakings concerned offer commitments to meet the concerns expressed to them by the Commission, the Commission may by decision make those commitments binding on the undertakings. Such a decision shall conclude that there are no longer grounds for action by the Commission. In such a case, a complaint will be rejected in light of the commitments that have been accepted by the Commission.

aimed at preventing companies from (1) *partitioning the internal market* by taking advantage of trade barriers across Member States, or (2) charging higher prices in the Member States in which the dominant undertaking was *sheltered from effective competition*, generally due to the Member State's past interference and the resulting incumbency advantages enjoyed by former monopolies.

Absent these broader policy considerations, idiosyncratic to the EU system of competition enforcement, a competition authority has good economic reasons not to encroach on the rights of a dominant firm to charge whatever prices or royalties the market would bear, provided the acquisition of such dominance was legitimate—for example, through R&D leading to a patent.

Indeed, both intellectual property protection and cooperative research and development can be seen as restricting competition but may be required for the innovation to arise in the first place. More generally, high prices tend to be self-correcting as they attract market entry and encourage investment and the reallocation of resources to those activities and markets that are of greatest value for consumers. Competition policy enforcement—for example through a misguided application of Article 102 TFEU as an instrument to regulate prices—could interfere with the competitive process thereby ultimately leading to a reduction in consumer welfare.

From this perspective, it may be appropriate for a competition agency to focus its resources on preventing exclusionary conduct by a dominant firm that restricts efficient entry or raises rivals' costs, thereby limiting their ability or incentive to compete effectively, to the detriment of consumers; in other words, conduct that leads to anti-competitive foreclosure.<sup>12</sup> By the same token, one could argue that if a firm engages in conduct that directly results in eliminating all competition and thereby allows it to acquire and maintain a dominant position, it may be considered that such position has been obtained illegitimately (i.e., not through “superior products, business acumen or even historical accident”). According to this approach, if it can be conclusively proven that (1) in the absence of the exclusionary conduct in question the firm would not have acquired, or would be unable to exploit, a dominant position, (2) and such exploitation ultimately results in long-term consumer harm, then the practice and subsequent acquisition of dominance may be considered an abuse within the meaning of Article 102 TFEU—in particular paragraph (a).<sup>13</sup>

This set of circumstances was largely present in two cases in the context of standard setting, which was recently concluded after several years of investigation: *Rambus* and *Qualcomm*. Although both cases raised similar issues, there were important differences in the facts that partly explain the different outcomes. In *Rambus* the Commission accepted commitments and issued an Article 9 decision.<sup>14</sup> By contrast, after

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<sup>12</sup> For a more detailed presentation of the meaning of anti-competitive foreclosure see also, “Guidance paper on the Commission’s enforcement priorities in applying Article 102 TFEU, to abusive exclusionary conduct.”

<sup>13</sup> Article 102 reads: “Any abuse by one or more undertakings of a dominant position within the internal market or in a substantial part of it shall be prohibited as incompatible with the internal market in so far as it may affect trade between Member States. Such abuse may, in particular, consist in: (a) directly or indirectly imposing unfair purchase or selling prices or other unfair trading conditions.”

<sup>14</sup> See also footnote 111.

four years of investigation the *Qualcomm* case was closed after all the complaints were withdrawn. We briefly discuss both cases below after providing some context regarding standard setting organizations.

Industry standards ensure that products from multiple vendors are compatible and interoperable. A standard can be defined as a set of technical specifications that seeks to provide a common design for a product or process. The welfare benefits deriving from the existence of standards are obvious: By allowing complementary or component products from different manufacturers to be combined or used together, they increase consumer choice and convenience, and reduce costs. Standards may also promote economic integration in the internal market or encourage the development of new markets and improved supply conditions. Further, standards tend to increase competition and lower output and sales costs, benefiting economies as a whole. More generally standards contribute to enhance interoperability, maintain quality, and provide information.

Standards, however, also pose some risks to competition and standard-setting bodies generally adopt intellectual property rights policies, which are designed to prevent or minimise the risk of anti-competitive outcomes. Through a decrease in the variety of products or processes available, the standardisation process may in fact lead to a restricted choice for consumers. It may also lead to the loss of technology with superior characteristics: producers who fail to impose their own standard may suffer an increase in the operative costs required in order to guarantee compatibility with the ‘winning’ product or process. This increase in costs may force competitors off the market and decrease competitiveness. Standard-setting agreements could also facilitate collusion amongst participants. In other words, they may offer an opportunity for those involved (by means of exchanging information) to fix prices and quantities produced.<sup>15</sup>

An additional concern is that the standard-setting process may be manipulated by one or more patent-holders to acquire significant market power (i.e., dominance) that was not present before the standard-setting process began. The reason for this is that before a standard is adopted, the industry may have flexibility with respect to the exact technical characteristics of the standard, and thus may be able to adjust the standard so that it avoids relying on certain patents, perhaps by taking advantage of other patents that are substitutable at this early stage. As a result, during the standard development process, patents may be in competition with each other for inclusion in the standard. Patents that face this *ex ante* competition only become “essential” after a specific standard has been adopted and there is a ‘lock-in’ to the standard, as could occur

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<sup>15</sup> The on-going review of the regime for the assessment of horizontal cooperation agreements (excluding cartels) under Article 101 TFEU (81 EC) seeks to strike an appropriate balance between the potential competition concerns of standard-setting agreements and the potentially significant benefits for consumers of standardisation. The draft guidelines recognize that standard-setting agreements are becoming increasingly important in facilitating innovation (in particular in the IT sector) but an efficient, open and transparent standard-setting process is key to ensure effective competition. In particular, the revision of the standardisation chapter—drawing on recent case related experience in the field, in particular *Rambus* and *Qualcomm*—aims at ensuring that standards are set in such a way that the specific benefits of standard-setting are realised and passed on to European consumers.

after technology adopters have invested in manufacturing assets that are specifically designed to meet the particular standard.

However, once the standard has been adopted and implemented, switching to an alternative technology may have become too onerous. The holder of patents essential to the standard may thus increase its bargaining power and may be able to extract more favourable licensing terms ex post standardization. This phenomenon is described in the economics literature as ex post opportunism or patent hold-up.

There are two alleged ways that a patent-holder may manipulate the standard setting process to create hold-ups:

- First, it may intentionally ignore standard-setting organization (SSO) rules to disclose its patents until after a patent-implicating standard has been adopted (i.e., ex-ante). By doing so it may induce the SSO to adopt a standard that incorporates intellectual property rights (IPR) that are held by the patent-holder that would not be otherwise adopted.
- Second, it may commit to offer its IPR under “Fair, Reasonable And Non-Discriminatory” (FRAND) licensing terms ex-ante and then later hold-up technology adopters by requesting licensing terms (including royalty rates) that are not in line with its announced commitment to FRAND terms after the adoption of the standard (i.e., ex-post).

The basic mechanism of the hold-up is the same in either case: The patent-holder makes unexpected demands for licensing fees on the standard only after it has been established. The hold-up potential is based in the lock-in that is created by the costs of reengineering or switching away from an established standard. Hence, hold-up can only be an antitrust concern where it is clear that at the time that the patent-holder enforces its IPR, technology adopters are locked into the chosen standard and cannot switch away to alternative standards without incurring substantial costs.

The *Rambus* case concerns allegations of non-disclosure hold-up, whereas the *Qualcomm* case concerns allegations of FRAND hold-up.

#### 4.1.1 *Rambus (Non-disclosure Hold-up)*

“Dynamic Random Access Memory” (DRAM) chips are a type of electronic memory that is primarily used in computer systems, but also used in a wide range of other products that need to store data temporarily, including servers, workstations, printers, PDAs, and cameras. The interface technology allows interoperability between a DRAM chip and other computer components that need to access the data that are stored in the DRAM chips. JEDEC, an industry-wide US-based standard setting organization, developed a standard for DRAMs. According to the Commission’s decision JEDEC-compliant synchronous DRAM chips account for more than 96% of overall sales of DRAM chips between 2004 and 2008.

Rambus was as a member of JEDEC from 1991 to 1996. The Complaint in this case alleged that Rambus had a twofold plan: first to get its newly-developed proprietary RDRAM technology accepted as a standard and, in case this plan failed, to capture the JEDEC standard and claim licence fees from all synchronous DRAM chip manufacturers. The Complaint further alleged that Rambus failed to disclose its relevant

patent applications and patents to JEDEC, which deprived JEDEC of the opportunity to adopt standards that were clearly outside the scope of Rambus' patents, and hence that Rambus illegitimately captured the relevant JEDEC standards. The Commission opened proceedings and adopted a Statement of Objections that set out its competition concerns in July 2007.

In the Statement of Objections, the Commission considered that Rambus may have engaged in intentionally deceptive conduct in the context of the standard-setting process by not disclosing the existence of the patents and patent applications that it later claimed were relevant to the adopted standard. As a result the Commission argued that Rambus may have been abusing its dominant position by claiming royalties for the use of its patents from JEDEC-compliant DRAM manufacturers at a level that, *absent its allegedly intentional deceptive conduct*, it would not have been able to charge. The Commission provisionally concluded that claiming such royalties was incompatible with Article 102 TFEU, in light of the specific circumstances of this case.

A number of conditions are required to validate the theory of harm that a firm has manipulated the standard-setting process to acquire and exploit a position of dominance that it otherwise would not enjoy. These conditions appeared to be present in this case.

*First, it must be shown that the firm has intentionally failed to disclose essential patents until after a patent-implicating standard has been adopted.* Indeed, the Commission found that Rambus deliberately used its participation in JEDEC to revise and tailor its pending patent applications in an effort to gain control over JEDEC-standard-compliant synchronous DRAM chips. As a member of JEDEC from 1991 to 1996, Rambus was duly informed and aware of the obligation to disclose issued and pending patents that related to the standard-setting work of JEDEC that was incumbent upon every member of the organisation. Rambus was quite aware of the expectations of other participants and of the fact that, as a consequence of its failure to disclose issued or pending patents, standards would not be adopted on the basis of all the relevant information.

*Second, in the absence of the deceptive conduct, alternative technologies or substitute patents would have likely been selected in the standard.* Again the Commission provisionally considered that, save for Rambus' alleged deceit, JEDEC Members were likely to have designed a "patent-free" standard around Rambus' patents. A number of factors pointed in this direction: First there was evidence that the industry was concerned about the costs that were associated with any DRAM interface technology. Also, payment of royalties on memory interfaces has been very much the exception, rather than the rule, in the DRAM industry, which showed a disposition against including patents in standards. Indeed, evidence indicated that users were willing to forgo increases in performance in order to keep costs down. In this regard, several higher performance alternative solutions were not selected as they were not essential for the PC market. Finally, there was significant evidence that during Rambus' membership of JEDEC, a broad range of alternative technologies to those that were eventually included in the JEDEC DRAM standard was available. These alternative technologies were considered technically and commercially feasible.

*Third, the industry has made significant specific investments by the time the patent-holder reveals its patents.* In this case, there were substantial barriers to entry into the market and, by that time, the industry was locked into the JEDEC DRAM standards.

*Fourth, directly as a result of the deceptive conduct, the firm acquires a dominant position and subsequently exploits it.*<sup>16</sup> In the Statement of Objections the Commission provisionally considered that Rambus held a dominant position in the internal market at the point when it started asserting its patents and has continued to hold that dominant position since. This finding is supported by a number of facts:

1. As Rambus asserts patents on all JEDEC-compliant SDRAM chips and owns the proprietary RDRAM and XDR DRAM technology, the percentage of worldwide commercial DRAM production exposed to Rambus' patent claims is thus more than 90%.
2. Rambus has been and remains the only company that is asserting patents on DRAM interface technology.
3. There are substantial barriers to entry into the market, primarily due to the fact that the industry is locked in to JEDEC standards. First, the initial costs and efforts relating to standards development are substantial. Furthermore, there are significant costs that are associated with switching from a standard once it has been adopted. Not least, companies producing PCs and servers would need to develop and test new system architectures. Microprocessor and chipset manufacturers would also need to design chips to accommodate the new standard.

As a consequence, in December 9, 2009, the Commission adopted a decision that renders legally binding commitments offered by Rambus that in particular put a cap on its royalty rates for certain patents that involve DRAMs. The decision confirmed that the commitments are adequate to address the concerns that Rambus may have been abusing its dominant position by claiming excessive royalties.

#### 4.1.2 *Qualcomm (FRAND Hold-up)*

This case concerns alleged exploitative conduct by Qualcomm following a joint complaint submitted between October 2005 and January 2006 by a number of mobile phone and chipset manufacturers: Nokia, Ericsson, Panasonic, Broadcom, NEC, and Texas Instruments. In this case the Complainants argued that Qualcomm engaged in exploitative conduct contrary to Article 102 TFEU because before the adoption of the WCDMA standard for 3G mobile telephony Qualcomm gave a commitment to license its patents on FRAND terms and without such commitment another standard would have been adopted. Once the WCDMA standard had been adopted, Qualcomm allegedly charged rates for accessing its patents that were above the FRAND level.

As mentioned above, after the adoption of the standard, the chosen technology may lack effective substitutes. The owner of a patented technology may thus have additional market power vis-à-vis 'locked-in' licensees. To reduce the risk of such hold-up, SSOs usually require patent holders not only to disclose their relevant IP rights ex-ante

<sup>16</sup> In principle, one would expect that a firm that holds a dominant position would exploit it, except possibly if it is prevented from doing so by regulation.

but also to commit to license IP that is essential to the standard on FRAND terms. Thus, the primary purpose of FRAND is to ensure that a licensor would forgo its right not to license its IPR or to license only on terms that would appropriate all the rents that can be generated by the standard. However, a FRAND commitment should not prevent the patent holder from extracting rents that derive from the advantages that the chosen standard offers over the next best competing standard. This would severely hamper innovation as patent holders would have no opportunity to recover their up-front investment in research.

Quite intentionally, FRAND terms do not specify a concrete royalty rate. It is very difficult to agree on specific licensing terms ex-ante because of the nature of IP rights negotiations: Very little is known about how the market will develop in the future and what is going to be the value of each patent portfolio. Such price negotiations may enhance the risk that technology adopters will coordinate their conduct to extract excessively favorable terms from IPR holders. FRAND is a compromise that balances the incentives of potential licensees and licensors to achieve an efficient adoption and rate of innovation. The former seek protection from becoming dependent on a particular licensor; the later cannot commit ex-ante to offer specific conditions before the future value of their technology is revealed. FRAND allows for the flexibility that is needed to unblock the standardization process and eventually adopt a standard. FRAND terms naturally vary across players and technologies.

From the perspective of antitrust policy, the built-in ambiguity in the definition of FRAND makes it difficult to identify the counter-factual for 'reasonable' licensing terms that is needed to establish a FRAND violation. However, FRAND may become an empty shell if it is not seen to impose certain constraints on parties in the standard setting process. At the very least, certain obligations from the FRAND commitment derive directly from the above interpretation that patent holders that had committed to FRAND should not appropriate all the rent which can be generated by a standard:

- First, the FRAND commitment waives the patent holder's right to refuse to license its IPRs to anybody that seeks such a license. Conversely, a potential licensee must be viewed as having an equal obligation to engage in good faith negotiations and not abuse a FRAND commitment to gain unfair advantage or simply infringe a licensor's IPR. This reflects the view that the bargaining advantage is not entirely shifted to either party ex-post.
- Second, the licensing terms that are offered after the adoption of the standard (ex-post) should not be worse than those that the patent holder would have committed to ex-ante in the context of a standard-setting contest that was conditional on the information that is available ex-post.

The first obligation emphasizes that the primary role of FRAND is to ensure that, ex-post, the prospective licensor and licensee negotiate the terms of an agreement at arm's length. Testing for its infringement requires, first, a verification of whether an agreement was ultimately concluded but it might also require a more in-depth analysis of the negotiation process, which includes inspecting internal communications that were intended to establish negotiation strategies. This type of evidence is normally available to competition authorities, and verification that players abide by such an obligation can be relatively easy.

The second obligation makes it explicit that the evaluation of FRAND commitments involves a comparison between ex-post conditions and those that would have been negotiated ex-ante. But it also highlights the difficulty of the exercise, as the relevant counterfactual ex-ante is contingent both on the context of the standard setting contest and on the information available ex-post.

It is partly due to these difficulties that any antitrust enforcer has to be careful about overturning commercial agreements. In this case, the Commission investigated whether the royalties that Qualcomm has been charging since its patented technology became part of Europe's 3G standard are unreasonably high. It committed time and resources to this investigation in order to assess a complex body of evidence, but the case was closed after all complaints had been withdrawn.

## 4.2 Exclusionary Abuses

### 4.2.1 Intel

On 13 May 2009, the European Commission concluded its Intel investigation by way of a formal Decision. The Commission found that Intel had abused its dominant position in x86 Central Processing Units (CPUs) by engaging in two types of practices. First, Intel gave rebates to computer manufacturers (original equipment manufacturers or OEMs) on condition that they bought all, or almost all of their x86 CPUs from Intel, at least in a certain segment. Similarly, Intel also made direct payments to Media Saturn Holding (MSH), a major retailer, in return for the latter's stocking only computers with Intel x86 CPUs. Second, Intel made direct payments to OEMs to halt or delay the launch of specific products containing a competitor's x86 CPUs and to limit the sales channels that were available to these products.

The products that were the focus of the Decision were the CPUs of the x86 architecture. The CPU is a key component of any computer, both in terms of overall performance and the cost of the system. It is often referred to as a computer's "brain". The manufacturing process of CPUs requires high-tech and expensive facilities. The CPUs that are used in computers can be sub-divided into two categories: CPUs of the x86 architecture and CPUs of a non-x86 architecture. The x86 architecture is a standard that was designed by Intel for its CPUs. It can run both the Windows and Linux operating systems. Windows is primarily linked to the x86 instruction set. Prior to 2000, there were several manufacturers of x86 CPUs. However, most of these manufacturers have exited the market. Since 2000, Intel and AMD are essentially the only two companies that still manufacture x86 CPUs.

In the 10-year period that was considered in the Decision (1997–2007), Intel held consistently very high market shares in excess of or around 70%, and more often in the region of or in excess of 80%. In addition, the Decision identified significant barriers to entry and expansion in the x86 CPU market. These arise from the sunk investments in research and development, intellectual property, and production facilities that are necessary to produce x86 CPUs. Intel's strong brand status and the resulting product differentiation also constitute a barrier to entry. The identified high barriers to entry and expansion are consistent with the observed market structure, where all of Intel's



competitors, except AMD, have exited the market or are left with an insignificant share. On the basis of Intel's market shares and the barriers to entry and expansion, the Decision concluded that at least in the period covered by the Decision (October 2002–December 2007), Intel held a dominant position in the market.

In its decision, the Commission concluded that Intel awarded major OEMs and one major retailer rebates/payments the level of which were conditioned on these OEMs' purchasing all or almost all of their CPU supply needs from Intel, at least in a certain segment. The contemporaneous evidence as well as statements from OEMs outline how the various Intel conditions were an important factor in their decisions not to partially switch to or buy more x86 CPUs from AMD, something which they had been actively considering in light of their evaluations of AMD's product. Furthermore the Commission also concluded that conditional rebates that were granted by Intel to the OEMs constitute fidelity rebates, which fulfil the conditions of the relevant case-law for their qualification as abusive.

On top of showing that the conditions of the case-law for finding an abuse are fulfilled, the Decision also conducts an economic analysis<sup>17</sup> of the capability of the rebates to foreclose a competitor that would be as efficient as Intel (albeit not dominant) and outlines that Intel's anticompetitive conduct resulted in a significant reduction of consumer choice and in lower incentives to innovate.

In essence, the as-efficient-competitor test establishes the conditions that a competitor that is "as efficient" as Intel would have to offer on CPUs in order to compensate an OEM for the loss of Intel rebates. This as-efficient-competitor analysis is a hypothetical exercise in the sense that it analyses whether a competitor that is as efficient as Intel but that seeks to offer a product that does not have as broad a sales base as that of Intel is foreclosed from entering. This occurs if, in order to compensate an OEM for the loss of the Intel rebate that results from a breach of the Intel condition, the as-efficient competitor would have to meet a higher share of its customers' needs for CPUs than is realistic, or would have to offer its CPUs at a price that is below a measure of viable cost. This can occur because the Intel rebate is spread across the OEM's entire purchases from Intel, whereas the compensation for the loss of rebate generally needs to be spread across a significantly lower amount of purchases, namely the amount of purchases that is 'up for grabs' in any given time period, and hence that an OEM can switch away from Intel. This means that it can be uneconomic for a competitor to compensate an OEM for the loss of the Intel rebate (i.e., it has to offer its CPUs below cost), even if it is as efficient as Intel, and even if its average CPU price is lower than that of Intel.

The analysis therefore takes into consideration three factors: the contestable share (the amount of a customer's purchase requirements that can realistically be switched to a new competitor in any given period), a relevant time horizon (at most one year) and a relevant measure of cost: average avoidable cost (AAC). If Intel's rebate scheme means that in order to compensate an OEM for the loss of the Intel rebate an as-efficient competitor has either to exceed a realistic contestable share or to offer its products below a measure of Intel's cost, then it means that the rebate was capable

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<sup>17</sup> Relevant references for the analysis that is described in this section include Greenlee and Reitman (2004), Greenlee et al. (2008), and Abito and Wright (2008).

of foreclosing the as-efficient competitor. This would deprive final consumers of the choice between different products that the OEM would otherwise have chosen to offer were it to make its decision solely on the basis of the relative merit of the products and unit prices offered by Intel and its competitors.

In each case, on the basis of contemporaneous evidence and company statements, the Decision found that in order to compensate for the loss of Intel's conditional rebates to Dell, HP, NEC, and Lenovo, an as-efficient competitor would have had to price its CPUs below AAC. Similarly, the Decision found that, in order to compensate for the loss of Intel's conditional payments to MSH, an as-efficient competitor would have had to offer payments that, alone or in complement to payments that would be necessary to offset conditional rebates at the level of OEMs, would have required it to price its CPUs below AAC.<sup>18</sup>

It is worth pointing out that, as was made clear in recital 916 of the Decision, the Commission's Guidance on Article 102 TFEU does not apply in this case for two reasons:

- First, the administrative proceedings had already been initiated and carried to an advanced stage when the Guidance was issued. Therefore, the Commission had already determined its enforcement priorities with regard to Intel's conduct before the Commission's Guidance was issued.
- Second, Intel had already been given the opportunity to make known its views before the Guidance was published. Hence, the Commission decided not to take account of enforcement criteria on which Intel did not have sufficient opportunity to comment. Commission's Guidance Paper on Article 102 does not apply to the Decision.

Nonetheless we take the view that the Decision is fully in line with the framework that is set out for the Commission's future practice in the Guidance paper. Besides the application of the as-efficient-competitor analysis in this case, which follows the Guidance Paper, many of the relevant factors therein considered relevant to assess the risk of anti-competitive foreclosure are also present<sup>19</sup>—in particular:<sup>20</sup>

1. Intel had a strong and entrenched dominant position;
2. There exist conditions that impair entry and expansion in the market, such as the existence of economies of scale and/or scope and network effects; and

<sup>18</sup> It should be noted that the use of AAC as the benchmark under which the as-efficient competitor cannot trade in an economically viable way is favourable to Intel. Indeed, in order to maintain a viable business over more than a very short term, an as-efficient competitor would have to be able also to recoup its fixed costs.

<sup>19</sup> See § 20 in the Guidance Paper.

<sup>20</sup> Note that the “the market performance of the dominant undertaking and its competitors” that may be relevant as “direct evidence of anticompetitive foreclosure” is the performance after the full competitive effects of the practice have materialised. As explained in recital §1736 of the Decision, “AMD increased its overall market share between 2003 and 2006. This coincides with the fact that as has been highlighted in the present Decision, its products were recognised by both OEMs and Intel to represent a growing competitive threat to Intel. In 2007, AMD's market share fell back.” In this respect the Guidance Paper points out that “For reasons attributable to the allegedly abusive conduct, the market share of the dominant undertaking may have risen or a decline in market share may have been slowed. For similar reasons, actual competitors may have been marginalised or may have exited, or potential competitors may have tried to enter and failed.”

3. There are few if any realistic, effective, and timely counter-strategies that competitors would be likely to deploy, such as vertically integrating into chip manufacturing.

More importantly the Guidance Paper also emphasises that the likelihood of anticompetitive foreclosure is enhanced “if the dominant firm applies the practice only to selected customers who may be of particular importance for the entry or expansion of competitors”. In particular, targeted customers “represent a particular means of distributing the product that would be suitable for a new entrant” and “may be likely to influence the behaviour of other customers”.

More specifically, the section in the Guidance Paper dealing with exclusive dealing and conditional rebates explains that:

in order to convince customers to accept exclusive purchasing, the dominant undertaking may have to compensate them, in whole or in part, for the loss in competition resulting from the exclusivity. Where such compensation is given, it may be in the individual interest of a customer to enter into an exclusive purchasing obligation with the dominant undertaking. But it would be wrong to conclude automatically from this that all exclusive purchasing obligations, taken together, are beneficial for customers overall, including those currently not purchasing from the dominant undertaking, and the final consumers.

These circumstances are also present in this case. As explained in section in detail in Sect. 4.2.4.1–4.2.4.3. of the Decision, the OEMs that benefitted from Intel rebates had (1) high market shares, (2) a particularly strong presence in the more profitable segments of the market, and (3) the ability to legitimise a new x86 CPU in the market. The OEMs’ influence in the corporate segment is further heightened by the fact that they not only offer computers, but also a range of complementary IT services that are often purchased in a package together with the IT infrastructure.<sup>21</sup> Targeting such strategically important OEMs has a more significant impact on the overall market than would be implied by their aggregate market share alone. It follows that foreclosing access to such OEMs prevented AMD from legitimising its CPUs and from obtaining sufficient revenues to finance further innovation efforts. In other words, by not having access to key players in the market such as Dell or HP, AMD was unable to compete on the merits with Intel.

Moreover, if an OEM does not obtain the rebate but competing OEMs do, then the first OEM (which does not remain exclusive) may be disadvantaged in competing downstream with those rivals that remain exclusive. This is explained by OEMs themselves as indicated in the decision. For example:

Dell clearly perceived that any loss of rebate from Intel would also be complemented by increased rebates from Intel to Dell’s OEM competitors (§§ 235-237)

and

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<sup>21</sup> The Decision also explains MSH’s strategic importance at the retail level, in particular by reference to MSH’s considerable influence on OEMs’ product offerings in Europe (see recital 1602 of the Decision).

due to the strong presence of Intel on the market, a substantial proportion of the competitive tenders in which HP participates is against competing OEMs which offer Intel-based desktops (such as Dell). To the extent that one of those competitors obtains financial advantages from Intel for this, any switch to AMD by HP would not only entail a loss in the HP rebate, but could also mean an increased rebate from Intel to the competitor. This exacerbates the foreclosure impact (§ 1392).

As a result of Intel's rebates and payments, therefore, end-customers were artificially prevented from choosing other products on the merits (price and quality of the respective x86 CPUs), since Intel's conduct prevented the competitors' products from being offered with certain individual OEMs and with MSH. As such, Intel's exclusionary practices had a direct and immediate negative impact on those customers who would have had a wider price and quality choice if they had also been offered the product of their favourite OEM and/or retailer with x86 CPUs from Intel's competitors. As a result of this dynamic, rival products did not reach final customers in the volumes that their quality and price would have justified had competition been exclusively on the merits, which in itself resulted in lower incentives to innovate, and restricted the ability to reach economies of scale and acquire the critical level of sales to earn the necessary reputation to compete effectively.<sup>22</sup>

As a consequence, On 13 May 2009, the European Commission adopted a decision that found that Intel Corporation infringed Article 82 of the EC Treaty by abusing its dominant position in the x86 central processing unit (CPU) market. The decision imposed a fine of EUR 1.06 billion and obliged Intel to cease the identified illegal practices, to the extent that they are ongoing, and not to engage in the same or equivalent practices in the future.

#### 4.3 Velux<sup>23</sup>

In April 2007, the Commission opened an ex-officio case to investigate alleged infringements by Velux in the roof windows market. Following one year and a half of analysis and inspections carried out at Velux premises in various Member States and at the premises of various distributors, the Commission could not confirm the allegations that had been raised by the competitor and decided to close the case.

As in the Intel case, the Commission relied on the approach described in the Guidance paper to apply the as-effective-competitor test to determine whether the rebates that were offered by Velux would be capable of foreclosing a competitor that was at

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<sup>22</sup> Indeed, the Commission also found that Intel awarded major OEMs payments that were conditioned on these OEMs postponing or cancelling the launch of AMD-based products and/or putting restrictions on the distribution of AMD-based products. The scope of these restrictions is more specific than that of the conditional rebates outlined above. They are shorter in duration and focused on a specific product or line of products or specific sales channels, whereas rebate arrangements are longer in term and cover at least entire business segments.

<sup>23</sup> For a more extended discussion of this case see [Albaeck and Claiici \(2009\)](#).

least as efficient. In this case, the assessment led to the conclusion that the rebates offered by Velux were not anti-competitive.

First, Velux uses a system of numerous discounts and bonuses that vary from country to country. However, it does not seem that the schemes are individualised according to the needs and capacity of a given distributor within a given country, as the same trade conditions are offered to all distributors in that country.

Second, Velux uses incremental rebates that are described in the general trade conditions. They vary from country to country, but the general principles are similar. Bonuses are applied to total turnover over a period of time: normally, six months. The maximum turnover bonus is around 5%. There are up to 20 steps in a discount function. The increments are quite small: of the order of 0.2–0.5%. If the turnover is above the threshold of a given step, the discount increases marginally, and the higher discount is applied only to the part of turnover that exceeds the previous step. Such rebates are unlikely to be anticompetitive.

As suggested by [Albaeck and Claiici \(2009\)](#), consider the following example: Assume that there are ten steps, where each step gives an extra 0.5% rebate, so that the maximum rebate that can be reached is 5%. The first rebate is given if the distributor sells more than 99 windows, and an extra 0.5% is given for each extra 100 units sold. The maximal discount of 5% is given if a distributor sells more than 1000 units. To illustrate, assume that the standard price (without a rebate) that is paid by a distributor (which equals the price paid for the first 99 units) is EUR 100. With such an incremental rebate scheme the first thing to look at is the highest discount given. Here it is 5%, implying that distributors pay EUR 95 for all (extra) windows once they have bought more than 1,000 windows. It seems quite likely that a price of 95 would cover Velux's incremental costs if the "headline price" of 100 does so.

For price-based practices such as rebates the Guidance states that "the Commission will normally only intervene where the conduct concerned has already been or is capable of hampering competition from competitors which are considered to be as efficient as the dominant undertaking." In this case an equally efficient entrant or a small competitor competing on the margin for the last 100 windows sold would likely be able to match the discounted price of EUR 95. The conclusion is therefore that it seems unlikely that such a rebate scheme would be exclusionary.

Finally, elements containing individual targets amount to a very small proportion of the total turnover and cannot be considered to have exclusionary effects, especially when taking into account the scale of operation of distributors.

## 5 Policy Developments: Best Practices for the Submission of Economic Evidence and Data Collection<sup>24</sup>

In the *Tetra Laval* appeal the European Court of Justice (ECJ) ruled that, although the Commission has a margin of discretion with regard to economic matters, this does not mean that the Community Courts must refrain altogether from reviewing the

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<sup>24</sup> These best practices apply to cases concerning the application of articles 101 and 102 TFEU as well as merger cases.

Commission's interpretation of information of an economic nature. The Courts will examine not only whether the evidence relied on is factually accurate, reliable, and consistent but also whether that evidence contains all the information that must be taken into account in order to properly assess a complex situation and whether it is capable of substantiating the conclusions that have been drawn from it.<sup>25</sup>

Indeed, notwithstanding the Commission's wide margin of discretion when reviewing complex economic assessments, the Community Courts have been engaged in scrutinizing (sometimes with great detail) the elements on which the Commission takes its decisions, including assessing the evidence on the basis of which the Commission supports its findings. This implies that the more complex the case (in other words, the more complex the "probable" chain of cause and effect) the more consistent must be the evidence that the Commission uses to support its conclusions. This is well illustrated by the example given by Lord Hoffman in *Rehman* who, seeking to clarify the standard for balance of probabilities, wrote that *it would require more convincing evidence to conclude that it was more likely than not that the sighting of an animal in a park was a lion than it would to satisfy the same standard of probability that the animal was a dog*.<sup>26</sup>

A proper gathering of *quantitative data* should become the starting point for any major merger or antitrust investigation. In recent years, basic quantitative data, *inter alia*, is regularly requested to measure market growth, market shares, excess capacity, bids, or the evolution of prices. Moreover, the need for an economic assessment is necessary for the Commission to scrutinise and evaluate the data and analysis that are put forward by the parties in competition policy cases. Quantitative submissions from the parties have become increasingly technical and sophisticated.<sup>27</sup> The Commission seeks to carefully evaluate every submission and to dismiss those that do not follow a proper methodology or, for example, are based on underlying assumptions that do not fit with the case at hand.

In addition, the Commission may consider it necessary to conduct its own quantitative analysis. In some instances, the parties can only provide a partial view of the affected markets, while the Commission stands in a unique position where it can collect information from all active participants.

Finally, quantitative analysis is increasingly playing an important role also in court proceedings, most recently in the *Ryanair/Aer Lingus* case, where the General Court did not hesitate to evaluate the economic analysis that was put forward by the Commission its assessment of the analysis submitted by the parties.

It is in this overall context and after gathering views through informal meetings with several economic consultancies that the Commission took the long-awaited step of adopting Best Practices for the submission of economic evidence (both in antitrust and merger proceedings). In order to streamline the submission of such economic evidence, the Best Practices outline the criteria that these submissions should fulfil,

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<sup>25</sup> There the Court concluded: *Such a review is all the more necessary in the case of a prospective analysis required when examining a planned merger with conglomerate effect*. Paragraph 39.

<sup>26</sup> *Secretary of State for Home Department v. Rehman*, [2002] 3 WLR 8TT, at 895.

<sup>27</sup> Furthermore, the Commission was criticized in the past for having relied on studies without scrutinising their validity. See the judgment of the CFI in *Tetra Laval*, paragraph 46.

whether advanced by the parties, third parties or the Commission itself. It also explains the practice of DG COMP's case teams and the Chief Economist Team when interacting with parties that submit economic evidence. These best practices are organised along two themes:

1. First, it provides recommendations regarding the content and presentation of economic or econometric analysis. This is meant to facilitate its assessment and the replication of any empirical results by DG COMP and/or other parties.
2. Second, the document provides guidance to respond to Commission requests for quantitative data<sup>28</sup> to ensure that timely and relevant input for the investigation can be provided.

As mentioned in the Best Practices in order to determine the relevance and significance of an economic analysis for a particular case it is necessary to assess whether:

- The hypothesis to be tested is formulated without ambiguity and clearly related to facts;
- The assumptions of the economic model are consistent with the institutional features and other relevant facts of the industry;
- Economic models are well established in the relevant literature and the empirical methods and the data are appropriate;
- The results are properly interpreted and robust; and
- Counterarguments have been given adequate consideration.

The Best Practices also emphasize that one must assess the congruence and consistency of the economic analysis with other pieces of quantitative and qualitative evidence (such as customer responses, or documentary evidence).

The adoption of the document has already helped in a large number of cases to gather quantitative data and to limit the scope of data requests. All this has led to better quality submissions in the context of both merger and antitrust cases, allowing the investigation to focus on the most important elements to determine the likely competitive effects of a merger, practice or agreement.

The Commission also invited comments on the document that may lead to further development and refinement of the principles that are contained in the Best Practices. Comments were provided by economic consultancies, law firms, competition law associations, businesses, and business associations. The UK's Office of Fair Trading (OFT) and Competition Commission (CC) have also provided a joint paper. The overwhelming majority of respondents welcomed the Best Practices, with inevitably some differences of opinion and emphasis between specific answers.

Several respondents have pointed out that economic analysis is not only useful in the assessment of the effects in competition cases but also to assess whether a practice can be exempted under Article 101(3) TFEU, irrespective of whether the Commission has found an infringement by object or effect. They also argue that the impact of an infringement should be relevant for the imposition of fines.

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<sup>28</sup> Quantitative data means, generally, observations or measurements that are expressed as numbers. For the purposes of these Best Practices, this concept is used to refer to large sets of quantitative data that are submitted and/or obtained for the purposes of an assessment of an economic (and often econometric) nature.

The effort to set minimum standards for the submission of evidence is much welcome, yet it has been noted that there is apparent dichotomy between economic evidence covered by the Best Practices and other types of evidence. In particular, it was indicated that one should avoid the risk of discarding sound but imperfect economic evidence that does not strictly meet the standard set out in the Best Practices, if the alternative is to rely on other dubious or non-robust evidence that is not subject to similar standards. It was also mentioned that the standards for economic submissions should be interpreted in light of time constraints and that one should be careful not to require perfection that can not be obtained.

The importance of communication with the Commission on economic submission has also been widely recognized. In this respect, some respondents indicated that the Commission should communicate why it considers that a study does not meet the standards that are set out in the guidelines, so that the parties can make necessary amendments. Robustness analysis is a particular topic on which respondents would like to communicate with the Commission, as it is (by definition) not possible, for example, to run all possible alternative specifications for an econometric model.

As regards data requests, a number of respondents welcome that the guidelines expressly recognize the cost of gathering data for businesses. Also respondents suggested that the Commission should explain the analysis that it intends to perform with the requested data in order to improve the efficiency of the data collecting process and to ensure transparency. It was stressed that this is particularly the case in the later stages of an investigation as early requests could be of a more general nature and aimed at better understanding the functioning of the market in question.

A number of respondents welcomed the idea that the Best Practices underline the importance of a dialogue between the parties and with the Commission—in particular, to ensure that the data gathering process is efficient and proportionate. To this end, it was also argued that issuing and discussing draft data requests should be the standard practice.

As mentioned above, the Best Practices were provisionally adopted by DG COMP in early 2010. We are still evaluating whether to introduce changes after the public consultation. For this purpose we believe that these comments are very valuable and, more generally, that they will assist in adapting or deviating from the Best Practices where appropriate in view of the specificity of an individual case or particular circumstances.

## 6 Conclusion

Competition economists increasingly recognize the need to get down in the trenches and get their hands dirty digging for the facts. As Sherlock Holmes demanded impatiently in *The Adventure of the Copper Beeches*—“Data! data! data! I can’t make bricks without clay!”—so it is with the good economist working in competition policy. In the past year, DG Competition has continued to build its capabilities, confidence, and experience in the use of economic reasoning and econometric analysis to ensure that decisions in competition cases meet the very high standards that have been set out by the EU Courts—that are, in our view, no higher than necessary. In July 2010, the EU



General Court upheld the Commission's decision to prohibit the merger between rival Irish airline Ryanair and Aer Lingus. In its decision, the General Court recalls that:

Whilst the Courts of the European Union recognise that the Commission has a margin of discretion with regard to economic matters, that does not mean that they must refrain from reviewing the Commission's interpretation of information of an economic nature. Not only must they establish, in particular, whether the evidence relied on is factually accurate, reliable and consistent but also whether that evidence contains all the information which must be taken into account in order to assess a complex situation and whether it is capable of substantiating the conclusions drawn from it.<sup>29</sup>

Indeed, the General Court conducted an unusually exhaustive review of the conclusions reached by the Commission in its prohibition decision, which runs over 500 pages. Significantly, the General Court carefully examined all the econometric evidence put forward by the various parties, including the Commission, during the administrative procedure. It concluded in paragraphs 182/183:

... none of the arguments raised by the applicant is capable of calling into question the validity of the Commission's conclusions, whether that be in relation to the method used, the results obtained or the use of those results in the contested decision in the assessment of the effects of the concentration on competition. In any event, the results of the regression analysis undertaken by the Commission were used only to confirm and complement the conclusions drawn on the basis of the qualitative evidence that Ryanair and Aer Lingus are close competitors.

There is no reason to expect from the EU Courts a less strict judicial scrutiny in antitrust cases. Not surprisingly, as the various cases described in this paper illustrate, DG Competition does not limit the use of econometric tools to merger control. Hence today, also in antitrust enforcement, empirical analysis and more generally economic reasoning plays a central role in DG COMP's assessment, in particular of complex cases. The publication of the "Best practices for the submission of economic evidence and data collection" can thus be seen as a logical and necessary step towards supporting a well-balanced competition enforcement system: efficient, effective, and predictable, for the benefit of EU customers.

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<sup>29</sup> See Case T342/07, Ryanair vs. EU Commission [2010], paragraph 30, and reference cited therein.