



Bundling and Mergers in Energy Markets[☆]

Laurent Granier^a, Marion Podesta^{b,*}

^a GATE Lyon-St Etienne, CNRS-UMR 5824, University of Lyon 2, France

^b LERNA, Toulouse School of Economics, University of Toulouse 1, France

ARTICLE INFO

Article history:

Received 4 June 2008

Received in revised form 23 June 2010

Accepted 25 June 2010

Available online 22 July 2010

JEL classification:

D43

L13

L22

L41

Keywords:

Product Bundling

Endogenous Mergers

Energy Markets

ABSTRACT

Does bundling trigger mergers in energy industries? We observe mergers between firms belonging to various energy markets, for instance between gas and electricity providers. These mergers enable firms to bundle. We consider two horizontally differentiated markets. In this framework, we show that bundling strategies in energy markets create incentives to form multi-market firms in order to supply bi-energy packages. Moreover, we find that this type of merger is detrimental to social welfare.

© 2010 Elsevier B.V. All rights reserved.

1. Introduction

A trend towards deregulation of utilities industries, such as energy or telecommunications, is observed worldwide. This has an impact on market structures and pricing strategies. In particular, market structures shift from monopolies¹ to oligopolies. Moreover, in energy industries, we observe multi-market mergers between firms belonging to various oligopolies. Such mergers enable firms to bundle several energies.² For instance, they provide packages of two different energies like gas and electricity. A significant example is the merger case between E.ON and Ruhrgas on the German market. Although the merger proposal is rejected in 2002 by the competition authority, the Federal Minister of Economics and Technology even so approves the merger in 2003 (Marsden et al., 2007). Before this acquisition, Ruhrgas was the first gas producer in Germany while E.ON, the first electricity one. E.ON only owned holdings in a few local subsidiaries of gas supply. Thus, the new leader of the German energy market now supplies bi-energy bundles. We also remark that other mergers become effective on this market

straight after. Indeed, electricity supplier EWE merges with gas suppliers Cuxhaven and SWB in 2003. This substantiates the merger wave phenomenon. The following question therefore becomes important: do bundling strategies trigger mergers in energy markets? This type of incentive could better explain the convergence phenomenon in energy industries. In this paper, we study the emergence of these mergers. In order to carry out our analysis, we use a horizontally differentiated model derived from Reisinger (2006). It allows to study bundle competition. This analysis can be interpreted as a modelling of a competition between two electricity firms and two gas firms.³ We build a merger game allowing to underline a merger wave phenomenon. This phenomenon is due to the ability to supply bi-energy bundles⁴ once a merger is achieved. Bundling entails two effects. The first is a price discrimination one. The second is a competition one. The trade-off between these effects and merger choices causes an increase in profits.

The results which we have just evoked allow to better assess a relevant phenomenon in the energy markets: the convergence phenomenon. Usually, convergence refers to a process that reduces differences between activities. It corresponds to a gradual integration of formerly separate industries. To describe convergence in the energy industry, we analyze a specific trend: the convergence between gas and electricity.⁵ This trend is

[☆] We wish to thank Jean Jaskold Gabszewicz, Jacques Percebois, Jean-Christophe Poudou and Markus Reisinger for their helpful comments.

* Corresponding author. Manufacture des Tabacs, Aile JJ Laffont, 21, allée de Brienne, 31 000, Toulouse.

E-mail address: mpodesta@univ-tlse1.fr (M. Podesta).

¹ Moreover, administrative "principle of specialization" that formerly assigned public monopoly operators to produce only a single specialized good, is removed.

² For instance in France, the dominant operators propose energy and service packages to professionals such as "Provalys" for Gaz de France and "Essentiel Pro" for Electricité de France.

³ As illustration, we can lean on the competition which existed in the German energy market before the mergers which we have just quoted.

⁴ We show that bundling creates an incentive to merge. Nevertheless, there exist other merger motives in energy markets.

⁵ For more explanations about convergence between gas and electricity, see Toh (2003) and Bazart (2008).

widely observed during the 1990s in the US and is now described in Europe too (Verde, 2008). Multi-market mergers in energy industry participate in this convergence phenomenon. Indeed, downstream mergers allow the diversification of energy supplies and clearly participate in the convergence phenomenon. For instance, the inter-industry merger Dong/Elsam/EnergiE2 (European Commission, 2006) refers to the integration between the Danish gas incumbent and Danish companies active in the electricity sector. The firm could now exploit their complementarities and supply bi-energy bundles. Another example is Gaz de France/Suez merger proposition submitted to the European Commission in 2005. This corresponds to a national merger but concerning both midstream and downstream markets. Colette Lewiner (a senior vice president at Capgemini in Paris) says that this merger could have been "a plus for competition if Suez and GDF bundle their offerings to give customers like industry better offerings, perhaps in the form of a single bill for electricity, gas and water" (Kanter, 2006). As the proposition was declined by the authorities, Gaz de France has to purchase electricity to Electricité de France in order to supply bi-energy bundles. In 2008, the Gaz de France/Suez merger becomes effective because European Commission approves it. This example suggests that bundling strategies may incite to merge. Empirical studies show that a lot of consumers⁶ use several types of energies (Bernard et al., 1996 and Nesbakken, 2001). So bundling strategies may be a fundamental reason for merger decisions.⁷ Despite the prevalence of this particular type of merger, to our knowledge they are not analyzed by the theoretical literature. The aim of this paper is to fill this gap.

Before modelling the competition with bundles, we give more details about the bundling literature. Bundling refers to the practice of selling two or more goods at a unique price.⁸ The economic literature on bundling isolates several effects. One of the main effects is price discrimination. Bundling allows to sort consumers according to their willingness to pay. This characteristic is analyzed by Adams and Yellen (1976) for a monopoly producing two goods. In analysis dealing with specific cases, they show that mixed bundling is generally the optimal strategy⁹ since the correlation between the goods is negative. Whinston (1990), Nalebuff (2004) and Peitz (2008) underscore the fact that a two-market monopolistic firm can deter the entry of competitors by bundling¹⁰ if the potential entrant can enter only one market. In this framework, Nalebuff shows that pure bundling is optimal. A second effect of bundling to consider is, in competitive environments, a competition effect. Anderson and Leruth (1993) analyze bundling in a complementary-goods duopoly. In their view, independent pricing is a dominant strategy in the commitment case. Economides (1993), in the same framework, shows that firms follow mixed bundling strategies in the Nash equilibrium. Firms, however, make lower profits than they do when adopting an independent pricing strategy. Armstrong and Vickers (2008) examine principally a unit-demand model where consumers may buy one product from one firm and another product from another firm under nonlinear pricing. They show that bundling generally acts to reduce profit and welfare and to boost consumer surplus.¹¹ However, they consider an intrinsic extra shopping cost when consumers purchase each good at different locations. Thanassoulis (2007) finds that if buyers incur firm specific costs or have shop specific tastes then competitive mixed bundling lowers consumer surplus overall and raises profits.

Reisinger (2006) also studies a duopoly that produces two types of horizontally differentiated goods. He analyzes a framework for which consumers buy one unit of each good with neither substitutability, nor complementarity effects created by variants choices for each type of goods. The correlation of the reservation prices is expressed by the correlation of consumers' location on each market. He shows that there are two effects created by bundling: the well-known "sorting effect" and the "business-stealing effect," which results from bundle competition. Reisinger shows that firms have an incentive to adopt a mixed bundling strategy. Nonetheless, the effect on profits is ambiguous. If the correlation of reservation prices is negative, then the competition effect dominates and the bundling strategy lowers profits. Such firms are in a prisoner's dilemma situation. On the other hand, if the correlation of reservation prices is positive, then the sorting effect allows firms to make higher profits.

We use the model of Reisinger (2006) in order to analyze the impact of bundling on merger incentives. We therefore consider two horizontally differentiated markets, that are electricity and natural gas markets. As Reisinger (2006), the link between these two markets is the correlation of consumers' locations. Nevertheless, four firms are present. Two firms produce electricity, and the two others supply natural gas. In their respective markets, firms compete in prices. We build an endogenous merger game and assume that monopolization was illegal. First, we exclude the post-merger bundling strategy. Second, we remove this assumption in order to analyze the effect of bundling strategy on merger incentives. In a basic model in which bundling is not considered, we find that there is no incentive to merge. Once a merger is achieved, however, as we show, there is an incentive to adopt a mixed bundling strategy. Otherwise, the bundling strategy triggers a merger wave. Moreover, we show that relative to the correlation of reservation prices, two types of mergers are achieved. Furthermore, while Reisinger (2006) shows that there is a prisoner's dilemma, we show that the different types of mergers allow this dilemma to be removed. Finally, from a welfare point of view, we show that bundling is less harmful than Reisinger (2006) suggests.

In order not to neglect merger interactions in our model, we endogenize merger decisions. In this sense, our study is closely linked to the endogenous merger literature, some of which seeks to explain mechanisms preventing mergers as the "insider's dilemma"¹² previously evoked in the exogenous merger model of Stigler (1950). For instance, Kamien and Zang (1990, 1993) and Fridolfsson and Stennek (2005b) also consider the "insider's dilemma". Moreover, Kamien and Zang (1990, 1993) add auction mechanisms to take into account firms' acquisitions processes. We care about the "insider's dilemma" but without any auction mechanism. Indeed, we are not interested in surplus sharing rule. On the other hand, we did deal with other characteristics found in the endogenous merger literature, such as taking all firms' combinations into consideration. For instance, some endogenous merger models allow merger interactions to be revealed (Nilssen and Sorgard, 1998). More particularly, some models attempt to emphasize the phenomenon of preemptive mergers (Fridolfsson and Stennek, 2005a, Brito, 2003, Matsushima, 2001). Finally, other models, such as those of Fauli-Oller (2000) or Nilssen and Sorgard (1998), focus on merger waves phenomena. As the same type of merger interactions are possible in our framework, we build a merger game based upon Nilssen and Sorgard (1998). Contrary to Nilssen and Sorgard (1998), we do not restrict merger possibilities in an ad hoc fashion. Indeed, the only restriction concerning merger choices is due

⁶ Note that professionals also consume several energies at the same time.

⁷ This reason is evoked by Jacobson et al. (2006).

⁸ When a firm sells its goods both separately and bundled in a package, this firm follows a mixed bundling strategy. When a firm commits to supply only the bundle, it follows a pure bundling strategy.

⁹ Schmalensee (1984) shows their results are robust to a bivariate normal distribution. As for them, McAfee et al. (1989) generalize these results to almost all distributions.

¹⁰ In Nalebuff (2004), bundling is optimal even without any commitment.

¹¹ By contrast, when consumers buy all their products from one firm (the one-stop shopping model), nonlinear pricing leads to higher profit and welfare but often lower consumers surplus, than linear pricing.

¹² "The insiders' dilemma means that a profitable merger does not occur, because it is even more profitable for each firm to unilaterally stand as an outsider" (Lingqvist and Stennek, 2005). Salant, Switzer and Reynolds (1983) validate the result of Stigler (1950) when firms compete in a Cournot fashion. Indeed, they show that if a takeover does not merge more than 80 per cent of an industry, such a takeover is not carried out because outsiders earn more than insiders. Going further, Inderst and Wey (2004) focus on probability of hold-up (respectively hold-out) in a merger game that includes cases for which outsiders benefit from mergers.

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات