

**Analysing the necessary or useless relationship between competition law
and sector-specific regulation. An approach from the electricity industry
experience**

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Abstract

Sector-specific regulation and competition law live a permanent cold war. Since the Trinko case the US has opted to exclude competition law before sector-specific regulation. Conversely, since the Deutsche Telekom case, the EU has decided to apply competition law to fill the gaps, and even correct sector-specific regulation.

In this dissertation I analyse this conflict from the experience of the electricity sector. The electricity business is a network industry where it is characteristic to have segments open to competition, while at the same time some segments are subject to economic regulation due to the existence of natural monopolies (bottlenecks). In scenarios of vertical integration, the incumbent will have the incentives and possibilities to leverage its dominant position within the competitive segments of the market. To deal with the problems of vertical integration, there are structural remedies, such as full ownership separation, legal separation and business separation, and behavioural remedies such as access regulation. Even though the regulatory theory has explained that only full ownership separation (strong separation) is the only means to ensure the elimination of the incumbent's incentive to abuse of its dominant position, the EU

and UK regulatory regimes prefers the application of the other remedies (weak separation) for the traditional network industries, included the electricity industry. There is consensus that when the electricity regime has decided to apply weak structural remedies, it is not only desirable, but also a necessity to employ the full power of competition law to protect competition. I explain different case law, such as the E.ON and the ČEZ case, where competition authorities decided to intervene because sector-specific regulation was unable to guaranty competition. Is this solution perfect? I don't think so. I finish with some ideas about it in the conclusion.

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*“Judge Greene’s apparent indifference to this balancing makes one wonder if
he thinks it is necessary to destroy competition in order to save it.”*

(Robinson;1988)

I. Introduction

The relation between sector-specific regulation and competition law is far from pacific. On the one hand, some authors think that competition law should not work on top of sector-specific regulation. This approach has dominated in the US since the Verizon Communications Inc. v. Law Offices of Curtis V. Trinko, 540 US 682 (2004) case (hereinafter, Trinko Case). On the other hand, some authors think that there should be a parallel application to ensure the full protection of competition. This is the EU approach since the C-280/08 P Deutsche Telekom AG v Commission, EU:C:2010:603 case (hereinafter, Deutsche Telekom case). Thus, the aim of this dissertation is to analyse which of the two approaches (the EU or the US) is the most appropriate, based on the experience of the electricity industry.

It is undeniable that one of the principal problems for competition in all network industries such as the electricity market is related to the incentives for the

monopolist to leverage its dominant positions within the competitive segments of the markets. This problem is usually dealt with through structural (strong or weak vertical separation) or behavioural (access regulation) remedies. Based on the US approach, since there is sector-specific regulation to manage these market failures, competition law must neither intervene, fill de gaps, nor contradict sectorial regulation. Nevertheless, the electricity sector-specific regulation could still be insufficient to protect competition, especially when weak structural separation has been adopted, i.e., this is the reason why the EU approach recommends the parallel participation of competition law to ensure a full protection of competition.

The electricity industry has decades of experience, and there is a lot to learn about it. The electricity sector has learnt which one of the two options (The EU approach by sector-specific regulation plus competition law, or the US approach by sector-specific regulation alone) is the best for deterring anticompetitive behaviours. Nowadays, there is a common understanding that structural or behavioural remedies could be insufficient to protect competition, so potential competitive problems could still exist. For this reason, it seems that a good combination of sector-specific regulation plus competition law is a must in the electricity industry.

This dissertation will contribute to the perennial debate about the relation between sector-specific regulation and competition law, and could also be of great value, not only for the electricity industry, but also for other network industries, such as rail and telecommunications. Moreover, it will help policy makers, regulators, and

the academia to determine which is the most suitable model for protecting competition in the electricity markets, i.e., if competition should be only a problem of the electricity regulators or it could also be an issue for competition authorities.

Along the dissertation I plan to answer two central questions:

- Are structural or behavioural remedies in the electricity sector-specific regulation sufficient to eliminate the incentives for the incumbent to leverage its dominant position within the competitive segments of the markets?
- Should competition law and sector-specific regulation work together to protect competition in the electricity markets?

In terms of methodology, I will develop the dissertation based on a literature review. First, I will explain the “rivalry” between competition law and sector-specific regulation, the US and the EU approaches, as well as the advantages and disadvantages of each position. Then, I will explain the characteristics of the network industries and why it is important to restrict the monopolist’s incentives to leverage its dominant position within other segments of the market. Secondly, I will explain about the remedies to vertical integration, the advantages, and disadvantages of each one, and what the literature has told us about vertical integration in three traditional network industries: rail, telecommunications, and electricity.

I will explain what has happened in the EU electricity industry, how the electricity industry has been dealing with the problem of abuse of dominant positions

generated by vertical integration, if the remedies from sector-specific regulation have been good enough to solve the problem, and what role has been assigned to competition law, if any. In addition, I will explain the most relevant case law to have a complete understanding about the role of competition law. Finally, I have the conclusions.

II. Competition law vis a vis sector-specific regulation. A story of romance or rivalry?

The relation between sector-specific regulation and competition law has always been controversial (Dunne; 2021) (Larouche; 2006) (Shelanski; 2011). On the one hand, some authors think that competition law must not work when there is sector-specific regulation. This understanding for competition law has been followed by since the *Trinko* case. The US approach is based on the principle “*lex specialis derogat legi generali*”, the “State Action” doctrine” (Dunne; 2021), and the “implied immunity” doctrine (Larouche; 2006) (Shelanski; 2011). On the other hand, some authors explain that both should cooperate and coexist, since competition law is worthy not only to fill the gaps of sector-specific regulation, but also to correct its deficits. The parallel application seeks to protect the effectiveness of competition enforcement (Dunne; 2021). This second understanding has been the option selected at the EU level since the *Deutsche Telekom* case, and is supported, among other reasons, for the “special responsibility” doctrine (Larouche; 2006).

To begin with, sector specific regulation is introduced to correct market failures, especially those which impede the development of effective competition due to the existence of dominant positions of incumbent operators (Ibañez; 2016). This is called by Larouche (2006), as the antitrust function of sector-specific regulation. In this sense, sector-specific regimes have the same aim as competition law, since both try to guaranty competition. However, there is a tiny but relevant difference. Sector-specific regulation seeks to create competition, while competition law aims to preserve competition (Ibañez; 2016). For this reason, in markets where previously there was a monopoly and now there is competition, it was necessary to develop sector-specific regimes to unbundle the monopoly and introduce competition. Once competition has been created, it is the responsibility of competition law to preserve competition in markets which are sanctioning cartels and the abuse of dominant positions.

Nevertheless, the simple explanation about the role of sectorial regimes and competition law outlined in the last paragraph is not always clear enough. Thus, regulatory statues tend to have three different approaches to competition law (Shelanski; 2011): (i) expressly exempt sector-specific regulation from competition law; (ii) expressly preserve competition law on top of specific regulatory regimes (parallel application); and (iii) be silent. It seems to be healthy to have two different regimes working together for the protection of competition. Sector-specific regulation could be more intrusive, but at the same time more limited in scope, especially because it is usually rigid and unable to prevent challenges to competition from technological innovation (Ibañez; 2016). On the contrary, the provisions of competition law (Articles 101 and 102 Treaty on the

Functioning of the European Union, hereinafter TFEU; the Regulation (EC) No 1/2003 of 16 December 2002 on the implementation of the rules on competition laid down in Articles 81 and 82 of the TFEU; and the Regulation (EC) No 139/2004 of 20 January 2004 on the control of concentrations between undertakings (the EC Merger Regulation)) are more flexible and allow the intervention of competition authorities when sector-specific regulation is inadequate or insufficient. Therefore, when sector-specific regulation is not capable of avoiding anticompetitive behaviours, then competition law could rescue the situation, e.g., see Deutsche Telekom case, in which sector-specific regulation proved unable to prevent the breach of Article 102 TFEU (Ibañez; 2016).

However, incumbents could be overwhelmed about the double regulation, since something which is allowed by sector-specific regimes could be prohibited under competition law, creating uncertainty. “When the risk of false positives in using competition law in such complex settings and the need for ongoing monitoring of remedies are put in the balance, then it must be concluded that using competition law on top of regulation would deliver no added value and could even be counter-productive”. (Larouche; 2006; pg. 4). Nevertheless, Shelanski (2011) explains that there is no evidence to support the notion that the costs of false positives are higher than the costs of false negatives. Moreover, Ibañez (2016) argues that in the parallel approach, competition law has adapted its standards to be able to operate in regulated sectors outside the traditional restraints erected for conventional markets such as altering the structure of the markets by divestitures, something which is polemical because it seems to be saying that competition law

is going beyond its objective of sanctioning the abuse of dominant positions to combat dominant positions as such. Thus, to apply competition law to monopolistic industries increases the uncertainty already created by the dual application of sectorial regimes and competition law.

III. Monopolistic markets and vertical integration remedies

1. Reasons for structural separation

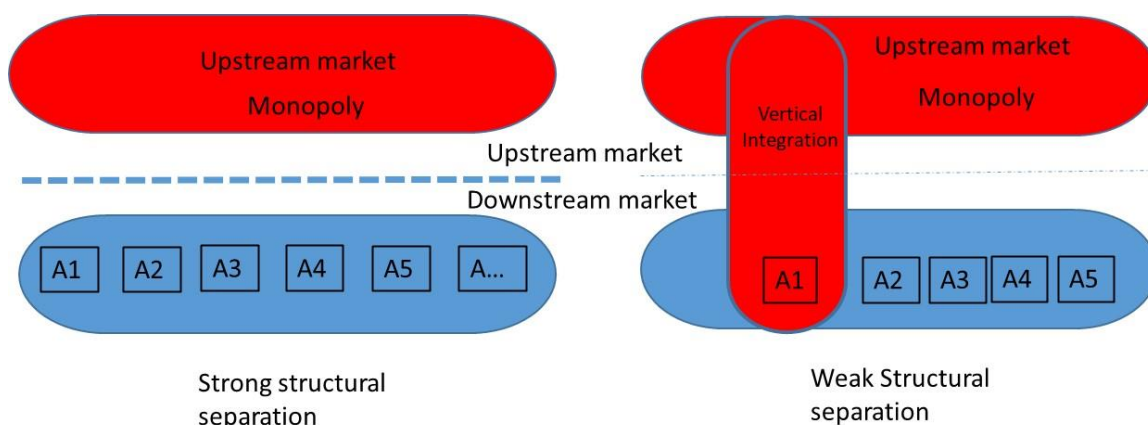
Electricity industries fall into the category of network industries, such as railways and telecommunications. Since network industries have important economies of scale and network effects, authors claim that they qualify as natural monopolies (Dunne; 2015). Network industries frequently have some segments of the markets where competition is feasible, and the prices could be the result of the law of supply and demand. On the contrary, for those segments of the market where competition is not possible, States must regulate the incumbents to avoid monopolistic behaviours, since monopolists have the incentives to decrease quantity and increase prices (Decker; 2015). In addition, it is vital to protect the market from the monopolists who have the incentives to leverage their dominant positions within the competitive segments of the market (Walden; 2018), which is going to happen when the incumbent is vertically integrated.

A vertical integrated monopolist participates in the bottleneck (upstream market) and the competitive segments of the markets (downstream market). Whether for the existence of legal barriers or technical reasons, in the bottleneck the

monopolist is the king, and this is the reason why economic regulation is mandatory. Moreover, the incumbent will try to take advantage of its dominant position in the upstream market to benefit its sister companies, which operate in the downstream market. This means that the monopolist will discriminate against downstream clients in favour of its own business. This discrimination could imply excessive prices (price discrimination), or delays, refusals to supply, conditions, obstacles, tied selling, or any other objection to supply above regular standards (non-price discrimination) (OECD; 2001b). As for price discrimination, it is solved through price regulation. However, it is not the same for non-price discrimination, since the monopolist will create different excuses and reasons to hide its real aim, which is to affect its competitors in the downstream market.

Therefore, structural separation claims that the monopolist should not participate in the competitive segments of the markets. To avoid the discriminatory problems generated by vertical integrated monopolists, the simplest solution consists of banning the participation of the monopolist in the downstream markets (Decker; 2015). This regulatory technique is known as ownership or full structural separation. Since the monopolist is not participating in the competitive segment of the market, it does not have any incentive to favour nor discriminate any player. However, this solution is not immune from criticism.

Graphic 1. Vertical separated markets vis a vis vertical integrated markets



Note: In vertical separated markets, the monopolist does not have any incentive to affect the participants (As) in the downstream market. In vertical integrated markets the monopolist will try to alter competition to benefit its own business (A1).

2. Advantages and disadvantages of structural separation

To begin with, Decker (2015) explains that vertical integrated industries could be explained by economies of scope, i.e., the total cost from a single company participating in the upstream and the downstream market is less than two separated companies. Decker (2015) also indicates that in a vertical integrated market it is easier to coordinate investment and operational decisions. On the contrary, when there is structural separation, i.e., the upstream company and the downstream company are independent, each one has specific interests, which makes coordination difficult (Brunekreeft; 2015). In addition, Decker (2015) explains that in a vertical integrated market it is easier to see the development of

cross subsidies since the decision depends on a single company. Finally, Decker (2015) claims that in vertical separation, the monopolist is exposed to opportunistic behaviours from the competitive companies, which could demand the renegotiation of the contracts once the investments have been sunk (“hold-up” problem). This problem is eliminated by means of vertical integration.

Nevertheless, structural separation has important advantages as well. Decker (2015) emphasises three main advantages for structural separation. First, the main benefit of structural separation is related to the positive consequences for the development of competition. Prohibiting the participation of the monopolist in the competitive segments of the market eliminates any incentive for the monopolist to leverage its dominant position within the competitive segments of the markets. Second, structural separation is a simple and cheap method for protecting competition, while in vertical integrated markets it is necessary to develop important efforts to limit and sanction the abuse of dominant positions and discrimination. These processes are long, complex, and expensive. Third, vertical separation stimulates the entrance of new participants in the market, as the hazard of the monopolist blocking competition is non-existent. Finally, in words of the OECD, structural separation promotes efficiency and innovation: “Introducing competition enhances efficiency and innovation in the competitive activities; enhances the range and variety of products available to consumers; and focuses the regulatory interventions on the “core” or the “kernel” of the underlying market failure.” (2001b, pg. 7).

Most authors claim that there is not right or wrong answer about the balance between vertical separation and vertical integration. The answer to this question is context-specific, depends on the characteristics of each industry, and varies from country to country (Decker; 2015). In fact, it is mandatory to develop price regulation in both, but when the regulatory design has opted for vertical integration, in addition it is required to develop a formal organization to monitor non-price discriminatory behaviours from the integrated company:

“When faced with a situation in which a regulated firm is or may in the future be operating simultaneously in a non-competitive activity and a potentially competitive complementary activity, Adherents should carefully balance the benefits and costs of structural measures against the benefits and costs of behavioural measures. The benefits and costs to be balanced include the effects on competition, effects on the quality and cost of regulation, effects on corporate incentives to invest, the transition costs of structural modifications and the economic and public benefits of vertical integration, based on the economic characteristics of the industry in the country under review. The benefits and costs to be balanced should be those recognised by the relevant agency(ies) including the competition authority, based on principles defined by the Adherent. This balancing should occur especially in the context of privatisation, liberalisation or regulatory reform.” (OECD; 2016, pg. 10)

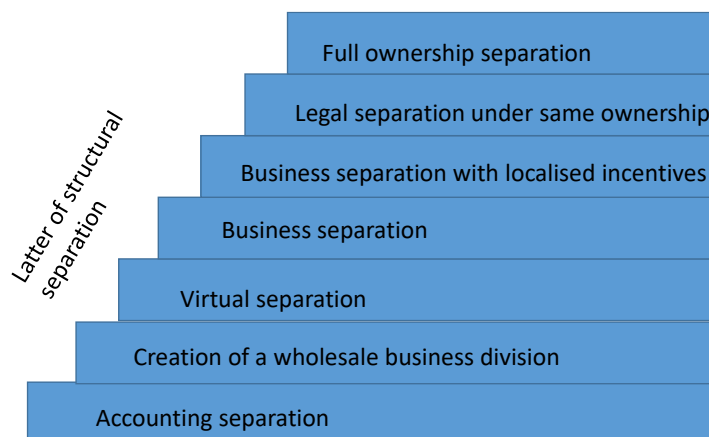
The OECD (2016) claims that, even though there is not a straight rule, there is consistent evidence about the beneficial effects of structural separation.

3. Remedies for anticompetitive behaviours in vertical integration: Structural-based and behavioural-based approaches

Different approaches have been used to prevent monopolists from abusing their dominant positions in the downstream market. On the one hand, there is a very committed means through full ownership separation, also called strong structural separation, when there is an absolute prohibition for the monopolist to participate in the downstream markets. On the other hand, regulators have chosen to implement structural separation by some powerless alternatives as well, also called weak structural separation or functional separation, such as accounting separation or legal separation. Finally, it is important to indicate that these remedies can be labelled as structural or behavioural. As for structural remedies, the regulatory intervention is ex-ante and general (for all the agents), while in behavioural remedies the intervention is ex-post, and on a case-by-case basis.

Probably the most famous classification of the remedies has been elaborated by Cave (2006), who argues that it is possible to identify a ladder of structural separation. I explain these remedies in the following paragraphs.

Graphic 2. Ladder of structural separation



Based on Cave (2006).

- **Accounting separation:** Here the monopolist can participate in the competitive segments of the market, i.e., vertical integration is allowed, but the integrated company is required to have different accounts for each line of business (Cave; 2006). Even though accounting separation could be useful for price regulation, it does not eliminate the incentives of the incumbent to extend its dominant position to the competitive segments of the market. For this reason, this is considered the weakest form of structural separation (Decker; 2015) (OECD; 2016).
- **Creation of a wholesale business division/virtual separation/business separation/business separation with localised incentives:** Again, in all these categories the monopolist can participate in the competitive segments of the market, i.e., vertical integration is allowed. However, each one constitutes a step forward to achieve structural separation. At the bottom there is the creation of a wholesale business division, which is responsible for the provision of the monopolistic business. However, this division is part of the main company and shares the same infrastructure, directions, and economic incentives. At the top level, in business separation with localised incentives, the regulation tries to isolate the division responsible of the bottleneck, and to disconnect the incentives of this division from the interests of the company. In the academic literature these categories are denominated as functional separation. These categories are also considered weak vertical integration (OECD; 2001b).

- **Legal separation under same ownership:** Here the monopolist can participate in the competitive segments of the market, i.e., vertical integration is allowed; however, the isolated division becomes a legal independent entity (Cave; 2006), but still, it belongs to the same economic group. This is weak vertical separation as well.
- **Full ownership separation:** The monopolist must not participate in the competitive segments of the market, i.e., full vertical separation is imposed. If the monopolist was owner of the isolated company beforehand, the monopolist must sell its shares in this company to any legal entity, except those where the monopolist has control. This is strong vertical separation. In this category, there is complete elimination of the incentives of monopolists to affect downstream firms. However, the benefits of economies of scale from vertical integration is eliminated as well (OECD; 2001b).

As for the OECD (2016), the different remedies to deal with vertical integration are: access regulation, ownership separation, club ownership, operational separation, separation of the non-competitive component into smaller reciprocal parts, and lesser forms of separation such as accounting, functional and corporate/legal separation. All of them could be understood according to the explanation made above, except access regulation, club ownership and operation separation.

- **Club ownership:** Here the regulation isolates the monopolistic segment of the industry and allocates its ownership and administration to the

downstream's companies. This solution eliminates the monopolist's bias toward the installed downstream's companies, but it creates concerns of discrimination for potential entrants. Additionally, this mechanism facilitates collusive agreements. Consequently, monitoring is still required to combat the abuse of dominant positions and anticompetitive horizontal restraints (OECD; 2001b).

- **Operation separation:** This alternative is similar to club ownership, but the consequences will defer depending on the company entitled with the ownership and the operation. First, if the government has the direction of the monopoly, then it has the same characteristics of a full ownership separation and only access regulation is required. Second, if the downstream's companies have the direction, it is exactly a club ownership model. Third, if the monopoly is run by an independent company, distinct from the government and the downstream's companies, it has the characteristics of full ownership separation as well (OECD; 2001b). Operational separation has inspired the creation of Independent System Operators in the electricity markets explained below (OECD; 2001b).
- **Access regulation:** Access regulation consists of a price regulation mechanism to avoid price discrimination. However, this technique does not help with non-price discrimination. Apart from the remedies to deal with vertical integration explained above, this technique is clearly a behavioural mechanism, since it is applied ex-post, and on a case-by-case basis, while the other mechanisms are general and applied ex-ante.

Because of its weak effects, there is frequent debate about whether these practises, apart from ownership separation, consist of structural measures remedies (Walden; 2018). Some authors think that, on the contrary, they could be labelled as behavioural remedies (OECD; 2016). In terms of efficacy, the OECD (2016) claims that, even when these lesser forms of structural separation remedies could be ineffective by their own, when combined with other remedies such as access regulation they could be important complements to controlling monopolistic power (OECD; 2001a).

Table 1. Advantages and disadvantages of policy remedies for vertical integration

Policy	Advantages	Disadvantages	Behavioural/ Structural Approach?
Access Regulation	Certain economies of scope are preserved; costly separation is avoided.	Requires active regulatory intervention; Regulator may not have sufficient information or instruments to overcome all forms of anticompetitive behaviour. Need to monitor and control capacity.	Behavioural
Ownership Separation	Eliminates incentives for discrimination; Allows for lighter handed regulation	Potential loss of economies of scope; May require costly and arbitrary separation.	Structural
Club Ownership	Eliminates incentives for discrimination	Club may seek to exclude outsiders; may facilitate collusion; only effective in certain circumstances.	Structural
Operational Separation	May facilitate control of discrimination and anti-competitive behaviour	Possible lack of profit motive reduces incentive to provide innovative and dynamic services	Not clear?
Separation into Reciprocal Parts	Anti-competitive behaviour is offset by incentives to interconnect; Facilitates horizontal competition within the non-competitive component; Economies of scope are preserved; No need for line-of-business restraints.	Only applies in certain circumstances	Structural

OECD (2001b)

4. Structural separation and vertical integration in the traditional monopolistic markets: electricity, railways and telecommunications

Electricity, railway, and telecommunications are the most traditional utilities. Because of the deep history of regulation in these markets, there are some general agreements about their regulatory treatment. To begin with, the OECD (2001b) has indicated that there is space for the introduction of competition, but not for the entire industry. It is possible to introduce competition to some segments of the markets, while keeping the other as non-competitive (See Table 2). Secondly, if based on the OECD (2001a) States plan to introduce competition, it is necessary to protect the market from the monopolists who will try to leverage their dominant position. Third, the OECD has also anticipated the advantages and disadvantages of the remedies explained above (See Table 2). Full ownership separation is conclusive and leaves no doubts about its efficacy to deal with the problems of abuse of dominant positions, but also has some disadvantages, which could have encouraged States to maintain vertical integration.

Table 2. Non-competitive and potentially competitive activities in Railways, Electricity and Telecommunications

Sector	Activities which are usually Non-competitive	Activities which are potentially competitive
Railways	Track and signalling infrastructure	<ul style="list-style-type: none"> • Operation of trains • Maintenance facilities
Electricity	<ul style="list-style-type: none"> • High-voltage transmission of electricity • Local electricity distribution 	<ul style="list-style-type: none"> • Electricity generation • Electricity "retailing" or "marketing" activities • Electricity market trading activities
Telecommunications	<ul style="list-style-type: none"> • The provision of a ubiquitous network • Local residential telephony in rural areas 	<ul style="list-style-type: none"> • Long-distance services • Mobile services • Value-added services • Local loop services to high-volume business customers, especially in high-density areas • Local loop services in areas served by broadband (e.g., cable TV) networks

Based on OECD (2001b)

5. EU and UK sector-specific regulation for vertical separation in Railways, Electricity and Telecommunications

I plan to analyse the EU and UK regulation of vertical separation in railways, electricity, and telecommunications, to verify if the economic theory explained above has been assimilated by the sector-specific regulation of those industries.

5.1 Structural separation in the electricity industry

The electricity industry is probably the less controversial market for the application of full ownership structural separation. In the electricity industry it seems to be that the costs of self-preferencing are too high and vertical separation is a better option (Crémer et al; 2019) (Decker; 2015). Moreover, the electricity markets tend to be more stable and there is less space for innovation, which is important considering that the theory suggests that one important drawback to structural separation is the lack of incentive for innovation. For these reasons, according to Cabau (Jones and Kettlewell; 2020), in the EU there is a consensus that the only means to ensure effective competition in the electricity industry is by separating the competitive activities from the non-competitive activities. This explains why some countries have applied a policy of full vertical separation. This is the case of England, Wales, and Australia. The rest of the countries have applied a partial restructuring of the electricity market, i.e., it is possible to find situations of vertical integration. This is the case of some European countries and some states in the USA (Decker; 2015).

Before explaining the EU electricity model for regulating vertical separation, it is important to mention that several electricity regulatory frameworks have opted for the implementation of the Independent System Operator (hereinafter, ISO) model. In an ISO model, most of the main decisions for the coordination and operation of the electricity markets are delegated to a third party (the ISO), which is responsible for making these decisions based on efficiency, seeking the minimum cost, and promoting competition. In addition, the ISO also has the responsibility to ensure non-discriminatory treatment for all the agents in the market. However, the ISO does not own assets in the market, and it could be possible to have vertical integration and the ISO at the same time. For this reason, the existence of an ISO per se does not eliminate the risk of anticompetitive behaviours from the monopolist, albeit it prevents some of them. Consequently, the ISO model does not eliminate non-price discrimination problems, and monitoring is still necessary (Commission of the European Communities; 2007a). The ISO approach “would improve the status quo but would require more detailed, prescriptive and costly regulation and would be less effective in addressing the disincentives to invest in networks. In its reply to the Commission's Green Paper, ERGEG also indicated that its preferred approach was ownership unbundling”. (Commission of the European Communities; 2007b; Pg. 12). Moreover, the quality and behaviour of the ISO will depend on who is entitled to direct the ISO, something that I have already mentioned when I explained the operation separation remedy. For example, if the ISO is led by a third independent party, it has the characteristics of full ownership separation.

The Renewables Grid Initiative (2015) and Cabau (Jones and Kettlewell; 2020) explain that the Third Energy Package in 2009 introduced structural separation remedies for the electricity transmission operators. With this purpose, three different models are possible: (i) Full Ownership Unbundling, explained above; (ii) The ISO model, where vertical integration is still allowed, but the operation of the transmission network is carried out by an ISO appointed by the relevant EU Member State and approved by the European Commission; and (iii) Independent Transmission Operator, where vertical integration is still allowed, but there are some rules to ensure independence to the activities where competition is possible (generation and supply) (CEER; 2019).

Nowadays, the EU has issued a Fourth Energy Package, in which we can find the Directive (EU) 2019/944 of the European Parliament of the Council of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU (recast) (hereinafter, EU Electricity Directive 2019), which follows the main structure of the Third Energy Package (Cabau in Jones and Kettlewell (2020)). This Directive mandates full ownership separation for transmission companies. However, if the transmission system belonged to a vertically integrated company before 3 September 2009, the transmission system owner may opt to be managed by an ISO, who will be responsible for granting and managing third-party access, the collection of access charges, congestion charges, and payments under the inter-transmission system operator compensation mechanism. In addition, the ISO will be responsible for operating, maintaining, and developing the transmission system, and ensuring the long-term ability of the system to meet reasonable demand through investment planning.

Furthermore, the ISO is entitled to oversee the planification, construction, and commissioning of new infrastructure. The regulation also states the vertical integrated company must implement legal separation from the downstream companies, and must have its own system of organization and decision making. As for electricity distribution, the EU Electricity Directive 2019 does not have a general mandate for ownership separation, but legal, accounting, and functional separation is required (EU Electricity Directive 2019; Florence School of Regulation, 2020; CEER, 2019).

In the UK, the Electricity Act 1989 follows the main characteristics of the EU Electricity Directive 2019. Even though ownership unbundling for transmission companies is established as a rule, there are many exceptions, such as the development of an ISO or the exercise of discretionary powers (Ofgem 2021). The Electricity Act 1989 does not create obligations for unbundling or independence for distribution companies. However, the Competition and Market Authority (hereinafter, CMA) has indicated in the Energy Market Investigation (2016), that the actual level of structural integration in the UK electricity market does not create concern around competition, since the activities of transmission and distribution are “heavily regulated and subject to a requirement to be legally unbundled, or independent” (CMA; 2016; Pg. 313).

5.2 Structural separation in the telecommunication market

The telecommunications market seems to be different from the electricity market: in the former, technology has had an important influence on the development of the supply chain and the evolution of competition in the market, i.e., innovation is

an important force in the market (Decker; 2015) (Crémer et al; 2019). The force of competition in the market has generated the deregulation of the market, since with the development of the market it seems to be counterproductive to maintain price regulation, and it is better to allow competition. In the telecommunication markets there is something called Infrastructure-based competition, which has guided regulators to promote competition in the market (Decker; 2015) through the following process: (i) first, to create obligations of open access to promote competition by new entrants; (ii) once competition is strong, to encourage the players in the development of their own infrastructure (ladder of investment (Ibañez; 2016)).

For this reason, the Directive (EU) 2018/1972 of the European Parliament and the Council of 11 December 2018 establishing the European Electronic Communications Code (Recast) starts the regulatory process through the evaluation of a significant market power (Walden; 2018). If the undertaking has significant market power, then the regulator can choose one of the following alternatives: to create mandates of transparency, such as accounting information, prices and technical specifications; to impose obligations of non-discrimination in relation to interconnection or access; to create obligations of accounting separation; to require access to civil engineering; to establish obligations of access to, and use of, specific network elements and associated facilities; to create price control and cost accounting obligations; to open the deployment of a new very high-capacity network; to impose functional separation, or to allow voluntary separation by a vertically integrated undertaking, accept commitments regarding conditions for access, co-investment, or both, or wholesale-only

undertakings. In the UK, the Communications Act 2003 follows the rationale of the Directive (EU) 2018/1972.

For the imposition of the remedies, in both the EU and the UK level, the regulator must consider the proportionality principle. Finally, it is important to highlight that neither in the EU sector-specific regulation nor in the UK regulation is it possible to impose full ownership separation as a remedy.

5.3 Structural separation in the railway industry

In the railway industry innovation does not play such a vibrant role as in the telecommunication sector, i.e., railways are more similar to the electricity industry in terms of technological stability. However, the former has a relevant, distinct characteristic, which is the strong presence of state-owned companies (Finger and Montero; 2020). For this reason, the Directive (EU) 2012/34/EU of the European Parliament and the Council of 21 November 2012 establishing a single European railway area (Recast) does not establish full ownership separation as a remedy, but rests in tools as functional separation between the infrastructure management and the railway undertaking, accounting separation, business separation and legal separation. As for the UK regulation for railway, the Railways (Access, Management and Licensing of Railway Undertakings) Regulations 2016 has been elaborated following the standards stated in the EU Directive.

Table 3. Summary of sector-specific regulation in EU and UK for vertical integration

	EU sector-specific regulation	UK sector-specific regulation
Electricity	Weak vertical separation (Transmission: ISO, legal and functional separation; Distribution: legal and functional separation)	Weak vertical separation (Transmission: ISO, legal and functional separation; Distribution: There are not vertical separation provisions)
Telecommunications	Weak vertical separation (based on a significant market power evaluation, but full ownership evaluation has not been established as a remedy. Remedy to be decided based on the proportionally principle)	
Railway	Weak vertical separation (functional separation, accounting separation, business separation and legal separation)	

6. Conclusions

To sum up, weak vertical separation has been implemented in the most traditional monopolistic markets, not only for electricity markets, but also for the telecommunications and railway markets. Even though some authors argue that the importance of full ownership separation is to increase competition in the electricity markets (Barrett; 2016), categorising unbundling as a pillar for the EU network regulation (Florio; 2013), it seems that the EU States and the UK have not been willing to implement those recommendations, and they prefer instead weaker remedies (Barrett; 2016). I do not plan to explore this in the present dissertation. However, a good explanation about the reasons and the existence of the barriers for regulatory-based remedies to deal with vertical integration in the electricity industry have been explained by Jones and Kettlewell (2020).

The theory explains that weak vertical separation models do not achieve, by themselves, the elimination of the incentives of the monopolist to leverage its dominant position within the competitive segments of the market, something which is made feasible by strong or full ownership separation. Therefore, according to the academic theory explained above, the implementation of

processes to control the abuse of monopolistic positions from the incumbent is mandatory. This is what I plan to analyse in the following paragraphs.

IV. The role of competition law to deal with vertical integration

1. The necessity of competition law in network industries.

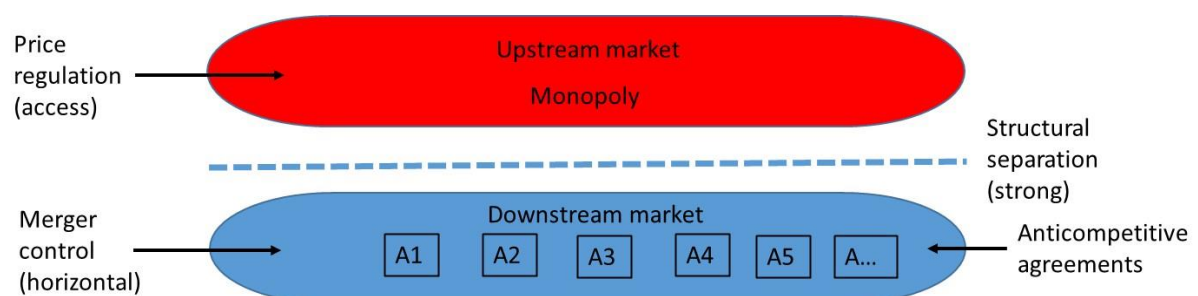
In section I, I explained about the structural and behavioural remedies to deal with vertical integration. Apart from structural remedies, I indicated that only access regulation has been clearly classified as a behavioural remedy (OECD; 2016). However, competition law also has the power to solve problems related to vertical integration, especially in market models with weak vertical separation provisions, as explained below. It is important to admit that this is an atypical function for competition law, since the first ring of protection of competition in network industries should be established by sector-specific regulation.

To begin with, it is important to have a good understanding about the differences between competition law and sector-specific regulation. Based on Dunne (2014), there are five main distinctions. First, the scope of application, since competition law is a general residual regime for all sectors, while regulation is enacted on a sector-by-sector basis to correct market failures. Second, sector-specific regulation is a prospective phenomenon which works ex-ante, while competition law works in retrospective, to be used ex-post to deal with anticompetitive behaviours, i.e., anticompetitive agreements (Article 101 of the TFEU) and the abuse of dominant positions (Article 102 of the TFEU). Third, competition law pursues strict market efficiency, while regulation can also seek the

implementation of distributional goals such as universal service. Fourth, competition law proscribes some broad anticompetitive conducts, while regulation prescribes, and often with great details, the conduct of the agents in the market to achieve the desired goals. Fifth, competition law typically uses market-based measures based on the power of signals or the influence of behaviours to deal with anticompetitive behaviours. However, competition law can adapt to the requirements and evolution of the markets to ensure full protection of competition, and to employ remedies such as divestures, altering the structure of the market. Conversely, regulation imposes concrete solutions which could be static and may fail to adapt to the changes in the market.

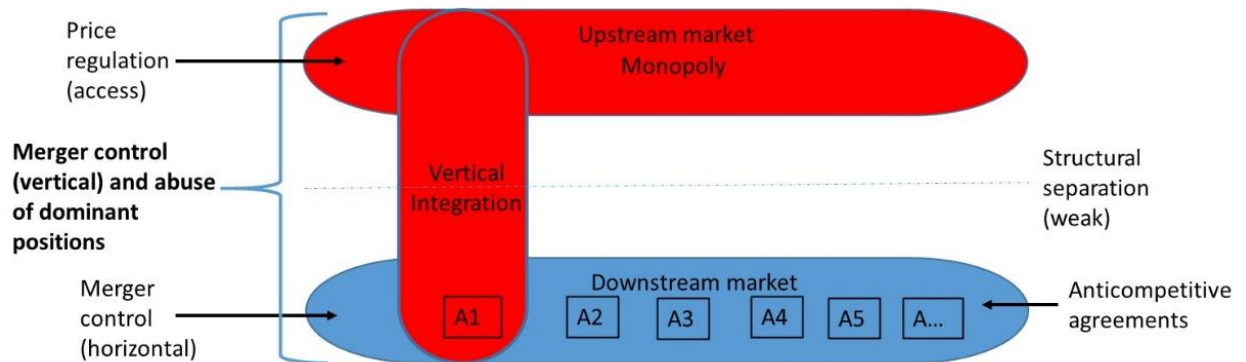
Consequently, in markets with strong structural separation, the role of competition law is key (i) to control horizontal mergers which could have a significant impact on competition, and (ii) to sanction anticompetitive horizontal agreements. Since full ownership separation proscribes vertical integration, the space for the abuse of dominant positions is almost irrelevant.

Graphic 3. The role of competition law in markets with strong structural separation



Nevertheless, in markets with weak structural separation, the role of competition law is broader and more relevant than in markets with strong structural separation. Competition law is necessary not only (i) to control horizontal mergers and (ii) to sanction anticompetitive horizontal agreements, but also (iii) to control vertical mergers and (iv) to sanction the abuse of dominant positions.

Graphic 4. The role of competition law in markets with weak structural separation



To sum up, structural remedies could be imposed by sector-specific regulation and by competition authorities based on competition law (for instance, divestitures). This is also the case of behavioural remedies, since sector-specific regulation regulates remedies such as access regulation, or they can be applied by competition law for competition agencies such as refusal to deal/supply or the Essential Facilities Doctrine (Larouche; 2000). Therefore, the main difference between competition law and sector-specific regulation is not that the former works ex-post and the latter ex-ante, but that competition law works on a case-bound basis, while sector-specific regulation determines general rules (Larouche; 2000). However, “behavioural policies, unlike structural policies, do not eliminate the incentive of the regulated firm to restrict competition” (OECD; 2001a).

2. The necessity of competition law in the electricity markets

In electricity markets there are four main potential activities: generation, transmission, distribution and retail (Decker; 2015). To begin with, generators produce the electricity and inject it to the transmission system. The transmission system collects all the electricity and delivers it to the centres of consumption such as the cities. Then, all the infrastructure developed to deliver the electricity inside the centres of consumption is part of the distribution system. The retail activity consists of in the commercialization of the electricity to the final consumers. In conclusion, all generators depend on the transmission system, and all retailers depend on the distribution system (Florio; 2013).

Thus, the relevance of the necessity to control vertical mergers and to sanction the abuse of dominant positions is more evident in markets such as the electricity markets, where there are competitive segments at both sides of the supply chain, so the opportunities and benefits for self-preferencing and non-price discrimination are clearer. In the electricity markets, it is possible to have competition in generation and retail, while transmission and distribution are non-competitive activities (Decker; 2015). In markets with no vertical separation mandates or weak vertical separation obligations, the transmission and the distribution companies will have the incentive and the opportunity to distort competition if they can also participate in the generation and retail activities (Commission of the European Communities; 2007a). For instance, transmission companies could deny or delay access to non-integrated generators, or distributors could hinder non-integrated retailers' activities by affecting the quality of supply to their consumers. Moreover, many electricity markets which were

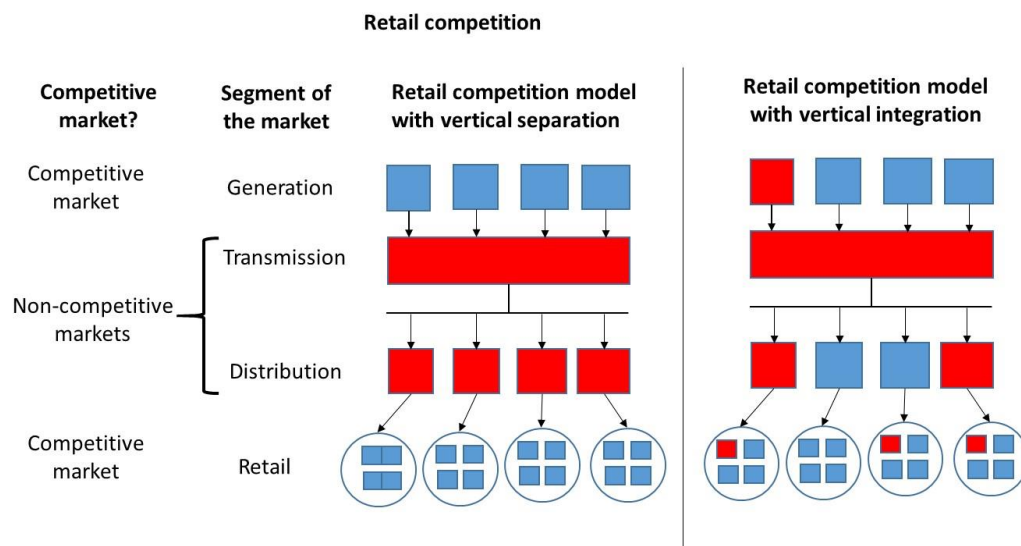
initially vertical disintegrated and privatised in recent years have tended to reintegrate competitive activities (generation and retail) with monopolistic activities (transmission and distribution) (Decker; 2015), something which affects competition and demands the supervision of competition law.

Moreover, the appearance of distributed generation and energy storage has increased the possibilities of leveraging. Distributed generation is a variety of generation projects, such as wind and solar energy, which has the possibility of being connected directly to the distribution grids (Decker; 2015). As a consequence, distributed generation allows distribution companies to “bypass” the traditional electricity supply chain, since it produces its own electricity. As for energy storage, the development of new technologies is allowing electricity storage to be more affordable, mainly by more efficient and cost-effective batteries (Leyva; 2020). Energy storage is the perfect complement for distributed energy, because the former allows distribution companies to manage the intermittency of renewable energy. The eruption of distributed energy and energy storage has empowered distribution companies, which have more incentives and benefits from self-preferencing and the leveraging of their dominant position. For this reason, Jones (Jones and Kettlewell; 2020) argues that there is no reason to establish weaker measures to deal with vertical integration in distribution than in transmission.

Finally, the level of competition in the wholesale market, i.e., the market where the generators participate, is not only at risk of anticompetitive agreements, but also at risk of abuse from dominant positions. The exposition to dominant

positions is possible either for the high level of concentration or transmission constraints which could limit competition geographically (Decker; 2015). When sector-specific regulation is insufficient to deal with these problems, competition law also has an important role here.

Graphic 5. Competition in vertical separated electricity markets vis a vis vertical integrated electricity markets



Based on the model of retail competition (OECD; 2001b)

For this reason, in electricity vertical separated markets, competition law has an important role to play, in applying ex-ante horizontal merger control in generation and retail activities. In addition, competition law applies ex-post tools to combat anticompetitive agreements between generators and retailers. It could also be possible to find vertical anticompetitive agreements, depending on the specific characteristic of the market design - for instance, an agreement between a distributor and a retailer. However, in vertical separated markets the possibility of

vertical anticompetitive agreements is small, because of the lack of incentives of the monopolist. Furthermore, it is possible to face scenarios of abuse of dominant positions such as in the generation segments because of transmission restraints, as explained above.

In electricity markets with vertical integration, it is necessary to pay attention, in addition to the issues explained in the last paragraphs, to the initiatives of the transmission and distribution companies to leverage their dominant positions to generation and retail markets; thus, competition law requires competition agencies to employ (i) ex-ante vertical merger control, for example, before an initiative of integration between a transmission and generator, and (ii) ex-post sanctioning of abuse of dominant positions.

Cabau in Jones and Kettlewell (2020) explains the following methods for leveraging:

- To determine (manipulate) tariff categories in benefit of the one which is going to be paid by the vertically integrated company's subsidiaries.
- To assign the capacity available with privileges for the vertically integrated company's subsidiaries, instead of on a first-come-first-served basis.
- To make it difficult to change from vertically integrated suppliers, for example, by defining time-consuming processes, or making the process expensive asking for new technical requirements.
- To deny the access to capacity available to competitor arguing congestion.

The Commission of the European Communities (2007b; pg. 11) expressed that “only strong unbundling provisions would be able to provide the right incentives for system operators to operate and develop the network in the interest of all users”. However, in situations where structural-based remedies are poor, it is necessary to implement improvements to the electricity market for it to enjoy the benefits of competitions, something which is not new, as it was evidenced by the Commission of the European Communities (2007a) which diagnosed that the electricity market had a structural conflict of interest caused by insufficient unbundling of networks from the competitive parts of the sector. For these reasons, in terms of the Commission of the European Communities (2007a; pg. 10), in situations where unbundling rules are insufficient or too flexible, “the full force of the Commission’s powers to prevent future abuse needs to be applied”. The Commission also indicated that, “in such circumstances, national regulators need in particular more intrusive and burdensome powers to prevent discrimination” (Commission of the European Communities; 2007a; pg. 12). See also the OECD (2001b).

3. The performance of ex-post competition law in the electricity industry

To begin with, the EU Regulation (EC) No 1/2003 states that where the Commission, acting on a complaint or on its own initiative, finds that there is an infringement of Article 81 or of Article 82 of the TFEU, it may by decision require the undertakings and associations of undertakings concerned to bring such infringement to an end. Moreover, the Commission can impose any behavioural or structural remedies which are proportionate to the infringement committed and

necessary to bring the infringement effectively to an end (Crémer et al; 2019). Nevertheless, the EU Regulation (EC) No 1/2003 indicates that structural remedies can only be imposed either where there is no equally effective behavioural remedy or where any equally effective behavioural remedy would be more burdensome for the undertaking concerned than the structural remedy (Article 7). However, the EU regulation allows the undertakings to offer commitments to meet the concerns expressed to them by the Commission, and the Commission can make those commitments binding on the undertakings, accepting remedies which could be qualified as quasi regulatory decisions (Dunne; 2014), as they usually seek to change the structure and design of the industry, employing orders such as divestitures.

In general, Cabau (Jones and Kettlewell; 2020) and the Commission (2007a) explain that competition law by itself is not capable of enhancing competition in the markets. However, competition law helps to sustain (preserve) competitions once structural changes have been implemented. In general, a mix of both competition and regulatory-based remedies are required to address the malfunctioning of an electricity market. There are some experiences in which competition law was able to produce similar effects to structural changes in sector-specific regulation:

- In the E.ON cases (Cases COMP/39.388 — German Electricity Wholesale Market and COMP/39.389 — German Electricity Balancing Market) the EU Commission opened an investigation against E.ON for taking advantage of its dominant position in three different ways: (i) E.ON, which used to

have a portfolio of generation capacity, intentionally withdrew generation capacity with the purpose to increase the spot price and to increase its incomes. However, the withdrawal of generation capacity by a dominant operator is considered an abuse of a dominant position (102 TFEU) (Chauve et. al.; 2009). (ii) In addition, E.ON offered long-term contracts or shares in E.ON generation projects to deter new investments by third parties, which is also contrary to the Article 102 TFEU. (iii) Finally, the Commission also had concerns about E.ON as a Transmission System Operator (TSO). The TSO is responsible for acquiring ancillary services from generators, which are necessary to maintain the stability of the system. E.ON had favoured its affiliated generation companies in the provision of ancillary services. The Commission accepted the offers from E.ON to settle the case, based on the following commitments: the divestiture of 5 000 MW of generation capacity and its high-voltage transmission grid. In addition, E.ON committed to delegate the role of system operator to a third party (Chauve et. al.; 2009). The E.ON case was the first time that the EU competition authority achieved a divestiture of significant magnitude in the electricity sector. Thus, by means of competition law, competition authorities were able to introduce structural changes beyond sector-specific regulation.

- In the ČEZ case (Case AT.39727 — CEZ), the Commission's initial accusation was that ČEZ had hindered new investments in generation by means of making a pre-emptive reservation in the Czech electricity transmission network, but in fact, ČEZ did not have sincere intentions to develop new projects. This is considered an abuse of dominant position

under Article 102 TFEU. Similarly to the E.ON cases, structural remedies were imposed. The settlement accepted by the Commission was that ČEZ committed to divest 800-1000 MW of its generation capacity, which would allow new investors in generation to establish on the Czech market.

Not only structural remedies have been achieved by competition law, but also behavioural remedies, such as:

- In the Swedish Interconnectors case (Case 39351 – Swedish Interconnectors), the EU Commission found that Svenska Kraftnät, the Swedish Transmission System Operator, had reduced the cross-border transmission capacity for electricity to solve internal congestion problems, which is considered incompatible with the Article 102 of the TFEU. To solve this problem Svenska offered to divide up the electricity transmission system and to manage transmission congestions without limiting trading capacity on interconnectors. These commitments were accepted by the Commission.
- In the case against Bulgarian Energy Holding EAD ('BEH') (CASE AT.39767-BEH ELECTRICITY), the Commission detected that BEH participated in the generation, production, transmission, transit, storage, management, distribution, and sale of electricity. BEH held 100% of the capital in the following electricity companies: NEK, NPP Kozloduy and TPP Maritsa East 2, and was owner of the Independent Bulgarian Power Exchange EAD ('IBEX') as well. BEH's subsidiaries signed contracts with "destination clauses", so the consumers could only use the electricity in

the places allowed by the contracts, otherwise BEH could apply financial penalties or even terminate the contract for failing with the destination clause. According to the Commission, the destination clauses constituted an abuse of the dominant position, contrary to Article 102 TFEU. To finish the case, BEH committed before the Commission to ensure that sufficient volumes offered by BEH on the day-ahead market will be made available for third parties to purchase. Then, BEH committed to only offer hourly products on the power exchange. BEH also committed to submit the draft documents comprising the trading rules and general terms of participation in the power exchange for the Commission's review prior to their adoption. Finally, BEH also offered to divest the power exchange.

As it is possible to conclude, competition law was important to fill the gaps or even correct sector-specific regulation. Moreover, competition law is key not only in the electricity markets, but also in other industries such as telecommunications. On the one hand, we have as an important example of structural-based remedies - the separation of the UK company British Telecom (BT) in a process initiated by Ofcom. To begin with, the Enterprise Act 2002 allows the competition authority in UK to order structural separation in order to remedy, mitigate or prevent the adverse effects of dominant positions, i.e., whether in case of anticompetitive behaviours or to preserve competition in the market as a result of a market inquiry OECD (2012). Cave (2006) explains that Ofcom had investigated competition in the market and had realised that the company was consistently demonstrating obstructive behaviours to avoid giving its rival access to key segments, products, and services. BT had developed non-prices discrimination and was likely to

persist in doing so. The BT separation involved business separation plus local managerial incentives (Cave; 2006). In inspire of all companies still belong to the BT economic group, most believe that this experience has been a success (OECD; 2016).

On the other hand, an important precedent about behavioural remedies from competition law was the Telekomunikacja Polska case (OECD; 2016), where the Commission fined the incumbent for a constructive refusal to deal, which is considered a violation to the Article 102 (TFEU), i.e., an abuse of dominant position (Kamiński et al; 2011).

Market investigations such as the one which delivered to the separation of BT, explained above, could lead to competition processes or the information collected could be used in the context of mergers. For this reason, Walden (2018) explains that market investigations and inquiries belong to the category of competition law tools.

4. The performance of ex-ante competition law in the electricity industry: merger control

Merger control is key to avoid deterioration of competition due to concentration. Competition authorities in ex-post cases employ structural remedies such as divestures or behavioural remedies such as energy release programmes to preserve competition. But in ex-ante cases, competition authorities have the capability to impose remedies on mergers to preserve competition (Ibañez; 2016), or, in the most stringent cases, where there are not suitable remedies,

competition authorities could even deny petitions of concentrations (Commission; 2007a). Merger control is controversial since it uses structural remedies to protect competition against potential abuses of dominant positions. In words of the Cremer Report:

“Merger control certainly intervenes *ex ante* and is meant to protect the future competitiveness of the marketplace. In assessing whether a merger leads to a significant impediment to effective competition, competition authorities will take a forward-looking approach. (...) Competition agencies must therefore determine the set of substitutes as well as the innovation and changes in the market predicted by the parties at the time of the abuse – as was done in the European Commission Microsoft cases. To summarise: in abuse cases, competition authorities need to rewind and see the future as it was seen by the parties at the time of the conduct; in merger cases, they need to make their own assessment of the future evolution of the market and of technology.” (Crémer et. al.; 2019; pg. 47)

The EU Regulation (EC) No 139/2004 on the control of concentrations between undertakings states that a concentration which could significantly impede effective competition, in particular as a result of the creation or strengthening of a dominant position, must be declared incompatible with the common market. However, the drawbacks could be counteracted by the benefits in efficiencies from the merger. For this reason, the Commission must take into account the balance between advantages and disadvantages on competition from mergers,

since the advantages could compensate the particular potential harm to consumers.

The EU Commission has employed this capability to preserve competition by blocking or conditioning mergers to application of remedies. I will explain some relevant cases in the electricity industry:

- In the case IP/04/1455 the Commission prohibited the acquisition of Gás de Portugal - GDP by Energias de Portugal - EDP and ENI. As for ENI, it is an international company present at the levels of energy supply and the distribution chain, while EDP was an incumbent electricity operator in Portugal, which generates, distributes, and supplies electricity. By its subsidiaries, EDP also had substantial electricity and gas activities in Spain. Finally, GDP was the incumbent gas operator in Portugal, active at all levels of the gas chain, and had the exclusive rights for the import, storage, transportation and wholesale supply of natural gas, and controlled five of the six Portuguese local gas distribution companies (the sixth being controlled by EDP) (EU Commission; 2004). “After an in-depth investigation, the Commission concluded that the deal would strengthen EDP’s dominant position in the electricity wholesale and retail markets in Portugal and GDP’s dominant position in Portuguese gas markets. The concentration would thus significantly reduce or pre-empt the effects of liberalisation of the electricity and gas markets, and increase prices for domestic and industrial customers. Remedies proposed by EDP and ENI

were insufficient to satisfy the competition concerns”. (EU Commission; 2004; pg. 1)

- In the Case No COMP/M.4180, in 2006 Gaz de France’s (GDF) proposed a merger with Suez to create one of the world’s largest energy companies. This proposal generated competition concerns in the electricity and gas markets. “In response, GDF and Suez offered extensive remedies, including relinquishing control of Fluxys (the Belgian network operator), Distrigas & Co and the divestiture of Distrigas (and SPE). GDF and Suez also committed to a series of investment projects to increase infrastructure capacity. Together, these remedies were intended to facilitate entry of new competitors and foster competition. They were also intended to facilitate access to the hub, with the expectation this would increase liquidity and trading volumes, and lower prices at the hub. As a result, the Commission concluded that the merger would not significantly impede competition in the European Economic Area (EEA) or any substantial part of it.” (EU Commission; 2016; 41).
- In the Case No COMP/M.3696 E.ON/MOL, in the year 2005 the companies ERI, member of the E.ON group, and MOL, submitted to the EU Commission a merger proposal. ERI is an energy company which focuses on the supply of electricity and gas, while MOL participates in the markets for natural gas, oils, fuels and chemicals. “The E.ON/MOL merger raised concerns regarding competition in the gas and electricity wholesale and retail markets in Hungary. To clear the merger, E.ON offered to unbundle ownership of the gas production and transmission activities, retained by the seller, from the gas wholesale and storage activities it was

acquiring. E.ON also agreed to release significant quantities of gas back to the market on a competitive basis". (Ward et. al; 2007; 3)

As well as the result of the ex-post application of competition law in the electricity sector, explained above, in the merger control cases it was also possible to impose structural remedies to ensure that the concentrations could not result in a significant impediment to competition, going beyond sector-specific regulation.

V. Conclusions

The relationship between sector-specific regulation and competition law is an issue of great importance. At the US level, in the *Trinko* case the Supreme Court decided that when a subject has been regulated, then this matter is excluded from competition law (Walden; 2018). However, at the EU level, since the *Deutsche Telekom* case, the case-law has stated that incumbents must comply with competition law and sector-specific regulation (Walden; 2018). Each approach has advantages and disadvantages. On the one hand, the US approach prefers incumbents' security. On the other hand, the EU position seeks to ensure that markets benefit from competition.

In the present work we try to contribute to the debate about the application of competition law on top of sector-specific regulation, through the experience of the electricity industry. To begin with, it is important to have in mind that network industries in general, and the electricity industry in specific, is characterized by the coexistence of competitive and monopolistic segments of the market. In the

electricity industry, generation and retail are considered competitive activities, while transmission and distribution are monopolistic activities. Consequently, it is important to solve the problems created by monopolist who will try to leverage its dominant positions within the competitive segments of the markets, i.e., the incentives from the transmission and distribution companies to distort competition in the generation and retail markets.

There are many techniques to deal with the problems of vertical integration. There are structural remedies, such as ownership separation, functional or legal separation, and behavioural remedies, such as access regulation. Even though full ownership structural separation has significant drawbacks, this is the only means to ensure a complete elimination of the incentives from the monopolist to leverage its dominant position. For this reason, the other remedies are labelled as weak structural separation. However, the experience of most of the EU network industries shows us that regulators are not willing to adopt strong vertical separation remedies and, in most of the cases, weak techniques are in used. For instance, for electricity distribution usually only legal and functional separation is required, while due to the emergence of distributed energy and energy storage, there are no reasons to think that distribution has less potential to abuse dominant positions.

Based on the US approach, the existence of sector-specific regulation in the electricity sector, even when it could opt for weak structural separation, would mean that competition law should not apply. However, this conclusion is contradicted by the main academic and technical readings, which indicate that in

the electricity markets where weak structural remedies have been employed, the full power of competition law is a must to combat the incumbents' anticompetitive behaviours. So, it seems to be that there is consensus that, at least in the electricity markets, the EU approach is the winner and competition law should apply on top of sector-specific regulation.

We have analysed several case laws, such as the E.ON and the ČEZ case, where competition authorities collected importance evidence about the lack of capability from weak structural remedies to control the monopolist. In all these cases competition authorities were capable of ordering measures to guaranty effective competition; even more, imposing divesting orders where sector-specific regulation did not contain full ownership separation mandates. Until 2014, the EU Commission had intervened nine times in the energy sector to deal with problems related to vertical integration, where the incumbents offered commitments to close the investigations (Dunne; 2014). This shows the great influence of competition law in sector-specific regulation. Thus, the role of competition law was key to promote and preserve competition in the markets. In conclusion, it has been demonstrated that network industries do require the parallel application of competition law and regulatory regimes, when weak versions of structural separation are chosen.

Is this solution perfect? I do not think so. The intervention of competition law to correct sector-specific regulation requires competition agencies to rethink competition law to allow competition authorities to make atypical decisions such as divestures. These decisions are labelled as quasi-regulatory competition,

which is not without flaws. Dunne (2014) explains that this situation could create problems related to the respect for the separation of power, respect of the rule of law, legitimacy issues, could increase the cost of false positives, and the risk of politicization. Furthermore, we should analyse what role, if any, competition law could have when regulation has opted for strong structural separation. In this situation, as the incentive from the monopolist to leverage its dominant position has been cleared, then it seems to be that the role of competition law is of less importance, and the US model could be more appropriate. But, as already explained, even in scenarios of strong structural separation, the application of competition law to deal with horizontal mergers or anticompetitive horizontal agreements is still required. Although these issues are beyond the scope of my present dissertation, subsequent academic works should address these questions.

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