

INNOVATION CONCERNS IN HORIZONTAL MERGERS: EMPIRICAL EVIDENCE FROM BRAZILIAN MERGER CONTROL¹

*Preocupações de inovação em fusões
horizontais: evidência empírica do controle de
fusões brasileiro*

Marcos Puccioni de Oliveira Lyra²

Universidade Federal Fluminense (UFF) – Niterói/RJ, Brasil

Camila Cabral Pires-Alves³

Conselho Administrativo de Defesa Econômica (Cade) – Brasília/DF, Brasil

STRUCTURED SUMMARY

Objective: this paper investigates how Cade – the Brazilian antitrust authority – has addressed innovation concerns in merger assessments, using antitrust literature and the experiences of the United States and the European Commission as reference points.

Method: review of academic and institutional literature, data collection, and case studies.

Conclusions: although Cade follows the standard approach in its Guidelines used by the US and the European Commission, its experience with innovation concerns remains more limited than these jurisdictions. An innovation-specific assessment was conducted in only one case: Bayer/Monsanto (2018). In most cases, innovation was addressed within the standard analysis, often in an insufficient manner. The findings highlight the need to develop a local approach tailored to the Brazilian context,

¹ **Editor responsável:** Prof. Dr. Victor Oliveira Fernandes, Conselho Administrativo de Defesa Econômica (Cade), Brasília, DF, Brasil. **Lattes:** <http://lattes.cnpq.br/5250274768971874>. **ORCID:** <https://orcid.org/0000-0001-5431-4142>.

Recebido em: 15/01/2025 **Aceito em:** 13/06/2025 **Publicado em:** 25/06/2025

² Doutor em Economia (UFRJ – 2022), Professor Adjunto (Faculdade de Economia - UFF), Pesquisador do Gdec (Grupo de Direito, Economia e Concorrência – UFRJ), Pesquisador do NIETI (Núcleo de Estudos em Economia Industrial, Energia, Território e Inovação – UFF).

E-mail: marcoslyra@id.uff.br. **Lattes:** <https://lattes.cnpq.br/5480977221377907>.
ORCID: <https://orcid.org/0000-0003-4427-1147>

³ Doutora em Economia (UFRJ – 2010), Conselheira do Conselho Administrativo de Defesa (Cade). Está cedida ao Cade pela UFRJ, onde é Professora Associada (Instituto de Economia – UFRJ) e Pesquisadora do Gdec (Grupo de Direito, Economia e Concorrência – UFRJ).

E-mail: camila.alves@cade.gov.br. **Lattes:** <http://lattes.cnpq.br/4687008805056384>.
ORCID: <http://orcid.org/0000-0001-7888-3235>.

as much of the current discussion relies on foreign case law. Finally, no significant evolution was observed between 2015 and 2022.

Keywords: competition policy; horizontal mergers; innovation concerns; Brazil; Cade

RESUMO ESTRUTURADO

Objetivo: investigar como o Cade – a autoridade antitruste brasileira – tem discutido as questões de inovação na avaliação de atos de concentração, tomando como ponto de partida a literatura antitruste e as experiências dos EUA e da Comissão Europeia.

Método: revisão de literatura acadêmica, revisão de publicações institucionais, levantamento de dados e estudos de casos.

Conclusões: apesar de o Cade seguir a análise padrão em seu Guia para a Análise de Fusões Horizontais usada por EUA e Comissão Europeia, sua experiência é mais limitada do que estas jurisdições. Uma avaliação específica de inovação foi utilizada apenas em Bayer/Monsanto (2018). Na maioria dos casos, a inovação foi endereçada por meio da análise padrão, muitas vezes de forma insuficiente. Os resultados destacam a necessidade de desenvolver uma abordagem local adaptada ao contexto brasileiro, visto que grande parte da discussão atual se baseia em jurisprudência estrangeira. Por fim, não foi observada evolução significativa entre 2015 e 2022.

Palavras-chave: defesa da concorrência; fusões horizontais; preocupações de inovação; Brasil; Cade.

JEL Classification: L40.

Summary: 1. Introduction; 2. Innovation Concerns in Horizontal Merger Assessment; 3. The United States and European Commission Experiences; 4. Innovation Concerns in Brazilian Merger Control; 5. Concluding Remarks; References.

1 INTRODUCTION

The assessment of innovation competition in merger cases poses a significant challenge for antitrust authorities. From the innovation markets introduced by US Merger Control in the 1990s to the European Commission's recent four-layer competitive assessment⁴, authorities have applied new procedures to properly address innovation concerns. Interestingly, these alternative approaches are not explicitly outlined in their respective Horizontal Merger Guidelines (HMGs). Instead, the HMGs of the US, the European Commission, and Brazil primarily emphasize the standard merger analysis focused on product market competition.

⁴ There is a great number of publications discussing Dow/Dupont (2017), the first case to be assessed under the four-layer competitive assessment, specifically or its impact on EU Merger Control in general. See: Petit (2017, 2018, 2019), Denicolò and Polo (2018), Mosso (2018), Padilla (2019), Jung and Sinclair (2019), Chadha (2019), Suijkerbuijk (2019), Kokkoris and Valletti (2020), Kokkoris (2020), Lyra and Pires-Alves (2023).

Addressing innovation competition requires careful consideration. Innovation outcomes are uncertain, and competition in innovation occurs in diverse ways, demanding different analytical approaches. Traditional tools such as concentration indices and market shares have become less useful in cases involving innovation. Despite the complexity, assessing innovation competition is crucial in some instances, as inadequate evaluations can undermine innovation incentives.

Empirical studies by Gilbert and Greene (2015) and Kern, Dewenter and Kerber (2016) have shown that US authorities have considered innovation concerns - defined as changes in the standard analysis steps due to innovation dynamics or the use of alternative approaches - in about one-third of the challenged mergers between 1995 and 2014. Similarly, the European Commission began developing this perspective more explicitly after the Dow/DuPont case (2017)⁵. However, no such empirical analysis exists for Brazil, highlighting the need to explore how innovation concerns are addressed in Brazilian Merger Control. This paper aims to fill that gap by applying a different empirical strategy: examining how innovation is considered at each stage of the analysis.

This paper investigates the extent to which Brazilian merger control considers innovation concerns in horizontal mergers. These concerns arise in two scenarios: (i) when an alternative approach beyond the standard analysis is used - referred to here as an “innovation-specific assessment” - and (ii) when innovation is considered within the standard analysis.

After this introduction, the second section is dedicated to present how innovation may influence each step of the standard analysis, focusing on the HMGs of the US, the European Commission, and Brazil. We then examine how the US and the European Commission have addressed innovation concerns in practice, based on empirical literature. In the fourth section, we investigate how innovation concerns have been addressed by the Conselho Administrativo de Defesa Econômica (Cade) in merger cases decided between 2015 and 2022 - a period selected due to the availability of digital records⁶. The analysis focuses on cases decided by Cade’s Tribunal, as these involve recommendations for blocking or approving mergers with remedies issued by the General Superintendence.

Finally, the paper concludes by showing that innovation concerns were addressed in only 21 cases reviewed by the Tribunal between 2015 and 2022 (representing 16,5% of all cases reviewed). Of these, only one involved an innovation-specific assessment. In the remaining cases, innovation concerns were considered within the standard framework and generally in a limited way.

2 INNOVATION CONCERNS IN HORIZONTAL MERGER ASSESSMENT

Competition is a multifaceted concept, and understanding it thoroughly requires analyzing firms’ market behavior beyond price and quantity strategies. These include improving product quality, offering a wider variety of products, among others. Among these competitive tactics, innovation efforts are fundamental. They can lead to new or improved processes and products, boosting demand and profit margins for successful innovators. Schumpeter (1942) emphasized how competition has two dimensions: a passive (static price competition) and an active one (dynamic innovation competition), the latter of which transforms the economic structure itself.

5 Case COMP/M. 7932 (EC 2017).

6 2015 is the first year that Cade’s documents are totally available in searchable digital format, justifying the choice of period.

Innovation concerns play a dual role in merger analysis. First, it may influence the assessment of mergers conducted under the standard analysis. When merging firms compete in a product market, innovation may affect how mergers impact prices, quality, entry barriers, among other factors. Second, innovation becomes the central concern when the merger affects an innovation market - requiring an innovation-specific assessment, which we will discuss further below.

The standard analysis of horizontal mergers focuses on competition within a relevant product market, typically defined through the Hypothetical Monopolist Test (HMT)⁷. In the assessment of competitive significance stage, authorities consider market shares and concentration indices, such as the Herfindahl-Hirschman Index (HHI)⁸, as proxies for market power. However, in markets with highly differentiated⁹ or innovative products, these structural indicators lose explanatory power. Regarding the latter, it is important to notice that the relationship between market concentration and innovation remains inconclusive in the literature¹⁰. Both the US and European HMGs acknowledge this complexity and advise caution when interpreting concentration metrics in innovation-driven markets (DOJ; FTC, 2010, p. 16-17; European Commission, 2004, p. 6).

The next step, assessing unilateral effects, examines a firm's increased ability to exercise market power post-merger. While price effects dominate this analysis, innovation may also be affected. For instance, innovation-intensive industries often have high entry barriers (such as Research and Development - R&D - investment), and there may be rivalry more on innovation than price (European Commission, 2004, p. 12; Cade, 2016a, p. 27). The US HMG explicitly discusses unilateral innovation effects (DOJ; FTC, 2010).

In this paper, we define negative innovation effects as reductions in incentives to innovate post-merger - whether by the merged entity or its rivals.¹¹ According to Kokkoris and Valletti (2020), these effects may take two forms: (i) decreased incentives to continue ongoing innovation efforts, possibly delaying and/or interrupting these efforts and (ii) reduced incentives to initiate new innovation, resulting in less innovation in the future¹².

7 The Hypothetical Monopolist Test (HMT) checks whether a hypothetical monopolist could profitably apply a small but significant non-transitory increase in price (SSNIP). If such an increase is profitable, the market is well-defined; otherwise, the test is remade adding other products or geographic areas to the hypothetical monopolist until the price increase becomes profitable (DOJ; FTC, 2010, p. 7-15)

8 The Herfindahl-Hirschman Index is calculated by summing the squared markets shares of all firms in the product market and used as an indicative of the level of concentration in that product market.

9 With homogenous products, there is a direct relation in the Cournot model between market power and the HHI which supports the screening role of structural variables. With differentiated products, factors like cross elasticity of demand and diversion ratios - defined as a fraction of sales diverted to another producer due to a price increase (DOJ; FTC, 2010, p. 21) - play a role in determining substitutability between the products of merging parties (Cade, 2016a, p. 36-37).

10 The well-known Arrow-Schumpeter controversy indicates two different positions on the relation between structure and innovation, as Arrow (1962) presents a model which indicates that competitive firms have higher incentives to engage in innovation efforts to escape competition than monopolists, while Schumpeter (1942) emphasizes that larger firms would be more likely to innovate. This debate has both theoretical and empirical work, but the latter did not provide a definitive answer to this debate.

11 Another way of assessing harm to innovation is the through the elimination of parallel research efforts, the Diversity Argument, connected to the evolutionary approach (Jorde; Teece, 1990; Farrell, 2006; Sidak and Teece, 2009). A greater number of innovation efforts increases the probability of at least one getting to the market, allowing a better functioning of the role of the market as a selector of innovation and, as Farrell (2006) states, a diversity of approaches is beneficial in itself.

12 These channels are similar to the unilateral innovation effects present in the 2010 US Horizontal Merger Guidelines, as the HMG includes a subsection dedicated to innovation in the unilateral effects section, mentioning two channels of innovation effects: (i) if a merging party is engaging in innovation efforts that could divert sales from the other, and (ii) when firms have similar innovation capabilities, which could capture sales from each other, resulting in longer-term innovation harm (DOJ; FTC,

Coordinated effects are also analyzed, assessing whether firms may be more likely to coordinate post-merger. Innovation can disrupt coordination, making collusion less feasible (European Commission, 2004, p. 10; DOJ; FTC, 2010, p. 26). However, coordination may also suppress innovation (Cade, 2016a, p. 40).

The final stage of the standard analysis is the assessment of countervailing efficiencies, which can offset anticompetitive effects. Mergers may generate innovation-related efficiencies through synergies, technology transfers, or increased R&D productivity (Bena; Li, 2014, p. 195; Federico; Morton; Shapiro, 2020, p. 134).

Cade also discusses the elimination of a maverick - a firm that typically has low production costs and prices, driving market prices down, and/or is an innovative firm that fosters ongoing industry innovation (Cade, 2016a, p. 47). Such elimination can have various effects, including a potential reduction in innovation.

To summarize, innovation can be considered in several steps of the standard analysis. Brazilian HMGs acknowledge innovation as a factor in (i) entry barriers, (ii) coordinated effects, and (iii) efficiencies (Cade, 2016a, p. 27-47). Likewise, the European Commission 2004 Horizontal Merger Guidelines (2004) is cautious when it comes to innovation concerns, including elements such as: (i) considering less innovation as anticompetitive effects; (ii) revising the role of market shares as indicators of competitive significance; (iii) discussing the dual effect of mergers on innovation when debating innovation effects, pointing out that innovation makes coordination harder; (iv) recognizing innovation and R&D as barriers to entry; and (v) acknowledging R&D and innovation-related countervailing efficiencies. The US 2010 HMG discusses innovation in several aspects: (i) relativizing the role of shares and concentration indices; (ii) discussing that enhanced market power may lead to reduced innovation; (iii) presenting unilateral innovation effects (addressed in more detail in the next subsection); (iv) considering that coordination may be less likely; and (v) debating countervailing efficiencies (DOJ; FTC, 2010).

Based on standard analysis, some mergers involve direct competition in innovation markets, where innovation is the primary competitive dimension. This requires an innovation-specific assessment, including the definition of a relevant innovation market and identification of rivals capable of innovating. Both the US and EU have conducted such assessments, as we explore in the next section.

3 THE UNITED STATES AND EUROPEAN COMMISSION EXPERIENCES

The first innovation market case in the United States was Roche/Genentech (FTC – 1990) (Gilbert; Sunshine, 1995, p. 586). Although innovation-related concerns had appeared earlier, such as in Dynamics/United Electric Coal Companies (1974), dynamic considerations became more prominent starting with the 1992 edition of the US Horizontal Merger Guidelines (Glader, 2006, p. 60–68). The mid-1990s marked a turning point for innovation in US antitrust policy. While only four cases were challenged on innovation grounds between 1990 and 1994 (3% of all challenged cases), this number rose to 47 cases between 1995 and 1999 (17.5%) (Gilbert; Tom, 2001, p. 44). This shift is linked to the

2010, p. 23-24).

adoption of Innovation Market Analysis (IMA) (Gilbert; Sunshine, 1995), a form of innovation-specific assessment applicable to R&D-based competition, including pipeline competition.

More recently, two empirical studies have explored how US merger authorities address innovation. Gilbert and Greene (2015) analyzed the frequency and treatment of innovation concerns in merger challenges by the FTC and DOJ between 2004 and 2014. Using agency complaints and other public documents, they identified cases where “innovation” or “research and development” were mentioned in discussions of competitive effects or market structure, including cases assessed both through the standard and innovation-specific assessment. Cases were further categorized based on whether innovation was merely mentioned or substantively discussed. Of the 250 challenged mergers, 84 (33.6%) included innovation concerns¹³. Roughly half of those elaborated on the nature of harm to innovation, while the others provided only brief references. The study also found a correlation between R&D intensity and the likelihood of innovation-related challenges.

Similarly, Kern, Dewenter and Kerber (2016, p. 6) studied the presence of innovation concerns in US merger enforcement between 1995 and 2008. They identified relevant cases by both searching for keywords such as “research, development, manufacture, and sale of [...]” in market definition and through an explicit discussion of competitive effects. Their analysis included both standard and innovation-specific assessments, specifically investigating the presence of the latter using the presence of innovation concerns in market definition as criterion. Among 399 challenged mergers, 135 (33,8%) involved innovation concerns. In total, 341 relevant markets were reviewed in these cases, with 323 showing innovation-related aspects. Of these: 222 markets included innovation in the market definition (approx. 68,8%); 255 included innovation in the assessment of anticompetitive effects (approx. 78,9%); 105 markets featured arguments related to innovation incentives (approx. 32,5%); 23 cited innovation diversity concerns (approx. 7,1%)¹⁴. The study also noted the use of concentration measures in these markets: HHI or market shares (50,2%), number of firms (38,4%), and non-quantitative indicators (25,1%)¹⁵.

In the European Union, innovation played a marginal role in merger assessments under the 1989 EC Merger Regulation. Although the 2004 Horizontal Merger Guidelines introduced some references to innovation, a more substantive shift occurred with the Dow/DuPont case (2017), which marked the beginning of a new analytical framework: the four-layer competitive assessment¹⁶. It investigates overlaps regarding: (i) price/product competition involving incumbent products; (ii) price/product competition considering late-stage pipeline projects (an overlap between a marketed product and a late-stage pipeline product or between late-stage pipeline products); (iii) innovation competition involving pipeline products in earlier stages (which depend on innovation incentives to finish developing); (iv) innovation competition related to capabilities to innovate in certain innovation spaces¹⁷ (European Commission,

13 The authors also discuss the differences between the two agencies in several topics. Regarding the frequency of innovation concerns, the FTC challenged 164 mergers in this period, with 54 of them alleging harm to innovation (around 32.9%). The DoJ challenged only 86 cases, with 30 alleging harm to innovation (around 34,9%) (Gilbert; Greene, 2015, p. 1933).

14 For a brief presentation of the diversity argument, see *supra* note 8.

15 The authors also discuss: (i) the differences between both US Agencies in all the issues assessed; (ii) difference of the topics assessed over time (comparing the 1995-2003 and 2004-2008 periods) and (iii) the relation of innovation concerns and R&D intensity.

16 The Commission did not use the term four-layer competitive assessment in Dow/Dupont but used it in other two cases assessed under this framework: Bayer/Monsanto (2018) and AbbVie/Allergan (2020). See Lyra and Pires-Alves (2023, p. 9-10).

17 We can understand the notion of competition over innovation spaces as competing over discovery targets, *i.e.*,

2020, p. 5-6). In Dow/DuPont, the European Commission identified overlaps not only in product markets but also in early pipeline projects and lines of research, and (ii) global R&D integrated organizations, i.e., firms with the necessary capabilities to exert competitive pressure.

Mosso (2018) discussed qualitative aspects of innovation in EU merger control and provided statistics for 2015–2017. During this period, the EC received over 1,070 merger notifications and intervened in 73 cases (approx. 6,8%). Of these, 10 (13,7%) involved innovation concerns. These cases typically fell into two categories: mergers involving pipeline products and those affecting early-stage innovation.

In conclusion, both US and European authorities have developed innovation-specific assessments. While the US approach is well documented through empirical studies, the European Commission has more recently expanded its analytical toolkit. Without attempting to replicate these studies, the next section examines Brazil's experience with innovation concerns in merger control.

4 INNOVATION CONCERNS IN BRAZILIAN MERGER CONTROL

As explored in this paper, the US, EU, and Brazilian Horizontal Merger Guidelines primarily focus on the standard analysis and incorporate innovation concerns to some extent. However, while we know that the US and EU have implemented innovation-specific assessments in certain cases, Brazil lacks empirical studies on this subject. This section aims to address that gap.

The first subsection outlines the institutional framework of Brazilian Merger Control, followed by a description of our methodology in the second subsection, while the last one presents our results and discussion.

4.1 Brazilian Merger Control Framework

Cade operates under Law 12.529/2011, which came into force in May 2012. This framework is supplemented by guidelines, including the 2016 Guide for Horizontal Merger Review, referred to as the Brazilian Horizontal Merger Guidelines (HMG).

The review process begins with Cade's General Superintendence (SG), the investigative body, which first decides whether the merger should follow a simplified or ordinary procedure. The simplified procedure applies to transactions with minimal competitive impact and results in a quicker decision by the SG¹⁸. In contrast, the ordinary procedure involves a more detailed investigation. SG can approve a merger unconditionally, recommend its prohibition, or suggest conditional approval. If a prohibition or conditions are recommended, the final decision is made by Cade's Tribunal, which consists of six commissioners and a president. Additionally, even in cases where SG approves a merger, the case may

widening the reach of the analysis of overlaps involving pipeline competition to look at competition in steps before pipeline stages, such as the discovery and development phases (Petit, 2019, p. 878-881).

18 Resolution nº 2/2012 explains that the possibility of assessing a case under the simplified procedure is dedicated to cases with minor potential to harm competition. The decision to apply this procedure is discretionary, but need to fit cases such as when: (i) a joint venture is formed to act in a market in which there is no horizontal or vertical relation to the parties; (ii) when the acquirer did not previously act in the markets affected by the merger or the ones vertically related; (iii) the merged entity would have 20% or less market share when there is a horizontal overlap; (iv) the merged entity would have 30% or less market share in any of the affected markets when there is vertical integration.; (v) mergers which result is a variation of less than 200 point in the HHI (if the resulting market share is less than 50%); and (vi) other cases not addressed by the previous criteria but considered simple enough by the SG (Cade, 2012, p. 3-5).

be brought before the Tribunal through an appeal or at the request of a commissioner¹⁹.

4.2 Methodology

The Brazilian HMG recognizes innovation in standard merger assessments, particularly regarding entry conditions, coordinated effects, efficiencies, the elimination of maverick firms, and innovation slowdowns as potential anticompetitive effects. However, it does not address innovation-specific assessments - that is, cases in which a relevant innovation market is defined, and competition occurs outside the traditional product market. Law 12.529/2011 also identifies the promotion of technical development as a condition for approving mergers, implicitly linking merger review to innovation (Brasil, 2012).

To assess how innovation concerns are addressed in Brazil, we examined Cade decisions from 2015 to 2022²⁰, searching for cases involving either innovation-specific assessments or discussions of innovation within the steps of the standard analysis. We used keywords related to innovation - such as “innovation”, “innovator”, “innovative”, “research and development”, “pipelines”, “patent”, “patented” along with its plural and gender variations²¹. We reviewed both commissioners’ decisions and opinions, as well as the SG’s advisory opinions.

Our analysis focused exclusively on cases decided by the Tribunal, which typically involve greater scrutiny and recommendations for remedies or prohibition²². This choice aligns our approach with the US and EU studies while reflecting Brazil’s institutional context. After filtering and discarding irrelevant cases²³, we identified 21 relevant merger cases involving innovation concerns. These are listed in Table 1²⁴.

19 According to the Statutes of Cade, if the SG approves a merger, within 15 days another player (or a regulatory agency if the sector is regulated) may appeal and a member of the Tribunal may bring the case under its direct review (Cade, 2021, p. 41).

20 Our analysis starts in 2015 due to the availability of data in digital format. See *supra* note 3.

21 The exact terms searched in Portuguese are: *inovação, inovações, inovador, inovadores, inovadora, inovadoras, inovativo, inovativos, inovativa, inovativas, pesquisa e desenvolvimento, pipeline, pipelines, patente, patentes, patenteado, patenteados, patenteada, patenteadas*.

22 We also included the cases which went to the Tribunal due to being contested, but only the ones in which the court considered the appeal and assessed it in its merits (even the cases in which the final decision was the same as the one presented by the SG).

23 A frequent situation for discarding the case was the word innovation appearing in a generic description of which are the possible outcomes of an increase in concentration in the beginning of the analysis of the likelihood of anticompetitive effects section, without considering innovation after all.

24 Among the 20 cases, only Brink’s/Rodoban (2018) was assessed by the Tribunal due to an appeal by a rival. The other nineteen either the SG recommended blocking/approving under conditions or called to the Tribunal by a commissioner.

Table 1 - Mergers with innovation concerns decided by Cade's Administrative Tribunal (2015-2022) - Parties, Case Number, Year and Sector²⁵

| Parties | Year | Case Number | Sector |
|---|------|----------------------|-------------------------|
| Dabi Atlante/Gnatus | 2015 | 08700.001437/2015-70 | Dental Products |
| Tigre/Condor | 2015 | 08700.009988/2014-09 | PVC Solutions |
| Continental/Veyance | 2015 | 08700.004185/2014-50 | Automotive |
| GSK/Novartis | 2015 | 08700.008607/2014-66 | Pharmaceutical |
| SBT/Record/Rede TV! | 2016 | 08700.006723/2015-21 | Media and entertainment |
| Reckitt Benckiser/Hypermarcas | 2016 | 08700.003462/2016-79 | Sexual Welfare |
| Saint-Gobain/SiCBRAS | 2016 | 08700.010266/2015-70 | Construction Materials |
| Halliburton/Baker Hughes | 2016 | 08700.007191/2015-40 | Oil and Gas |
| Bradesco/Banco do Brasil/Santander/Caixa Econômica/Itaú | 2016 | 08700.002792/2016-47 | Financial |
| Itaú/Citibank | 2017 | 08700.001642/2017-05 | Financial |
| Ipiranga/Alesat | 2017 | 08700.006444/2016-49 | Oil and Gas |
| John Deere/Monsanto | 2017 | 08700.000723/2016-07 | Agricultural Machinery |
| Brink's/Rodoban | 2018 | 08700.000166/2018-88 | Logistics and Security |
| Itaú/XP | 2018 | 08700.004431/2017-16 | Financial |
| Bayer/Monsanto | 2018 | 08700.001097/2017-49 | Biotechnology |
| International Business Machines Corporation (IBM)/Red Hat | 2019 | 08700.001908/2019-73 | Software |
| Disney/Fox | 2019 | 08700.004494/2018-53 | Media and entertainment |
| Stone/Linx | 2021 | 08700.003969/2020-17 | Financial Services |
| Danfoss/Eaton | 2021 | 08700.003307/2020-39 | Hydraulic components |
| Hypera/Takeda | 2021 | 08700.003553/2020-91 | Pharmaceutical |
| Rede D'Or/SulAmérica | 2022 | 08700.003959/2022-35 | Health Insurance |

Source: authors elaboration (2024).

These 21 cases span various sectors, including pharmaceuticals, biotechnology (typically linked to pipeline innovation), and media/entertainment (where innovation does not follow structured pipelines). The next section analyzes these cases in detail.

4.3 Results and Discussion

We analyzed 21 merger cases in which innovation concerns were present between 2015 and 2022. These cases represent approximately 16,5% of the 127 total Tribunal cases in the period. It is important to note that our definition of innovation concerns is broader than in previous US studies, as it includes both innovation-specific assessments and innovation considerations within the standard analysis. Therefore, results are not directly comparable.

Only one case involved an innovation-specific assessment: Bayer/Monsanto (2018)²⁶. In this case, Cade defined the relevant market based on innovation dynamics²⁷. The SG's report addressed innovation concerns in several dimensions, including: concentration metrics; entry conditions (specifically the time required to enter the market through R&D); innovation-based rivalry and the

²⁵ All Cade's public proceedings mentioned in this article can be found at: <https://x.gd/ONDMz>.

²⁶ Case 08700.001097/2017-49.

²⁷ The definition of many of the markets assessed in this case had words such as the "development of", "improvement of" and "licensing of".

competitive relevance of R&D investments; unilateral innovation effects.

The SG identified four potential innovation-related harms involving soy and cotton seeds: (i) the discontinuation, interruption, or redirection of ongoing innovation projects; (ii) a long-term reduction in the firms' incentives to initiate new innovation efforts; (iii) possible decline in R&D incentives for other firms in the market; (iv) an increase in entry barriers for competitors due to the merged firm's dominant position, resulting in less incentives to enter the market²⁸.

These effects correspond to the two channels of harm outlined by Kokkoris and Valletti (2020): reduced incentives to continue innovation efforts and diminished incentives for future innovation efforts. Countervailing efficiencies were also discussed in this case. The European Commission assessed Bayer/Monsanto using the four-layer competitive assessment framework, suggesting alignment in the concerns addressed.

The remaining 20 cases were reviewed under the standard analysis but still raised innovation concerns. Six of them addressed unilateral innovation effects, mostly related to the potential reduction in incentives to innovate post-merger. In SBT/Record/Rede TV! (2016)²⁹, a joint venture involving three TV broadcasters was created to license channels to cable companies. One commissioner raised concerns about reduced incentives for new content creation; another countered that such efforts would naturally occur due to competition with Globo, the market leader. In Disney/Fox (2019)³⁰, movie theater chains claimed that the acquisition might reduce innovation in film production. The SG investigated these effects. In Itaú/XP (2018)³¹, a traditional Brazilian bank acquired a minority stake in XP, an innovative, disruptive financial platform. XP's role as a maverick reduced the relevance of HHI in the analysis. One commissioner raised concerns about removing an innovative maverick. The SG noted Brazil's lack of tools to properly assess innovation in mergers and referenced ongoing developments in other jurisdictions. In John Deere/Monsanto (2017)³², the SG cited the DOJ's complaint and third-party concerns to examine innovation-based rivalry. The merger was seen by Cade as potentially reducing innovation. In Halliburton/Baker Hughes (2016)³³, the SG recognized the existence of innovation competition and the risk that the merger would reduce innovation efforts³⁴. In Rede D'Or/SulAmérica (2022)³⁵, a competitor argued that the merger would reduce innovation. The Tribunal ultimately rejected this claim³⁶.

Countervailing efficiencies, positive innovation effects, were discussed in five cases: Stone/Linx (2021)³⁷, John Deere/Monsanto (2017), Reckitt Benckiser/Hypermarcas (2016)³⁸, Tigre/Condor

28 Annex to the Report No. 9/2017 in Merger Case nº 08700.001097/2017-49 (Bayer/Monsanto), p. 99-144.

29 Case 08700.006723/2015-21.

30 Case 08700.004494/2018-53.

31 Case 08700.004431/2017-16.

32 Case 08700.000723/2016-07

33 Case 08700.007191/2015-40.

34 Technical Note No. 41/2015 in Merger Case nº 08700.007191/2015-40 (Halliburton/Baker Hughes).

35 Case 08700.003959/2022-35.

36 Opinion of Commissioner Victor Fernandes in Case nº 08700.003959/2022-35 (Rede D'Or/SulAmérica).

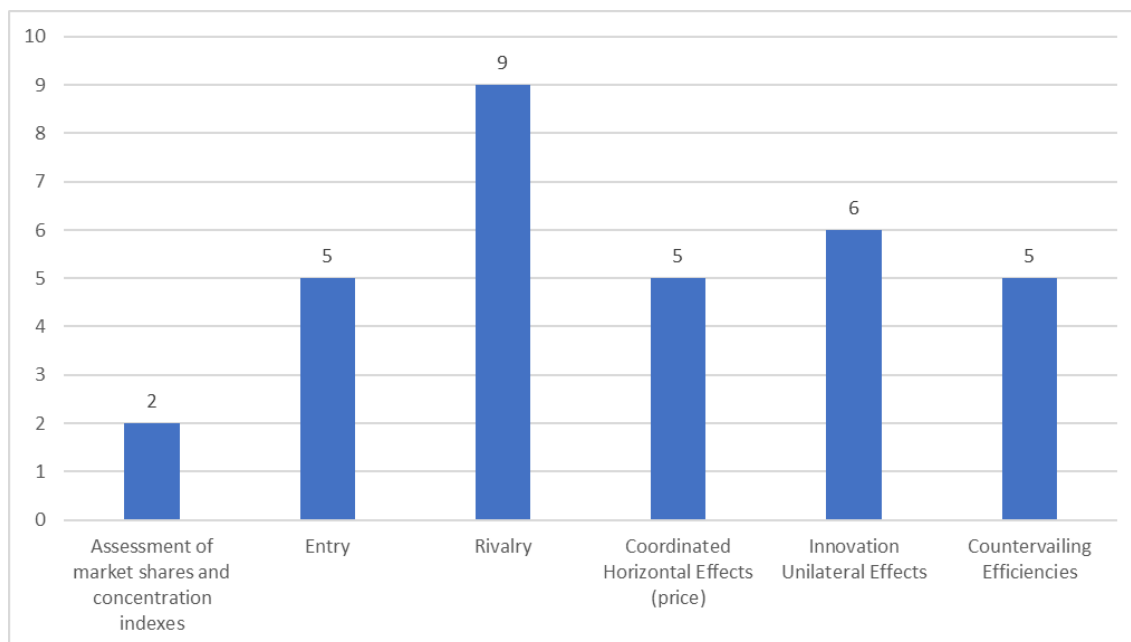
37 Case 08700.003969/2020-17.

38 Case 08700.003462/2016-79.

(2015)³⁹, Bradesco/Banco do Brasil/Santander/Caixa Econômica/Itaú (2016)⁴⁰.

We can now proceed to discuss the 20 cases assessed solely under the standard analysis to identify in which steps innovation played a role. These are summarized in Graphic 1.

Graphic 1- Standard analysis steps where innovation concerns were raised in merger cases decided by Cade's Administrative Tribunal (2015–2022)



Source: authors elaboration (2024).

First, in two cases, innovation influenced the interpretation of concentration and market shares. For instance, in John Deere/Monsanto, innovation was claimed to be the reason behind John Deere's leadership, while in Itaú/XP, XP's maverick status weakened the relevance of HHI. Second, in five cases innovation affected entry analysis. Patents (five cases), R&D spending (two), and time to market (one) were noted. Third, in nine cases, innovation influenced rivalry analysis. In three of them there was a debate on whether a firm could be considered a maverick, while in others, rivalry was innovation-based, or it could stimulate innovation in the market. Fourth, in five cases, the effect of firms' innovation efforts on coordinated effects (in price) likelihood was discussed. In five cases unilateral innovation effects were discussed. Finally, in five cases countervailing efficiencies were discussed⁴¹.

Table 2 maps all 21 cases - including Bayer/Monsanto, that was assessed under an innovation-specific assessment - to the respective steps of the merger analysis where innovation was considered.

39 Case 08700.009988/2014-09.

40 Case 08700.002792/2016-47.

41 Another comment is that in four cases (including Bayer/Monsanto) there is innovation-related non-horizontal effects discussion regarding market foreclosure, which is not the object of this paper.

Table 2 – All Innovation concerns identified in mergers decided by Cade’s Administrative Tribunal (2015-2021)

| | Innovation market definition | Assessment of market shares and concentration indexes | Entry | Rivalry | Coordinated Horizontal Effects (price) | Innovation Unilateral Effects | Countervailing Efficiencies |
|---|------------------------------|---|-------|---------|--|-------------------------------|-----------------------------|
| GSK/Novartis (2015) | | | | | | | |
| Dabi Atlante/Gnatus (2015) | | | | | | | |
| Tigre/Condor (2015) | | | | | | | |
| Continental/Veyance (2015) | | | | | | | |
| SBT/ Record/RedeTV! (2016) | | | | | | | |
| Halliburton/Baker Hughes (2016) | | | | | | | |
| Bradesco/Banco do Brasil/Santander/Caixa Econômica/Itaú Unibanco (2016) | | | | | | | |
| Reckitt Benckiser/Hypermarcas (2016) | | | | | | | |
| Saint-Gobain/SICBRAS (2016) | | | | | | | |
| Ipiranga/Alesat (2017) | | | | | | | |
| John Deere/Monsanto (2017) | | | | | | | |
| Itaú/Citibank (2017) | | | | | | | |
| Brink’s/Rodoban (2018) | | | | | | | |
| Bayer/Monsanto (2018) | | | | | | | |
| Itaú/XP (2018) | | | | | | | |
| Disney/Fox (2019) | | | | | | | |
| IBM/Red Hat (2019) | | | | | | | |
| Stone/Linx (2021) | | | | | | | |
| Danfoss/Eaton (2021) | | | | | | | |
| Hypera/Takeda (2021) | | | | | | | |
| Rede D’Or/SulAmérica (2022) | | | | | | | |

Source: authors elaboration (2024).

Overall, our findings suggest that Brazilian merger control has a limited track record in addressing innovation concerns. Although Bayer/Monsanto illustrates an exception when applying an innovation-specific assessment, some cases involved only brief or indirect references to innovation. That said, the presence of innovation discussions in multiple steps of the analysis reflects a growing awareness of its importance.

5 CONCLUDING REMARKS

Assessing innovation concerns in horizontal mergers remains a significant challenge for antitrust authorities. While the standard merger analysis framework captures some innovation effects, it often falls short in fully addressing innovation-related harms. The Horizontal Merger Guidelines of the US, European Commission, and Brazil acknowledge innovation to some extent when applying their standard analyses in some steps. However, empirical practice tells a more nuanced story.

The US and EU have advanced beyond the standard analysis in select cases. The US has considered innovation markets since the 1990s and has generated substantial empirical evidence on its case law. The European Commission, in turn, has developed an innovation-specific assessment framework, exemplified by the four-layer competitive assessment introduced in Dow/DuPont (2017).

In Brazil, our research reveals four key findings. First, Cade primarily relies on standard analysis, like its US and EU counterparts, with innovation concerns occasionally considered within certain steps. Second, its experience with innovation-specific assessments is limited: only one case (Bayer/Monsanto, 2018) featured an innovation-specific approach with detailed analysis of innovation dynamics. Fourth, there is a clear need for a locally adapted analytical approach to address innovation, particularly given that many assessments rely heavily on foreign case law or comparative references. For instance, Itaú/XP (2018), a purely domestic case, highlighted the lack of analytical tools available to Cade in evaluating innovation concerns. Fourth, there has been no clear evolution in Cade’s approach between 2015 and 2022. Apart from the Bayer/Monsanto case, innovation discussions have remained superficial.

Some of this cautiousness may stem from the fact that many merging firms conduct their R&D activities outside Brazil. Nonetheless, as Itaú/XP demonstrates, innovation competition is not limited to global tech or pharmaceutical companies—it can be central to domestic markets as well.

The Bayer/Monsanto case provided a valuable precedent and internal learning opportunity for Cade. It may serve as a reference point for developing a more systematic approach to innovation in Merger Control. Considering the advances seen in other jurisdictions, particularly the EU, it is important that Cade further engages with this agenda and begins shaping its own tools and practices.

Future research could aim to develop an innovation-specific framework suited to the Brazilian context, including potential updates to the Horizontal Merger Guidelines. Additionally, empirical work focusing on how mergers in innovation-intensive sectors are assessed by Cade could deepen our understanding of the challenges and opportunities in evaluating innovation competition in Brazil.

REFERENCES

ADMINISTRATIVE COUNCIL FOR ECONOMIC DEFENSE (Cade). **Guide for Horizontal Merger Review**. Brasília, DF: Administrative Council for Economic Defense, 2016. Available at: <https://x.gd/rmCeIY>. Accessed on: Nov. 13 2024.

ADMINISTRATIVE COUNCIL FOR ECONOMIC DEFENSE (Cade). **Statutes of Cade**. Brasília, DF: Administrative Council for Economic Defense, 2021. Available at: <https://x.gd/AlDhw>. Accessed on: Nov. 13 2024.

BENA, Jan; LI, Kai. Corporate Innovations and Mergers and Acquisitions. **The Journal of Finance**, v. 69, n. 5, p. 1923-1960, 2014. Available at: <https://www.jstor.org/stable/43612948>. Accessed on: Apr. 5 2025.

BRASIL. **Lei nº 12.529, de 30 de novembro de 2011**. Estrutura o Sistema Brasileiro de Defesa da Concorrência; [...] e dá outras providências. Brasília, DF: Presidência da República, 2011. Available at: <https://tinyurl.com/2o94bhj2>. Accessed on: Apr. 5 2025.

CHADHA, Manav. Innovation Competition in EU Merger Control and Its Evolution in DOW/DuPont. **SSRN**, 2019. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3417572. Accessed on: Apr. 3 2025.

CONSELHO ADMINISTRATIVO DE DEFESA ECONÔMICA (Cade). **Resolução nº 2, de 29 de maio de 2012**. Disciplina a notificação dos atos de que trata o artigo 88 da Lei nº 12.529, de 30 de novembro de 2011, prevê procedimento sumário de análise de atos de concentração e dá outras providências. Brasília, DF, Cade, 2012. Available at: <https://x.gd/uvKn6>. Accessed on: Apr. 5 2025.

DENICOLÒ, Vincenzo; POLO, Michele. The innovation theory of harm: An Appraisal. **Università Bocconi**, i. 103, 2018. Available at: <https://x.gd/DQhYx>. Accessed on: Apr. 3 2025.

DEPARTMENT OF JUSTICE (DOJ); FEDERAL TRADE COMMISSION (FTC). **Horizontal Merger Guideines**. Washington, D. C.: DOJ, 2010. Disponível em: <https://x.gd/o54r7>. Accessed on: May 2 2025.

EUROPEAN COMMISSION. Case M.9461 - ABBVIE / ALLERGAN. Brussels: European Commission, 2020. Disponível em: https://ec.europa.eu/competition/mergers/cases/decisions/m9461_1187_3.pdf. Accessed on: Dec. 20 2024.

EUROPEAN COMMISSION. **Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings**. Brussels: European Union, 2004. Available at: <https://x.gd/E71cm>. Accessed on: Dec. 12 2024.

FARRELL, Joseph. Complexity, Diversity, and Antitrust. **The Antitrust Bulletin**, v. 51, i. 1, p. 165-173, 2006. DOI: <https://doi.org/10.1177/0003603X0605100107>. Available at: <https://x.gd/BsVZ6>. Accessed on: Apr. 5 2025.

FEDERICO, Giulio; MORTON, Fiona Scott.; SHAPIRO, Carl. Antitrust and Innovation: Welcoming and Protecting Disruption. **Innovation Policy and the Economy**, v. 20, p. 125-190, 2020. DOI: <https://doi.org/10.1086/705642>. Available at: <https://x.gd/xG7on>. Accessed on: Apr. 5 2025.

GILBERT, Richard J.; GREENE, Hillary. Merging Innovation into Antitrust Agency Enforcement of the Clayton Act. **George Washington Law Review**, v. 83, i. 6, p. 1919-1947, 2015. Available at: <https://x.gd/o2MfC>. Accessed on: Apr. 15 2025.

GILBERT, Richard J.; SUNSHINE, Steven C. Incorporating dynamic efficiency concerns in merger analysis: the use of innovation markets. **Antitrust Law Journal**, v. 63, n. 2, p. 569-601, 1995. Available at: <https://x.gd/Sufmk>. Accessed on: Apr. 15 2025.

GILBERT, Richard J.; TOM, Willard K. Is Innovation King at the Antitrust Agencies? The Intellectual Property Guidelines Five Years Later. **UC Berkeley, Center for Competition Policy**, Working Paper No. CPC01-20, 2001. Available at: <https://x.gd/mtuLI>. Accessed on: Apr. 15 2025.

GLADER, Marcus. **Innovation markets and competition analysis: EU Competition Law and US Antitrust Law**. Cheltenham: Edward Elgar, 2006.

JORDE, Thomas M.; TEECE, David J. Innovation and cooperation: implications for competition and antitrust. **Journal of Economic Perspectives**, v. 4, n. 3, p. 75-96, 1990. Available at: <https://x.gd/szk1R>. Accessed on: Apr. 15 2025.

JUNG, Nelson; SINCLAIR, Elizabeth. Innovation theories of harm in merger control: plugging a perceived enforcement gap in anticipation of more far-reaching reforms? **European Competition Law Review**, v. 40, i. 6, p. 266-275, 2019. Available at: <https://x.gd/jYRIH>. Accessed on: Apr. 15 2025.

KERN, Benjmin R.; DEWENTER, Ralf; KERBER, Wolfgang. Empirical analysis of the assessment of innovation effects in U.S. Merger cases. **Journal of Industry, Competition and Trade**, v. 16, n. 3, p. 373-402, 2016. Available at: <https://x.gd/7H8gq>. Accessed on: Apr. 15 2025.

KOKKORIS, Ioannis. Innovation considerations in merger control and unilateral conduct enforcement. **Journal of Antitrust Enforcement**, v. 8, n. 1, p. 56-85, 2020. DOI: <https://doi.org/10.1093/jaenfo/jnz021>. Available at: <https://x.gd/8fjDV>. Accessed on: Mar 12 2025.

KOKKORIS, Ioannis; VALLETTI, Tommaso M. Innovation Considerations in Horizontal Merger Control. **Journal of Antitrust Enforcement**, v. 16, n. 2, p. 220-261, 2020. DOI: <https://doi.org/10.1093/joclec/nhaa008>. Available at: <https://x.gd/oWkep>. Accessed on: Mar 12 2025.

LYRA, Marcos Puccioni de Oliveira; PIRES-ALVES, Camila Cabral. Innovation Competition and Innovation Effects in Horizontal Mergers: Theory and Practice in the United States and European Commission. **The Antitrust Bulletin**, v. 68, i. 3, 2023. DOI: <https://doi.org/10.1177/0003603X231182500>. Available at: <https://x.gd/zrsfr>. Accessed on: Mar 12 2025.



MOSSO, Carles Esteva. **Innovation in EU Merger Control**: Remarks prepared for the 66th ABA Section of Antitrust Law Spring Meeting, Washington. [S. l.]: European Commission, 2018. Available at: <https://x.gd/IKPKS>. Accessed on: Mar 12 2025.

PADILLA, Jorge. Revisiting the Horizontal Mergers and Innovation Policy Debate. **Journal of European Competition Law & Practice**, v. 10, i. 7, p. 463-471, 2019. DOI: <https://doi.org/10.1093/jeclap/lpz047>. Available at: <https://x.gd/cyefu>. Accessed on: Mar 12 2025.

PETIT, Nicolas. **Significant Impediment to Industry Innovation**: A Novel Theory of Harm in EU Merger Control? Portland: ICLE Antitrust & Consumer Protection Research Program, 2017. Available at: <https://x.gd/tPgG7>. Accessed on: Mar 12 2025.

PETIT, Nicolas. Innovation competition and merger policy: New? Not sure. Robust? Not quite! **Concurrences**, v. 2-2018, 2018. Available at: <https://x.gd/GZnqx>. Accessed on: Mar 12 2025.

PETIT, Nicolas. Innovation Competition, Unilateral Effects and Merger Policy. **Antitrust Law Journal**, v. 82, i. 3, p. 873-919, 2019. Available at: <https://www.jstor.org/stable/27006778>. Accessed on: Mar 12 2025.

SCHUMPETER, Joseph. **Capitalism, Socialism and Democracy**. New York: Harper Perennial Modern Thought, 1942.

SUIJKERBUIJK, M. **Innovation Competition in EU Merger Control**. Tilburg: Tilburg Law School, 2019.

SIDAK, Gregory J.; TEECE, David J. Dynamic competition in antitrust law. **Journal of Competition Law and Economics**, v. 5, n. 4, p. 581-631, 2009. Available at: <https://x.gd/2FcYx>. Accessed on: Mar 12 2025.