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Strategic Compliance under the Digital Markets Act: A Game-Theoretic Analysis

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Abstract

We develop a sequential game-theoretic model to analyze the compliance incentives of digital gatekeepers under the European Union's Digital Markets Act (DMA). A gatekeeper chooses between full compliance and strategic compliance – a strategy of tactical, superficially lawful implementation that preserves a larger share of monopoly rents. The European Commission decides whether to accept the gatekeeper's compliance or initiate enforcement proceedings. Using backward induction, we show that in high-impact markets, the gatekeeper's equilibrium strategy is strategic compliance, investing in legal complexity to deter enforcement. In low-impact markets, full compliance is the equilibrium outcome. We extend the base model by endogenizing the Commission's enforcement incentives, modeled as increasing in the fine imposed, and derive conditions under which raising fines may paradoxically fail to induce full compliance. The model contributes to an emerging literature on regulatory compliance in digital markets and identifies the negotiation-oriented nature of DMA enforcement as a key determinant of strategic gatekeeper behavior.

Keywords: antitrust, Digital Markets Act (DMA), gatekeeper, platform regulation, strategic compliance

JEL Classification: C72, K20, K21, L40, L51, L86, M21

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1 Introduction

With the introduction of the Digital Markets Act (DMA) (Regulation (EU) 2022/1925) in 2022, the European Union (EU) initiated a regime change in the regulation of corporate behavior in the digital economy. Instead of relying exclusively on competition law and its enforcement, the EU established a regulatory regime that directly defines interventions in company conduct to protect the fairness and contestability of digital markets. Dissatisfied with the length and outcomes of multiple abuse-of-dominance proceedings conducted by European competition law enforcers – the European Commission (EC) and the national competition authorities – the EU aimed to establish a set of self-executing rules of conduct intended to prevent harm from the market power of large online platforms without lengthy proceedings and, ideally, before it materializes (Recitals 5 and 7). The DMA thus departs from the traditional competition law approach in several regards:

(i) instead of relying on ex-post intervention against the abuse of market power (the competition law approach), it switches to an ex-ante regulation of prescribed gatekeeper conduct (Bougette et al., 2025; Budzinski & Mendelsohn, 2022),

(ii) instead of relying on a decentralized enforcement network of competition authorities, it assigns exclusive enforcement power to the EC (Podszun, 2023; Schweitzer, 2021),

(iii) instead of a general prohibition clause that is specified by examples but principally open regarding the regulated conduct, such as the general prohibition of the abuse of a dominant market position in competition law, the DMA defines closed lists of prescribed and prohibited practices for so-called gatekeepers, that is companies designated under Article 3 DMA on account of their significant impact on the internal market, their role as an important gateway between business users and end users, and their entrenched and durable position (Akman, 2021; Bostoen, 2023; Petit, 2021; Scott Morton & Caffarra, 2021)

(iv) instead of analyzing each suspicious conduct regarding its specific effects on market competition and welfare (the effects-based approach of competition law), the DMA's rules of conduct apply generally and are, at least in part, considered self-executing, especially the obligations under Article 5 DMA (Bostoen, 2023; Cabral et al., 2021),

(v) instead of leaving gatekeepers free to decide on their conduct and penalize them in cases of abuse, the DMA introduces a compliance process (see Section 2.2 for more detail) through which, put simply, the regulator (the EC) and the regulated gatekeeper seek agreement on how to understand and interpret the relevant rules of conduct for the individual gatekeeper, especially the obligations under Article 6 DMA (Firniksz, 2025; van den Boom & Podszun, 2025).

Compliance is thus brought to prominence by the DMA's specific regulatory approach. Moreover, since compliance must be reported and documented (Article 11 DMA), it becomes an explicit and observable element of the regime. Our paper provides a theoretical analysis of gatekeepers' compliance strategies under a DMA-style regime.

Since the gatekeepers' obligations entered into application in 2023, the EC has opened seven non-compliance proceedings against gatekeepers under Article 29 DMA (see Appendix A for an overview of the proceedings referred to here and in the following). Only one has been settled constructively: the investigation into Apple's iOS choice screens, which was closed after Apple implemented changes accepted by the EC. In four cases, the EC imposed fines for unresolved non-compliance: against Apple and Meta in April 2025, and twice against Alphabet in July 2026 for self-preferencing in Google Search and for steering restrictions on Google Play (European Commission, 2026d). Apple and Meta have announced their intention to appeal (Datta, 2026). Two investigations remain ongoing. Four additional specification proceedings under Article 8(2) DMA have been initiated, of which two have been concluded and two remain ongoing (European Commission, 2026c).

These patterns motivate our research question: How does the economic mechanism underlying a DMA-style regulation influence the compliance strategies of gatekeepers? More precisely, why and under what conditions will gatekeepers exhibit strategic compliance, a tactically motivated, superficially lawful implementation strategy? In the absence of sufficient empirical evidence and given a lack of theoretical work on this question (see Section 2), we develop a game-theoretic framework to formalize the strategic interaction between a gatekeeper and a regulator like the EC in a DMA-style enforcement context. Our model captures a key tension: gatekeepers can invest in legal (and lobbying) resources to increase the procedural costs the EC faces when pursuing enforcement, thereby reducing the likelihood of sanctions. The model yields equilibrium predictions that depend critically on the magnitude of the gatekeeper's monopoly rent, offering a structural explanation for heterogeneous compliance behavior of gatekeepers.

Our contribution is threefold. First, to our knowledge, we provide the first formal economic model of strategic compliance – not only under the DMA, but under sector-specific conduct regulation more generally. The existing formal compliance literature models evasion or violation under uncertain detection (see Section 2). Strategic compliance, by contrast, is superficially lawful and deters enforcement through legal complexity rather than concealment. We are not aware of a formal treatment of this behavior in any sector-specific regulatory regime. Although a substantial body of legal scholarship has examined DMA procedures and enforcement options (Carugati, 2023a; Firniksz, 2025; Ribera Martínez, 2025; van den Boom & Podszun, 2025), compliance as a strategic firm-level decision (for example, Beckenstein & Gabel, 1986) is a relatively underexplored field in the economic literature. No study has combined these perspectives in a formal game-

theoretic framework applied to (EU) digital market regulation. Second, we extend the traditional compliance literature, which has largely focused on tax evasion (Allingham & Sandmo, 1972; Franzoni, 1998) and (general) regulatory enforcement (Crane, 2010; Kirstein, 2014), to the novel institutional setting of the DMA, where compliance is characterized by a hybrid enforcement model that blends top-down enforcement with negotiation. Third, our model generates predictions about the relationship between monopoly rents, legal efforts, and enforcement outcomes that can further inform the ongoing policy debate about the adequacy of DMA sanctions.

The remainder of this paper is organized as follows. Section 2 reviews the relevant literature. Section 3 presents the model setup, payoff structure, and game tree. Section 4 derives the equilibrium through backward induction and develops the model to incorporate endogenous enforcement incentives. Section 5 examines further model extensions. Section 6 discusses the results and their policy implications, and Section 7 concludes.

2 Literature Review

This section organizes the literature along two lines. The first encompasses the broader economic theory of strategic compliance and enforcement, drawing on the compliance decision literature, the economics of tax evasion, and inspection games. The second addresses the emerging (legal) scholarship on DMA compliance and enforcement specifically.

2.1 Compliance and Enforcement Theories

The recognition that compliance is not merely a binary legal obligation but a strategic firm-level decision is rooted in the organizational and regulatory literature. Peng et al. (2023) argue that firms must account for both formal and informal institutional rules and their interactions with relevant regulators when making compliance decisions. This perspective frames compliance as an integral part of a firm's competitive strategy rather than a passive response to legal requirements. Firniksz (2025) develops this argument further, positioning compliance as a firm-specific resource and capability that directly shapes competitiveness. She highlights the role of reputation as a key channel through which compliance decisions affect firm value: non-compliance carries reputational costs that extend beyond direct regulatory sanctions. Beckenstein and Gabel (1986) provide an early formal treatment of the relationship between enforcement agency behavior and corporate compliance strategies. They demonstrate that enforcement agencies influence the probability of corporate compliance violations not only by altering their expected value through sanctions but also indirectly, by shaping the compliance process itself. The vigor of compliance efforts, their associated costs, and the choice between fundamentally different decision-making methods all carry implications for the likelihood of violations.

This insight is directly relevant to our model, where the gatekeeper's compliance strategy is a deliberate choice involving resource allocation to legal and procedural complexity (see Section 3). At the same time, our treatment differs from theirs in three respects: (i) they focus on violations that arise as organizational failures –unintended outcomes of imperfect information and costly internal control – whereas under-compliance in our model is the deliberate strategy of a unitary rational actor. (ii) In their framework, compliance expenditure serves to prevent violations, while legal expenditure in our model does not improve compliance but raises the regulator's cost of enforcement and (iii) they model the choices of the firm and of the enforcement agency as separate optimization problems, whereas firm and regulator in our model interact in a sequential game solved for subgame-perfect equilibrium.

A major strand of the compliance literature originates in the economics of tax evasion. Franzoni (1998) characterizes taxpayer behavior as a rational cost-benefit calculus, building on the foundational work of Allingham and Sandmo (1972), Srinivasan (1973), and Yitzhaki (1974), who model evasion as a portfolio allocation problem in which the taxpayer decides what share of income to invest in the risky activity of tax evasion. The key policy implication of this literature is that curbing evasion requires either increasing audit rates or raising penalties. Since increasing audit frequency demands public resources while raising penalties does not, the theoretical prediction favors rare but severe punishment. This result raises the question of whether the fines available under the DMA are sufficient to deter strategic non-compliance – a tension explored formally in Section 4. Importantly, Franzoni (1998) and Allingham and Sandmo (1972) argue that the audit rate may not be the decisive variable: what ultimately matters is the likelihood that an investigation will result in a conviction and sanction. This observation maps directly onto the DMA enforcement context. Under the DMA, non-compliance can attract fines of up to 10 percent of global annual turnover, rising to 20 percent for repeat violations (Article 30 DMA), with implications discussed further in Section 6.

A related body of work on inspection games provides a cautionary perspective on the deterrent effect of severe punishment. Kirstein (2014) identifies three key features of inspection games: (i) the inspector's benevolence, (ii) the capacity for perfect monitoring, and (iii) punishment that is costly for the inspector to enforce. In the typical Nash equilibrium of such games, each player's equilibrium probability depends on the other player's payoff, meaning a player's equilibrium behavior is independent of its own preferences. Tsebelis (1991) draws the implication that, when inspector and inspected interact strategically, the claim that severe punishment reduces violations may no longer

hold.[1]

Beyond the strategic interaction between regulator and regulated, the broader institutional environment also shapes compliance incentives. Besley and Dray (2024) examine the trust dimension of enforcement by distinguishing three interpretations of institutional trust: (i) the exogenous probability that the incentives of government and citizens are aligned, (ii) the equilibrium probability that governments implement policies desired by citizens, and (iii) a factor affecting equilibrium selection in settings with multiple equilibria. They point to state capacity as a prerequisite for these mechanisms to operate. This is, in a wider context, also emphasized by Besley and Persson (2014), who identify legal capacity, the ability to enforce laws and regulate the economy, as one of three core dimensions of state capacity.[2]

Taken together, the formal strands of this literature model non-compliance as a gamble on escaping detection, while the work on compliance as a firm-level strategy is either conceptual or, as in Beckenstein and Gabel (1986), directed at the prevention of unintended violations. We go beyond this literature by formalizing compliance as a deliberate strategic choice of a firm that conceals nothing: its compliance posture is openly observed, and it invests in legal complexity to make enforcement prohibitively costly for a regulator whose payoff is grounded in institutional trust. As the next subsection shows, it is the DMA's negotiation-oriented enforcement design that makes precisely this cost-imposition channel relevant.

2.2 Institutional and Legal Perspectives on DMA Compliance

A growing legal literature addresses the procedural and institutional dimensions of DMA compliance. Van den Boom and Podszun (2025) provide the most comprehensive analysis of the enforcement landscape, identifying a fundamental tension in the DMA's design: the regulation combines elements of strict top-down enforcement with mechanisms that invite regulatory dialogue on compliance solutions, such as the specification procedure under Article 8(2). This hybrid character distinguishes the DMA from traditional antitrust enforcement, where instruments like settlements and commitment decisions offer greater procedural flexibility. Under the DMA, by contrast, the EC's room for informal resolution is considerably narrower. A further complication arises from the treatment of behavioral adjustments during ongoing proceedings: even where gatekeepers modify their practices

[1] Our model yields pure-strategy equilibria rather than the mixed-strategy equilibria typical of inspection games, a difference attributable to the assumption that the EC observes both the gatekeeper's compliance strategy and its legal investment (see Section 3). The extension to incomplete information, where the EC cannot perfectly distinguish between full and strategic compliance, would likely generate mixed-strategy equilibria with properties closer to the inspection game literature. We discuss this possibility in Section 5.2.

[2] Alongside fiscal capacity, which describes how the state raises revenues, and collective capacity, meaning that the state spends money in a way that serves citizens (Besley & Persson, 2014).

after an investigation has been opened, the procedural logic of the DMA points toward a formal finding rather than case closure. Whether the EC retains discretion to resolve cases without such a determination remains contested. At the same time, the enforcement toolkit extends beyond fines. In cases of systematic non-compliance, the DMA provides for behavioral and structural remedies following a market investigation (Article 18 DMA).

In this context, Firniksz (2025) also notes that the DMA operates simultaneously as a technological regulation and a technologically determined regulation, meaning that compliance requirements go beyond transferring legal provisions into business operations and extend into technological application. This dual character implies that compliance involves an ongoing process of regulatory dialogue – a back-and-forth negotiation between gatekeepers and the EC rather than a one-off implementation decision.

Relatedly, the DMA differentiates the governance of its obligations. Those under Articles 5 and 7 are self-executing and leave less room for negotiation, while those under Article 6 are subject to regulatory dialogue and specification procedures (de Streel, 2022; Firniksz, 2025). In practice, however, even self-executing obligations are not self-enforcing. Translating them into business operations and technical architectures requires interpretation, and gatekeepers retain discretion over the concrete implementation (Firniksz, 2025; Ribera Martínez, 2025). To date, DMA enforcement practice suggests that gatekeepers find scope for strategic compliance even under self-executing obligations.

The compliance report mechanism under Article 11 DMA adds a further strategic dimension. Following Article 8(1), gatekeepers must ensure and demonstrate effective compliance. Ribera Martínez (2025) raises substantial questions about the credibility of compliance reports, identifying three dimensions of concern: (i) gatekeepers' interpretation of the DMA's application, (ii) the opacity of non-confidential report versions, and (iii) the strategic flexibility inherent in the procedural design of compliance reporting. These observations motivate our discussion of the compliance report as a potential signaling device in Section 5.2.

Carugati (2023a) notes that non-compliance carries reputational risks beyond direct financial penalties and that the DMA provides gatekeepers with some flexibility in reaching compliance through principles-based guidance. Several studies have proposed compliance indicators for monitoring DMA effectiveness (Carugati, 2023a; Crémer et al., 2019; de Streel et al., 2023, 2024; Feasey & de Streel, 2023), though as Carugati (2023b) observes, these indicators relate to user engagement and market conditions rather than to compliance in the legal sense. Thus, there is no obligation for gatekeepers to reach a particular outcome.

In a related contribution, based on a structured analysis of conduct and remedies rather than a formal model, Witte and Krämer (2025) analyze enforcement challenges in the ad tech sector, arguing that purely behavioral remedies would require constant and costly supervision in an opaque and quickly developing ecosystem. They warn that

gatekeepers are likely to focus on partial compliance strategies and use information asymmetries to their advantage, causing a cat-and-mouse cycle of oversight that works against the DMA's objectives.[3]

In sum, this legal literature informs our modeling choices in Section 3 in four regards: (i) the hybrid, negotiation-oriented enforcement design with its narrow room for informal resolution motivates reducing the EC's move to a binary choice between accepting a compliance posture and enforcing against it, and the mandatory-finding logic once proceedings are opened supports treating enforcement as resulting in a sanction with certainty. (ii) The ongoing regulatory dialogue (Firniksz, 2025) and the absence of an obligation to achieve particular outcomes (Carugati, 2023b) create the scope for a superficially lawful, partial implementation, which we capture in the rent-share parameters $\alpha > \beta$. (iii) The reputational risks of non-compliance (Carugati, 2023a; Firniksz, 2025) enter the gatekeeper's enforcement payoff as the loss R and (iv) the exploitation of complexity, information asymmetries, and protracted proceedings (Höppner, 2022; Ribera Martínez, 2025; Witte & Krämer, 2025) motivates the model's core mechanism, the procedural cost function $C_{EC}(C_{GK})$, through which the gatekeeper's legal investment raises the EC's cost of enforcement.

3 Model Setup

This section presents the formal model. We define the players, the timing of the game, and the parameter space before specifying payoffs for both the gatekeeper and the EC. The section concludes with the extensive form of the game.

3.1 Players

Two players interact in a sequential game of complete and perfect information:

(i) **Gatekeeper (GK)**: A designated gatekeeper under the DMA, earning monopoly rents from its regulated core platform services.

(ii) **European Commission (EC)**: The enforcement authority responsible for monitoring DMA compliance and imposing sanctions.

Additionally, **Nature** determines the impact type of the obligation at stake.

3.2 Timing

The game unfolds in three stages:

[3]In the context of the Google Shopping case, Höppner (2022) points to its protracted compliance history as a cautionary example for DMA enforcement, illustrating how prolonged legal proceedings can undermine the timeliness of regulatory enforcement.

1. **Stage 1 (Nature)**: Nature determines the *impact type* $\theta \in \{\theta_H, \theta_L\}$ of the relevant DMA obligation. High-impact obligations (θ_H) concern core platform services generating large monopoly rents Π_H. Low-impact obligations (θ_L) concern core platform services generating smaller rents Π_L, where $\Pi_H \gg \Pi_L > 0$. This captures the heterogeneity of the DMA's obligations across gatekeepers' business models. The prohibitions of anti-steering provisions (Article 5(4) DMA) or of data combination without consent (Article 5(2) DMA) cut directly into core monetization, whereas obligations such as data portability (Article 6(9) DMA) typically leave the affected revenue streams largely untouched. Nature draws θ_H with commonly known probability $p \in (0, 1)$. Since both players observe θ before acting, p plays no role in the equilibrium analysis.

2. **Stage 2 (GK's Decision)**: Observing θ, the gatekeeper chooses a compliance strategy $s_{\text{GK}} \in \{C, S\}$:

   - C (Compliant): Full compliance with the DMA obligation.
   - S (Strategic): Strategic compliance, a tactical implementation that partially fulfills the obligation while preserving additional rents. If choosing S, the gatekeeper simultaneously chooses a legal investment level $C_{GK} \geq 0$. Legal investment is to be understood broadly. It comprises expenditures on external counsel and expert opinions, elaborate legal argumentation in compliance reports, procedural motions, and lobbying – resources that do not improve substantive compliance but increase the legal and procedural complexity the EC must work through to establish non-compliance.

3. **Stage 3 (EC's Decision)**: If the gatekeeper chose strategic compliance (S), the EC observes the gatekeeper's compliance posture, including its legal investment C_{GK}, and chooses $s_{\text{EC}} \in \{A, E\}$:

   - A (Accept): Accept the gatekeeper's compliance implementation.
   - E (Enforce): Initiate enforcement proceedings and impose a fine.[4]

If the gatekeeper chooses full compliance (C), the EC does not move (the game ends with the compliance outcome). The model abstracts from the legal distinction between self-executing obligations (Articles 5 and 7 DMA) and those subject to regulatory dialogue and specification (Article 6 DMA). As discussed in Section 2.2, gatekeepers find scope for strategic compliance under both types, so the economically relevant heterogeneity is the impact type θ rather than the legal category of the obligation.

[4]We thus model enforcement as the imposition of a fine and abstract from the DMA's further-reaching instruments, notably behavioral and structural remedies against systematic non-compliance (Article 18 DMA). Incorporating these would make the enforcement outcome strictly more costly for the gatekeeper and would strengthen rather than alter the model's central results.

3.3 Parameters

Table 1 summarizes the model parameters:

Table 1: Model Parameters

Parameter	Description
$\theta \in \{\theta_H, \theta_L\}$	Impact type of the DMA obligation
Π_H, Π_L	Monopoly rents (high/low)
α	Rent share forfeited under full compliance
β	Rent share forfeited under strategic compliance
C_{GK}	GK's legal (and lobbying) expenditure (strategic variable)
$C_{EC}(C_{GK})$	EC's procedural costs
c_0	Baseline procedural cost independent of GK's legal investment
F	Fine imposed by EC upon enforcement
R	Reputational loss for GK upon an adverse enforcement decision
T_{full}	EC's institutional trust from full GK compliance
T_{acc}	EC's institutional trust from accepted strategic compliance
T_{enf}	EC's institutional trust from successful enforcement

We impose the following restrictions, which ensure that strategic compliance is less costly for the gatekeeper than full compliance, that the EC benefits from enforcement, and that sanctions are meaningful:

Assumption 1 (Parameter Restrictions)**.** $\Pi_H > \Pi_L > 0, \quad 0 < \beta < \alpha < 1, \quad T_{enf} > T_{acc}$, *and* $F, R > 0$.

The parameters α and β capture the share of monopoly rents (Π_H, Π_L) that the gatekeeper forfeits under each compliance strategy. Full compliance (α) is costlier than strategic compliance $(\beta < \alpha)$: the gatekeeper retains a larger share of rents under strategic compliance. The difference $\alpha - \beta$ represents the rent-preservation advantage of strategic compliance.

The trust parameters capture the EC's institutional returns from the three possible outcomes. Full voluntary compliance yields T_{full}: the regulatory framework achieves its objective without intervention. Successful enforcement yields T_{enf}, reflecting the political and reputational value of visible enforcement actions – the EC demonstrates its willingness and ability to act.[5] Accepted strategic compliance yields T_{acc}. We do not restrict the relation between T_{full} and T_{enf}. Whether voluntary compliance or a visible enforcement success generates more institutional trust is certainly debatable but also immaterial here,

[5]As van den Boom and Podszun (2025) observe, the EC has a clear mandate for strong enforcement decisions once proceedings are opened, which also serve as a basis for potential structural remedies.

because T_{full} never enters the EC's decision. Likewise, the costs of enforcement are not part of the trust parameters. They enter separately through the procedural cost function $C_{EC}(\cdot)$, while litigation risk is abstracted from altogether (see Section 7). The economically decisive restriction is $T_{\text{enf}} > T_{\text{acc}}$. This assumption is not merely technical. If instead $T_{\text{enf}} \leq T_{\text{acc}}$ – conceivable, for instance, when visible enforcement is politically costly, or the risk of defeat in court weighs heavily – the EC prefers acceptance at any level of legal investment. The enforcement threat ceases to be credible, and both gatekeeper types obtain strategic compliance at zero legal cost. The disciplining effect of enforcement in this model therefore rests on the EC's positive net trust gain from enforcement relative to acceptance; Section 4.4 establishes the analogous condition when enforcement incentives depend on the fine.

Regarding the cost of enforcement outcomes, the reputational cost R reflects Firniksz's (2025) observation that compliance directly impacts reputation resources, and Carugati's (2023a) finding that non-compliance carries reputational risks beyond financial penalties F. Together, F and R represent the full cost of an adverse enforcement outcome.

Assumption 2 (Procedural Cost Function)**.** *$C_{EC} : \mathbb{R}_+ \to \mathbb{R}_+$ is continuously differentiable, strictly increasing ($C'_{EC} > 0$), unbounded above ($\lim_{C_{GK}\to\infty} C_{EC}(C_{GK}) = \infty$), and satisfies $C_{EC}(0) = c_0 \geq 0$, where c_0 represents a baseline procedural cost independent of the gatekeeper's legal investment. Furthermore, $c_0 < T_{enf} - T_{acc}$, ensuring that the critical legal investment threshold $C^*_{GK} > 0$ is well-defined.*

The function $C_{EC}(\cdot)$ captures a key strategic channel identified in the literature (Witte & Krämer, 2025): the gatekeeper's legal investment C_{GK} increases the procedural complexity and thus the cost to the EC of pursuing enforcement. The condition $C_{EC}(0) = c_0 \geq 0$ allows for a baseline procedural cost that the EC incurs regardless of the gatekeeper's legal investment, reflecting the fixed administrative burden of initiating enforcement proceedings. The additional restriction $c_0 < T_{\text{enf}} - T_{\text{acc}}$ rules out the degenerate case in which baseline enforcement costs already exceed the EC's trust gain from enforcement, which would cause the EC to accept any compliance posture unconditionally and render the gatekeeper's legal investment decision trivial.

Assumption 3 (Sanction Credibility)**.** *$F + R > \Pi_H(\alpha - \beta)$, i.e., the combined cost of the fine and reputational damage exceeds the additional rent the gatekeeper preserves under strategic relative to full compliance in high-impact markets.*

This ensures that the enforcement outcome is sufficiently costly to rule out a further option available to the gatekeeper: choosing strategic compliance while deliberately investing nothing in legal complexity ($C_{GK} = 0$), thereby accepting enforcement as the certain outcome. Under this strategy, the gatekeeper would receive $\Pi_H(1-\beta) - F - R$. Assumption 3 guarantees $\Pi_H(1-\beta) - F - R < \Pi_H(1-\alpha) = U_{GK}(C)$, so that absorbing

enforcement sanctions without legal investment is strictly worse than full compliance. Since $\Pi_H > \Pi_L$, the same holds in low-impact markets. The gatekeeper's choice thus reduces to a binary comparison between C and S with $C_{GK} = C^*_{GK}$ (see Section 4).

3.4 Payoff Structure

3.4.1 Gatekeeper's Payoffs

The gatekeeper's payoff U_{GK} depends on the nature draw $\theta \in \{H, L\}$ (writing Π generically for Π_θ):

$$U_{GK}(C) = \Pi(1-\alpha) \tag{1}$$

$$U_{GK}(S, A) = \Pi(1-\beta) - C_{GK} \tag{2}$$

$$U_{GK}(S, E) = \Pi(1-\beta) - F - R - C_{GK} \tag{3}$$

Under full compliance (1), the gatekeeper sacrifices share α of its rents with no legal costs. Under strategic compliance with acceptance (2), it sacrifices only share $\beta < \alpha$ but incurs legal costs C_{GK}. Under strategic compliance with enforcement (3), the gatekeeper still forfeits the rent share β associated with its strategic implementation and additionally faces the fine F, reputational damage R, and legal costs C_{GK}.[6]

3.4.2 European Commission's Payoffs

The EC's payoff U_{EC} reflects institutional trust gains net of procedural costs:

$$U_{EC}(C) = T_{\text{full}} \tag{4}$$

$$U_{EC}(S, A) = T_{\text{acc}} \tag{5}$$

$$U_{EC}(S, E) = T_{\text{enf}} - C_{EC}(C_{GK}) \tag{6}$$

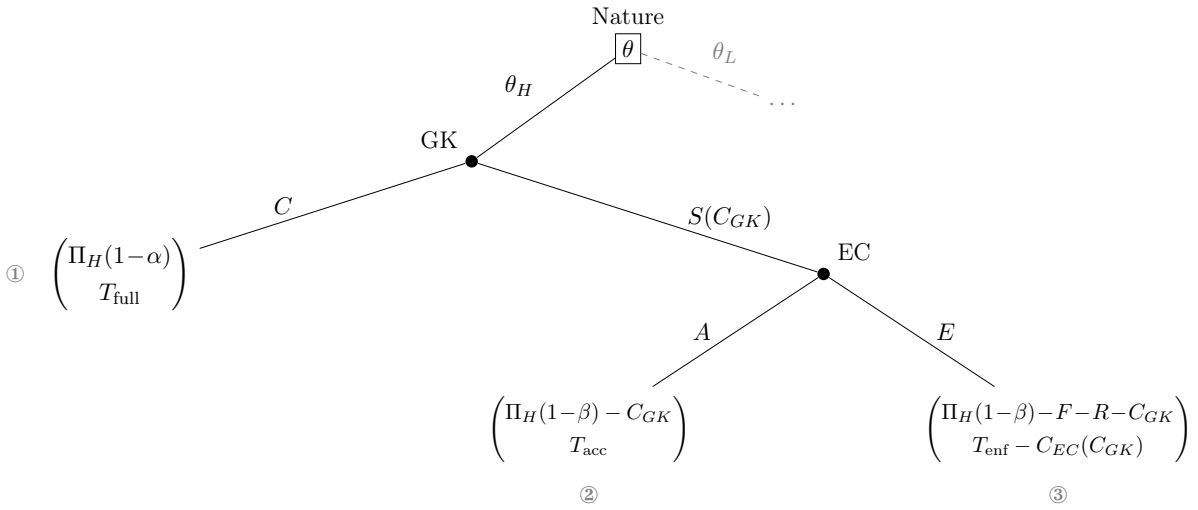
We model procedural costs $C_{EC}(C_{GK})$ as borne by the EC only when it pursues enforcement. When the EC accepts a strategic compliance outcome, it avoids the resource-intensive investigation process. This specification reflects the insight from Besley and Persson (2014) that enforcement of laws – legal capacity – is costly and must be weighed

[6]This specification reflects the one-period nature of the model: enforcement imposes monetary and reputational sanctions but does not alter the gatekeeper's operating behavior within the period. In practice, a non-compliance decision under the DMA compels actual compliance going forward, which would replace the retained rent share $(1-\beta)$ with $(1-\alpha)$ and thus add a further compliance cost $\Pi(\alpha-\beta)$ to the enforcement payoff. Incorporating this would strengthen the model's central results by making the enforcement outcome strictly more costly for the gatekeeper, without qualitatively changing the equilibrium structure.

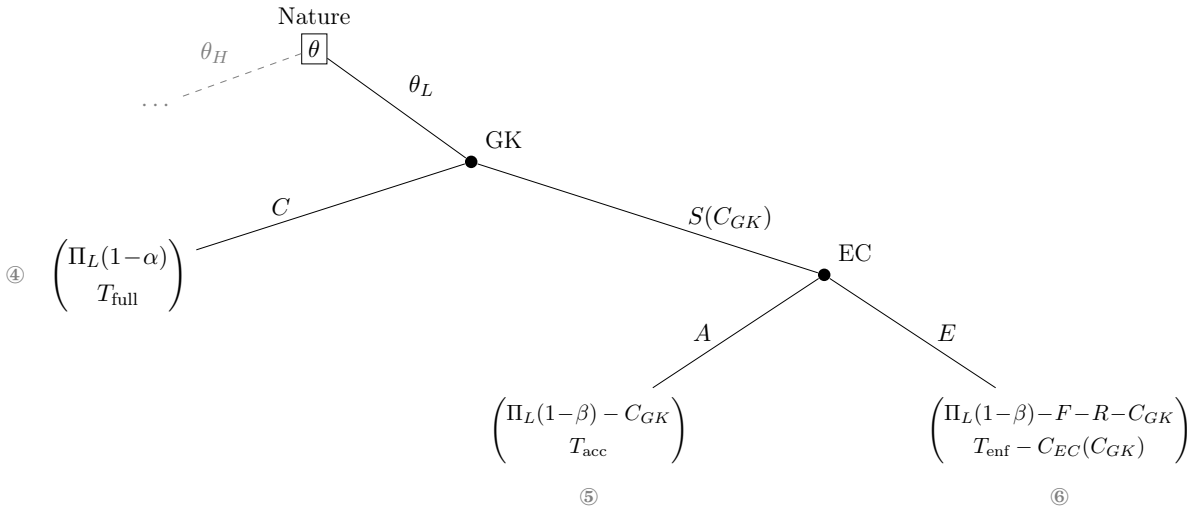
against institutional benefits. Following Besley and Dray (2024), we model the EC's institutional returns through three trust parameters T_{full}, T_{acc}, and T_{enf}, capturing the idea that different enforcement outcomes generate different levels of institutional trust.

3.5 Game Tree

Figure 1 presents the extensive form of the game, shown separately for each impact type:



(a) High-impact obligations (θ_H)



(b) Low-impact obligations (θ_L)

Figure 1: Extensive form of the DMA Compliance Game. Payoffs shown as $\begin{pmatrix}U_{GK}\\ U_{EC}\end{pmatrix}$. Terminal nodes ①–⑥ correspond, for each impact type, to the payoff specifications in equations (1)–(3) and (4)–(6).

4 Equilibrium Analysis: Backward Induction

We solve the game by backward induction, beginning with the EC's decision at Stage 3 and working backwards to the gatekeeper's choice at Stage 2.

4.1 Stage 3: The European Commission's Decision

Given that the gatekeeper has chosen strategic compliance S with legal investment C_{GK}, the EC compares its payoffs from accepting versus enforcing:

$$U_{EC}(A) > U_{EC}(E) \iff T_{\text{acc}} > T_{\text{enf}} - C_{EC}(C_{GK}) \iff C_{EC}(C_{GK}) > T_{\text{enf}} - T_{\text{acc}} \quad (7)$$

where $\Delta T \coloneqq T_{\text{enf}} - T_{\text{acc}} > 0$ represents the EC's trust gain from enforcement: the additional institutional benefit from enforcing versus accepting. The EC accepts if and only if the procedural cost of enforcement exceeds this trust gain.

Lemma 1 (Critical Legal Investment)**.** *There exists a unique threshold C^*_{GK} such that the EC is indifferent between accepting and enforcing:*

$$C_{EC}(C^*_{GK}) = \Delta T \implies C^*_{GK} = C^{-1}_{EC}(\Delta T) \quad (8)$$

The EC's optimal strategy is:

$$\sigma^*_{EC}(C_{GK}) = \begin{cases} A & \text{if } C_{GK} \geq C^*_{GK} \\ E & \text{if } C_{GK} < C^*_{GK} \end{cases} \quad (9)$$

Proof. Since $C_{EC}(\cdot)$ is continuous strictly increasing and unbounded above with $C_{EC}(0) = c_0 < \Delta T$ (Assumption 2), the range of C_{EC} is $[c_0, \infty)$ and ΔT lies in its interior. By strict monotonicity, the inverse $C^{-1}_{EC}(\Delta T)$ exists, is unique, and satisfies $C^*_{GK} > 0$. For $C_{GK} \geq C^*_{GK}$, we have $C_{EC}(C_{GK}) \geq \Delta T$, so $T_{\text{acc}} \geq T_{\text{enf}} - C_{EC}(C_{GK})$ and acceptance is weakly preferred. □

Interpretation. The gatekeeper can force the EC to accept by investing at least C^*_{GK} in increasing legal complexity. This investment makes enforcement proceedings sufficiently costly that the EC rationally prefers to accept the strategic compliance outcome. The threshold C^*_{GK} is the minimum expenditure on lawyers, expert opinions, procedural complexity, and so forth needed to make the EC indifferent. This mechanism is, for instance, consistent with van den Boom and Podszun's (2025) observation that gatekeepers can strategically use compliance reports to test the limits of what can be considered compliant, and with Witte and Krämer's (2025) warning of a cat-and-mouse cycle of oversight.

4.2 Stage 2: The Gatekeeper's Decision

Anticipating the EC's strategy (9), the gatekeeper knows that investing C^*_{GK} guarantees acceptance. Its investment choice under S first collapses to two candidates: any $C_{GK} \in (0, C^*_{GK})$ is strictly worse than $C_{GK} = 0$ (both trigger enforcement, the former at higher cost), and any $C_{GK} > C^*_{GK}$ is strictly worse than $C_{GK} = C^*_{GK}$ (both secure acceptance). Under Assumption 3, the remaining option of choosing S with $C_{GK} = 0$ and accepting enforcement as certain yields a strictly lower payoff than full compliance C and is therefore excluded from the relevant comparison. The gatekeeper's decision reduces to a binary choice between full compliance and strategic compliance with investment C^*_{GK}.

The analysis focuses on the parameter region in which this choice differs across impact types:

Assumption 4 (Relevant Parameter Region)**.** $\Pi_L(\alpha - \beta) < C^*_{GK} < \Pi_H(\alpha - \beta)$.[7]

Assumption 4 gives formal content to the informal notion that high-impact rents are large relative to low-impact rents. The two rent levels fall on opposite sides of the deterrence threshold C^*_{GK}, so that the rent-preservation advantage of strategic compliance covers the required legal investment in high-impact but not in low-impact markets. In the complementary cases, incentives are reversed: a high-impact gatekeeper with $\Pi_H(\alpha-\beta) \leq C^*_{GK}$ would find legal investment too costly and choose full compliance, while a low-impact gatekeeper with $\Pi_L(\alpha - \beta) \geq C^*_{GK}$ would find strategic compliance profitable. These cases are not the focus of the analysis, whose central interest lies in explaining strategic compliance precisely where rents are largest. Section 4.4 revisits this condition once the fine becomes a policy variable.

4.2.1 Case A: Low-Impact Obligations ($\theta = \theta_L$)

The gatekeeper compares:

$$U_{GK}(C) = \Pi_L(1 - \alpha) \tag{10}$$

$$U_{GK}(S, A) = \Pi_L(1 - \beta) - C^*_{GK} \tag{11}$$

Strategic compliance is preferred if and only if:

$$\Pi_L(1 - \beta) - C^*_{GK} > \Pi_L(1 - \alpha) \iff \Pi_L(\alpha - \beta) > C^*_{GK} \tag{12}$$

Proposition 1 (Low-Impact Equilibrium)**.** *Under Assumptions 1–4, the gatekeeper chooses full compliance (C) for low-impact obligations.*

[7] Since $C^*_{GK} = C^{-1}_{EC}(\Delta T)$ and C_{EC} is strictly increasing, this is equivalent to the restriction $C_{EC}\big(\Pi_L(\alpha - \beta)\big) < \Delta T < C_{EC}\big(\Pi_H(\alpha - \beta)\big)$ on the model's primitives.

Proof. By Assumption 4, $\Pi_L(\alpha - \beta) < C^*_{GK}$, so condition (12) fails and $U_{GK}(C) > U_{GK}(S, A)$. □

Interpretation. The term $\Pi_L(\alpha - \beta)$ represents the absolute rent savings from strategic compliance: the additional rent the gatekeeper retains by choosing S over C. Since Π_L is small (low impact on rents), even though the relative saving $(\alpha - \beta)$ may be non-trivial, the absolute amount $\Pi_L(\alpha - \beta)$ falls short of the fixed legal costs C^*_{GK} required to deter enforcement. The fixed-cost nature of the legal investment works against strategic compliance in low-impact markets. This result implies that for obligations where compliance affects smaller revenue streams, gatekeepers have limited incentive to invest in strategic (non-)compliance.

4.2.2 Case B: High-Impact Obligations ($\theta = \theta_H$)

The gatekeeper compares:

$$U_{GK}(C) = \Pi_H(1 - \alpha) \tag{13}$$

$$U_{GK}(S, A) = \Pi_H(1 - \beta) - C^*_{GK} \tag{14}$$

Strategic compliance is preferred if and only if:

$$\Pi_H(\alpha - \beta) > C^*_{GK} \tag{15}$$

Proposition 2 (High-Impact Equilibrium)**.** *Under Assumptions 1–4, the gatekeeper chooses strategic compliance (S) with investment C^*_{GK} for high-impact obligations. The EC responds with acceptance (A).*

Proof. By Assumption 4, $\Pi_H(\alpha - \beta) > C^*_{GK}$, so condition (15) holds and $U_{GK}(S, A) > U_{GK}(C)$. Acceptance follows from Lemma 1. □

Interpretation. Since Π_H is very large, even a small percentage difference $(\alpha - \beta)$ translates into an absolute amount $\Pi_H(\alpha - \beta)$ that exceeds the legal costs C^*_{GK}. The gatekeeper can comfortably afford the investment required to deter enforcement and still retain substantially more monopoly rent than under full compliance. This result could apply to core monetization platform services, for example, the prohibition on anti-steering provisions (Article 5(4) DMA), the subject of the Apple App Store investigation, or the prohibition on data combination without consent (Article 5(2) DMA), the subject of the Meta Pay-or-Consent investigation, where presumably significant shares of annual revenue are at stake.

4.3 Subgame Perfect Nash Equilibrium

Proposition 3 (Subgame Perfect Nash Equilibrium)**.** *Under Assumptions 1–4, the subgame perfect equilibrium strategy profile* $\sigma^* = (\sigma^*_{GK}, \sigma^*_{EC})$ *is:*

$$\sigma^*_{GK}(\theta) = \begin{cases} S, \text{ with } C_{GK} = C^*_{GK} & \text{if } \theta = \theta_H \\ C & \text{if } \theta = \theta_L \end{cases} \tag{16}$$

$$\sigma^*_{EC}(C_{GK}) = \begin{cases} A & \text{if } C_{GK} \geq C^*_{GK} \\ E & \text{if } C_{GK} < C^*_{GK} \end{cases} \tag{17}$$

where $C^*_{GK} = C^{-1}_{EC}(\Delta T)$ *and* $\Delta T = T_{enf} - T_{acc}$*.*

Remark 1 (No Overt Non-Compliance)**.** *A key feature of the equilibrium is that the gatekeeper never chooses overt non-compliance. Formally, under Assumption 3 (*$F + R > \Pi_H(\alpha - \beta)$*), the option of choosing* S *with* $C_{GK} = 0$*, absorbing enforcement sanctions without legal investment, yields* $\Pi_H(1-\beta) - F - R < \Pi_H(1-\alpha) = U_{GK}(C)$ *and is thus strictly worse than full compliance. In equilibrium, the gatekeeper therefore engages in strategic compliance with investment* C^*_{GK}*, maintaining a veneer of lawfulness while deterring enforcement. This is consistent with observed gatekeeper behavior: Apple and Meta have not rejected DMA obligations outright but have instead proposed compliance implementations that the EC has characterized as insufficient. Van den Boom and Podszun (2025) note that gatekeepers have demonstrated the ability and incentive to comply in a manner that best serves their own interests, in practice, often ineffectively considering the DMA objectives.*

Remark 2 (Core Mechanism)**.** *The equilibrium is driven by the comparison between the monopoly rent advantage* $\Pi(\alpha - \beta)$ *and the legal threshold cost* C^*_{GK}*. Compliance is thus a function of the monopoly rent relative to the transaction costs required to bring the EC to a negotiated solution. This mechanism reflects Beckenstein and Gabel's (1986) insight that enforcement agencies shape compliance not only through sanctions but through the process of compliance itself.*

4.4 Endogenous Enforcement Incentives

The base model treats the EC's trust parameters as exogenous. In practice, however, the institutional benefits from enforcement are shaped by several factors: the magnitude of the fine imposed, the public visibility of the case, and the perceived credibility of the enforcement process (Besley & Dray, 2024; Höppner, 2022). A high-profile case against a gatekeeper generates more political capital than an equivalent fine in a peripheral market, and consistent enforcement builds long-term institutional trust independently of any

single sanction. For tractability, we use the fine F as a summary proxy for these broader political returns from enforcement, acknowledging that it captures, in reduced form, the visibility, precedent value, and signaling effect of enforcement actions. Throughout this subsection, the fine is a policy variable rather than a fixed parameter. Assumption 3 remains in place. Assumption 4, by contrast, fixes the threshold C^*_{GK} and is therefore not imposed here, since the threshold now varies with F.

4.4.1 Fine-Dependent Enforcement Trust

We model the EC's enforcement trust as an increasing function of the fine:

$$T_{\text{enf}}(F) = T_{\text{base}} + \gamma F \tag{18}$$

where $T_{\text{base}} > 0$ is a baseline enforcement benefit (procedural precedent, regulatory signaling) and $\gamma > 0$ is a conversion factor capturing the political value of fines as outlined above. The EC's 2026 DMA Review itself identifies enforcement actions and their visibility as central to the DMA's continued effectiveness (European Commission, 2026c).

4.4.2 Modified Backward Induction

The EC's acceptance threshold (7) now becomes:

$$C_{EC}(C_{GK}) > T_{\text{base}} + \gamma F - T_{\text{acc}} =: \Delta T(F) \tag{19}$$

The trust gain from enforcement $\Delta T(F)$ is strictly increasing in F. In analogy to the restriction $c_0 < \Delta T$ in Assumption 2, we restrict attention to fines satisfying $\Delta T(F) > c_0$. For lower fines, even the baseline procedural cost would exceed the EC's trust gain from enforcement, the enforcement threat would be void, and strategic compliance would succeed without any legal investment. For all fines considered, the critical legal investment is then well-defined and adjusts with the fine:

$$C^*_{GK}(F) = C^{-1}_{EC}\big(\Delta T(F)\big) = C^{-1}_{EC}(T_{\text{base}} + \gamma F - T_{\text{acc}}) \tag{20}$$

Since C^{-1}_{EC} is increasing and $\Delta T(F)$ is increasing in F:

$$\frac{\partial C^*_{GK}}{\partial F} = \frac{\gamma}{C'_{EC}(C^*_{GK})} > 0 \tag{21}$$

Lemma 2 (Fine-Investment Monotonicity)**.** *The gatekeeper's required legal investment $C^*_{GK}(F)$ is strictly increasing in F with slope $\gamma / C'_{EC}(C^*_{GK})$, and $C^*_{GK}(F) \to \infty$ as $F \to \infty$.*

Higher fines increase the EC's incentive to enforce, requiring the gatekeeper to invest more to deter proceedings.

4.4.3 Equilibrium Conditions with Fines

For the strategic compliance equilibrium to hold in the high-impact case, strategic compliance with investment $C^*_{GK}(F)$ must remain profitable relative to full compliance:

Proposition 4 (Extended Equilibrium)**.** *The strategic compliance equilibrium (GK: S, EC: A) in the high-impact case exists if and only if*

$$\Pi_H(\alpha - \beta) > C^*_{GK}(F) \tag{22}$$

or, substituting (20)*,* $C^{-1}_{EC}(T_{base} + \gamma F - T_{acc}) < \Pi_H(\alpha - \beta)$*.*

A second requirement, that the acceptance path dominates absorbing sanctions at zero investment, $C^*_{GK}(F) < F + R$, imposes no additional restriction. By Assumption 3 and (22), $C^*_{GK}(F) < \Pi_H(\alpha - \beta) < F + R$.

4.4.4 Policy Implications: The Limits of Fines

An important consequence of Proposition 4 is that *increasing fines does not necessarily induce full compliance.* As F increases:

1. $C^*_{GK}(F)$ increases (Lemma 2): the gatekeeper must invest more to deter enforcement.
2. However, as long as $\Pi_H(\alpha-\beta) > C^*_{GK}(F)$, strategic compliance remains profitable.
3. The gatekeeper's legal spending escalates, but the equilibrium outcome remains strategic compliance with acceptance.

The equilibrium breaks only when fines are raised to the point where condition (22) fails:

$$F^* \text{ such that } C^*_{GK}(F^*) = \Pi_H(\alpha - \beta) \tag{23}$$

This logic has a welfare counterpart:

Corollary 1 (Rent Dissipation)**.** *For all fines below the critical level* F^**, a marginal increase in the fine leaves the equilibrium compliance outcome in high-impact markets unchanged and strictly increases the gatekeeper's equilibrium legal expenditure* $C^*_{GK}(F)$*.*

Fines below the critical threshold thus display a perverse comparative-static property: they buy no additional compliance but escalate expenditure on legal complexity – resources devoted to influencing the enforcement outcome rather than to productive

use. Raising sanctions that remain below F^* intensifies the legal arms race identified in Result 3 (see Section 6.1) instead of resolving it.

This finding resonates with the tax evasion literature's prediction of rare but severe punishment (Allingham & Sandmo, 1972; Franzoni, 1998). Fines must be sufficiently high relative to the expected gains from strategic (non-)compliance. Given the scale of digital platform rents, reaching F^* may require fines of extraordinary magnitude or sanctions that are more painful than fines, such as structural remedies. In the model context, the latter can be interpreted as having effects similar to extraordinarily high fines. Notably, both Apple and Meta have announced their intention to appeal the fines imposed by the EC (Datta, 2026), behavior consistent with our model's prediction that gatekeepers with high monopoly rents at stake invest heavily in contesting enforcement rather than adjusting their strategic compliance strategy to full compliance.[8]

Remark 3 (Turnover-Linked Fines)**.** *Under Article 30 DMA, fines are capped as a share of the gatekeeper's worldwide turnover, so F is not exogenous to firm size. Setting $F = \kappa\Pi$ with $\kappa > 0$ in the linear specification of footnote 8 shows that the high-impact equilibrium survives whenever $\alpha - \beta > \gamma\kappa/b$. The rent-preservation advantage of strategic compliance grows one-for-one with Π_H, while the turnover-linked fine raises the required legal investment only at rate $\gamma\kappa/b$. Only if this condition reverses would higher rents facilitate rather than impede enforcement.*

5 Model Extensions

This section discusses potential extensions of the base model that are motivated by the institutional features of DMA enforcement and the broader literature on regulatory compliance.

5.1 The Specification Procedure as a Second Chance Node

The specification procedure under Article 8(2) DMA provides a structured opportunity for the gatekeeper to negotiate compliance solutions after an investigation has been opened. As van den Boom and Podszun (2025) observe, the procedure under Articles 8(2) and 8(3) functions as a second chance compliance report: the gatekeeper puts a proposal on the table, and if the measures – or a version thereof after assessment by the EC – are

[8]To illustrate, consider the linear specification $C_{EC}(C_{GK}) = a + bC_{GK}$ with $a = c_0 \geq 0$ and $b > 0$. The critical investment becomes $C^*_{GK}(F) = (T_{\text{base}} + \gamma F - T_{\text{acc}} - a)/b$, and the critical fine at which strategic compliance ceases to be profitable is $F^* = [b \cdot \Pi_H(\alpha - \beta) + a + T_{\text{acc}} - T_{\text{base}}]/\gamma$. This confirms that F^* is increasing in Π_H, $(\alpha - \beta)$, and b, and decreasing in γ. Intuitively, deterring strategic compliance requires higher fines when the gatekeeper's market is more profitable (Π_H), when the cost advantage of strategic over full compliance is larger $(\alpha - \beta)$, or when the EC's enforcement proceedings are more expensive (b). Conversely, fines need not be as high when enforcement generates substantial political returns (γ), as the EC is then more willing to pursue cases even at moderate fine levels.

made binding through an implementing act, the gatekeeper may avoid a non-compliance decision and fine.

This suggests an extension of the game tree with an intermediate node between strategic compliance and enforcement. After observing the gatekeeper's strategic compliance, the EC could first initiate a specification procedure (P) before deciding on enforcement (E). The gatekeeper would then have an opportunity to revise its compliance implementation, potentially at an additional cost C_{GK}^{S}, in exchange for avoiding a fine.

Formally, the extended game would add a fourth stage:

(i) After observing S, the EC chooses $s_{\text{EC}}^{1} \in \{A, P, E\}$.

(ii) If P is chosen, the gatekeeper proposes a revised implementation at cost C_{GK}^{S}.

(iii) The EC then decides $s_{\text{EC}}^{2} \in \{A', E'\}$ based on the revised proposal.

This multi-stage structure captures the iterative nature of DMA enforcement documented by the European Commission (2026c), which reports four specification proceedings initiated to date. The key insight is that the specification procedure creates an additional strategic opportunity for the gatekeeper: by making incremental concessions during the specification procedure, the gatekeeper can potentially reduce the fine risk without full compliance. This form of regulatory ping-pong – as van den Boom and Podszun (2025) term it – is constrained by the DMA's six-month time limit on specification procedures (Article 8(2) DMA).[9]

5.2 The Compliance Report as a Signaling Device

Another potential extension involves modeling the compliance report under Article 11 DMA as a signal in a game of asymmetric information. Under Article 8(1), the gatekeeper has a duty to ensure and demonstrate effective compliance through a detailed and transparent annual compliance report. As discussed in Section 2, Ribera Martínez (2025) raises fundamental questions about the credibility of these reports.

Formally, consider an extension where the gatekeeper has private information about its true compliance type $t \in \{C, S\}$. The compliance report r is a signal that the gatekeeper sends to the EC before the enforcement stage. The EC updates its beliefs about the gatekeeper's type based on the report and then decides whether to investigate.

This structure yields a signaling game with the following properties:

[9]However, two qualifications apply. The time frame is a best-effort obligation rather than a strict deadline, and it disciplines procedures initiated by the EC, while longer negotiations remain possible where the gatekeeper itself seeks specification (van den Boom & Podszun, 2025). The scope for strategic delay is thus bounded but not eliminated.

Pooling equilibrium. If the cost of producing a compliant-looking report is similar for both fully compliant and strategically compliant gatekeepers, both types submit similar reports. The EC cannot distinguish between types and must base its investigation decision on prior beliefs about the distribution of types. This outcome is consistent with Ribera Martínez's (2025) finding that compliance reports, as submitted in the first round, do not reliably indicate effective compliance.

Screening and separation. The EC can attempt to screen types by investing in verification, examining the technical implementation underlying the report. The cost of verification maps directly onto $C_{EC}(C_{GK})$ in our model. If the verification cost is sufficiently high (because the gatekeeper has invested in legal complexity), screening becomes uneconomical, and the pooling equilibrium persists.

Connection to inspection games. Under incomplete information about the gatekeeper's type, the game approaches the structure of an inspection game (Kirstein, 2014). The EC's equilibrium investigation probability would depend on the gatekeeper's payoffs, and vice versa, yielding mixed-strategy equilibria in which, as Tsebelis (1991) shows, severe punishment need not reduce the frequency of violations. This provides a formal bridge between the pure-strategy baseline and the inspection game literature and identifies the introduction of asymmetric information as the key modeling choice that mirrors Tsebelis's findings in the DMA context.

Policy implication. If compliance reports function as uninformative signals in a pooling equilibrium, the EC's only recourse is costly investigation. This creates an additional rationale for the model's central prediction: gatekeepers invest in procedural complexity not only to deter enforcement ex post but also to undermine the informativeness of compliance reports ex ante, thereby exploiting information asymmetries in their favor. Without relying on a formal model, Witte and Krämer (2025) reach a similar conclusion in the ad tech context, warning that gatekeepers are likely to exploit information asymmetries to sustain partial compliance strategies.

6 Discussion

6.1 Summary of Key Results

The model yields four main results with implications for DMA-style enforcement policy.

Result 1 (Impact-Dependent Compliance). In low-impact markets, full compliance is the equilibrium. The gatekeeper's rent savings from strategic compliance are insufficient to cover the fixed legal costs needed to deter enforcement. In high-impact markets, strategic compliance dominates. The absolute rent savings vastly exceed legal deterrence costs. This result is consistent with the observation that the majority of non-compliance investigations concern core monetization platform services rather than more

peripheral ones.

Result 2 (No Overt Illegality). The gatekeeper never engages in overtly non-compliant behavior. The strategic choice is between full compliance and a carefully crafted strategic compliance posture – but never includes outright defiance. This is consistent with the sophisticated legal strategies observed in practice and reflects Firniksz's (2025) observation that compliance is a strategic resource that directly determines competitiveness.

Result 3 (Legal Arms Race). In the high-impact equilibrium, the gatekeeper invests exactly C^*_{GK} in legal complexity – enough to make enforcement unprofitable for the EC, but no more. This creates a legal arms race dynamic where both sides expend resources without changing the compliance outcome, a dynamic that Witte and Krämer (2025) anticipate for the ad tech sector.

Result 4 (Limits of Fines). Increasing fines raises the gatekeeper's required legal investment but does not necessarily change the equilibrium strategy. The fine must exceed a critical threshold F^* to shift the gatekeeper from strategic to full compliance. Below that threshold, higher fines only increase rent dissipation. Given the magnitude of digital platform rents, this threshold may be impractically high. Thus, only more severe remedies, such as credible structural separation threats, may be sufficient to discipline gatekeeper behavior. This result has a direct parallel in the tax evasion literature (Franzoni, 1998), where the optimal enforcement strategy involves rare but severe punishment, and in the inspection game literature (Kirstein, 2014; Tsebelis, 1991), where the deterrent effect of severe penalties is attenuated by strategic interaction.

Beyond these four key results, the analysis yields three further insights. First, the disciplining effect of enforcement rests entirely on the EC's net trust gain ($T_{\text{enf}} > T_{\text{acc}}$). Where visible enforcement is politically costly or the risk of defeat in court weighs heavily, the enforcement threat collapses, and strategic compliance becomes costless for all gatekeeper types (see the discussion of Assumption 1 in Section 3). Second, the central result is robust to turnover-linked fines as long as the rent-preservation advantage exceeds the rate at which fines feed into the required legal investment (Remark 3 in Section 4.4). Third, the extensions sketched in Section 5 suggest that the specification procedure adds a second strategic opportunity and that compliance reports may degenerate into uninformative signals – channels that reinforce, rather than qualify, the equilibrium logic.

6.2 Implications for Regulatory Policy and the Institutional Design of the DMA

Our results cast doubt on the hope that the DMA will effectively close the perceived regulatory loopholes regarding digital gatekeepers through self-executing rules of conduct

and compliant gatekeeper behavior. While full compliance is the predicted equilibrium outcome in low-stakes situations – the model's low-impact type – strategic compliance and the persistence of supracompetitive rents are the predicted outcome when stakes are high, as long as fines remain below the critical threshold identified in Section 4.4.

Low-stakes situations comprise cases where supracompetitive rents are small anyway, or cases where the regulated conduct is not particularly relevant for future supracompetitive rents, although it might have been relevant in the past – interpreting Π as the rent at stake going forward. While compliance in these cases is, ceteris paribus, a positive effect for welfare, it is beyond the scope of this paper to assess whether these comparatively minor gains are worth the regulatory effort. Moreover, our results align with concerns that the DMA mostly regulates abusive conduct of the past that has already lost its business appeal for the future (Budzinski & Mendelsohn, 2022).

More crucial for the overall performance of the DMA are high-stakes situations, meaning cases in which present and future supracompetitive rents are high. These imply strong incentives for gatekeepers to escape effective regulation, and they are also the cases with the highest potential for welfare damage. Our model shows that, under these conditions, a DMA-style regulation does not reach its goals: gatekeepers keep part of their privileges, such as market power and the ability to (ab)use it, and the regulator lacks the incentives to fully erode them under this framework. Instead, strategic equilibria between the regulator and the gatekeeper at the expense of non-included third parties are likely to occur ("deals"; Budzinski & Kuchinke, 2016). These equilibria describe situations in which the regulator and the regulated gatekeeper are both satisfied while the regulatory burden is shifted to consumers, business users, and overall welfare. This resembles an indirect form of regulatory capture in outcome, although the mechanism differs as the gatekeeper does not influence the regulator's preferences but raises its enforcement costs. Our model suggests that the balance between dialogue and enforcement is itself a strategic variable that gatekeepers exploit. The availability of negotiation channels (specification procedures, compliance workshops) provides additional opportunities to delay or dilute effective compliance in high-impact cases.

Moreover, there is a considerable risk of a tendency toward legal complexity and regulatory bureaucracy. In equilibrium, both sides expend resources on legal and procedural sophistication without changing the compliance outcome (Result 3), and sanctions below the critical threshold only intensify this dissipation (Corollary 1). The resulting opacity may further facilitate accommodating outcomes at the expense of society, a channel that the signaling extension in Section 5.2 makes explicit. In addition, the DMA locates the EC's enforcement commitment downstream in the enforcement process. Once a non-compliance investigation is opened under Article 20 DMA, the procedural logic points toward a formal finding rather than informal case closure, although the exact scope of the EC's discretion remains contested (van den Boom & Podszun, 2025; see Section 2).

This commitment, however, operates downstream of the gatekeeper's strategic investment, which targets the earlier decision: whether the EC opens proceedings at all. In a DMA-style regulatory environment, the gatekeeper's investment in legal complexity thus undermines the cost-benefit calculus that determines whether the regulator (the EC) crosses the investigation threshold, rather than contesting the outcome once it does.

Furthermore, the EC's role as sole enforcer (Recital 91 DMA) creates a single point of failure. If the exclusive regulator remains passive, for example, under the strain of mounting legal complexity or under political pressure, no other authority, such as national competition authorities, can step in to force action. This is aggravated by private enforcement remaining a difficult alternative in Europe (van den Boom & Podszun, 2025).

Finally, our model indicates that the insufficiency of the regulator's toolbox in non-compliance cases may add to these structural and procedural problems. The focus on fines seems unlikely to deter strategic compliance, given the magnitude of the rents at stake (Result 4). Going beyond our stylized model, the DMA does provide for structural remedies, for instance, the divestiture of parts of the gatekeeper's business (Article 18 DMA). However, these are a measure of last resort. They require systematic non-compliance – at least three non-compliance decisions within eight years – and are subject to strict proportionality requirements, so their value as a credible threat is questionable. In the model's terms, a harsher sanction disciplines only if the EC's ex-post enforcement incentive supports it. Structural remedies plausibly raise the procedural costs and litigation risks of enforcement even further, and they restore the enforcement threat only insofar as they also raise the institutional payoff from visible enforcement. If structural remedies are not available as credible threats, enforcement deficits are, according to our analysis, the likely consequence.

While it is too early for a comprehensive empirical assessment, the model's predictions are consistent with observed patterns in DMA enforcement. The proceedings overview in Appendix A reveals that the majority of non-compliance investigations concern obligations with direct implications for gatekeeper revenue: anti-steering provisions (Apple, Alphabet), data combination without consent (Meta), and self-preferencing in search (Alphabet). All four decisions imposing fines to date concern precisely such obligations. The enforcement record is equally informative in what it omits. For example, obligations concerning technical interoperability or data portability – lower-impact in the model's terms insofar as they place smaller shares of revenue directly at stake – have not been the subject of non-compliance proceedings.[10] As the model predicts, where no large monopoly rent is defended, full compliance is the equilibrium and no enforcement conflict arises. That interoperability, among other obligations, has instead been dealt with through specification proceedings under Article 8(2) supports this reading, although the specification

[10]The partial exception is Article 6(7), which features among the obligations at issue in DMA.100206, a case centered on Apple's new business terms and thus on core monetization.

procedure itself lies outside our model (see Section 5).

Beyond the DMA, our analysis contributes to the economics of regulation more generally. The mechanism does not depend on any feature specific to digital markets. It requires only that (i) a regulated firm has substantial rents at stake, (ii) the regulator bears the costs of establishing non-compliance and decides on enforcement with discretion after observing them, and (iii) the compliance process allows the firm itself to shape how costly this assessment becomes. Wherever these conditions hold – conceivable, for instance, in financial, energy, or environmental conduct regulation with negotiation-oriented supervision – strategic compliance in our sense is a predictable equilibrium phenomenon, and the limits of fines identified here apply accordingly. DMA-style regulation is thus best understood as a prominent instance of a broader class of enforcement games in which regulated firms can invest in the costs of their own oversight.

7 Conclusion

This paper formalizes the strategic compliance problem under a DMA-style regime as a sequential game between a gatekeeper and the EC. The central insight is that compliance behavior depends critically on the magnitude of the monopolistic rent at stake. In high-impact cases, gatekeepers have an incentive to invest in legal complexity that deters enforcement, leading to a strategic compliance equilibrium. In low-impact cases, the economics favor full compliance. The extension to endogenous enforcement incentives reveals that fines must exceed a critical threshold to alter compliance behavior: below it, raising them merely escalates the gatekeeper's legal expenditure without changing the compliance outcome, so that eliminating strategic compliance may require fines of extraordinary magnitude.

These findings contribute to an emerging literature on regulatory compliance in digital markets. While substantial legal scholarship has addressed DMA procedures and enforcement options, this paper provides, to our knowledge, the first formal game-theoretic analysis of strategic compliance behavior under the DMA and, more broadly, under sector-specific conduct regulation. The model identifies the negotiation-oriented nature of DMA enforcement as a key structural feature that gatekeepers can exploit, and it generates predictions consistent with observed enforcement patterns.

Several avenues for future research emerge from this framework. First, quantifying gatekeeper rents versus enforcement costs would enable empirical calibration of the model. The critical condition $\Pi_H(\alpha - \beta) > C^*_{GK}$ is testable in principle, though it requires data on both the revenue impact of specific DMA obligations and the legal costs incurred by gatekeepers in compliance proceedings. Neither is currently available: obligation-specific revenue effects are commercially sensitive information that gatekeepers do not disclose, and gatekeepers' legal expenditures in this regard are not reported at all. The compli-

ance reports mandated under Article 11 DMA do not fill this gap. They are not designed to report revenue effects or legal costs, and even their account of the technical implementation is, in the non-confidential versions, partly opaque (Ribera Martínez, 2025). Second, the signaling extension sketched in Section 5.2 deserves full formal treatment. Modeling the compliance report as a signal in a game of asymmetric information would yield insights into the informational value of compliance reports, the conditions under which they degenerate into uninformative signals, and the design of reporting requirements that enhance the EC's screening capacity. This extension would connect the DMA compliance literature to the broader mechanism design literature on regulatory disclosure. We deliberately leave this step to future work because a meaningful signaling analysis requires its own apparatus of type spaces, belief systems, and equilibrium refinements. Moreover, it presupposes the complete-information benchmark that the present paper establishes. Third, repeated interaction and reputation effects merit investigation. Our model is a one-shot game. In practice, the EC and gatekeepers interact repeatedly across multiple obligations and over time. Reputation dynamics, for both the EC's enforcement credibility and the gatekeeper's compliance record, could generate substantially different equilibrium behavior, potentially sustaining cooperation through trigger strategies or facilitating regulatory capture through repeated interaction. Analyzing these dynamics rigorously requires selecting among the typically large set of repeated-game equilibria – a choice that, after only three years of enforcement practice, observed behavior cannot yet discipline. Fourth, enforcement in the model succeeds with certainty once initiated. In practice, the probability of a final adverse decision is below one and is itself a target of gatekeeper strategy, as the pending appeals by Apple and Meta illustrate. The insight that the likelihood of conviction, rather than the frequency of investigation, is the decisive enforcement variable (Allingham & Sandmo, 1972; Franzoni, 1998) then applies with additional force. Further avenues include incorporating third-party enforcement into the model, the interaction between DMA and parallel competition law enforcement, as well as the EC's finite enforcement resources and state capacity constraints.

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A Overview of DMA Enforcement Proceedings

This appendix provides an overview of enforcement activity under the DMA as of August 2026. Table 2 lists non-compliance investigations under Article 29 DMA, and Table 3 presents specification proceedings under Article 8(2) DMA.

Table 2: Non-compliance investigations under Article 29 DMA

Obligation	**Gatekeeper**	**Case (Subject)**	**Status**
Art. 5(2)	Meta	DMA.100055 (Pay-or-Consent model: investigation into the binary choice imposed on EU users of paying for a subscription or consenting to data processing)	• Opened 25/03/2024 (European Commission, 2024a) • Non-compliance decision 23/04/2025; EUR 200m fine (European Commission, 2025d)
Art. 5(4)	Alphabet	DMA.100075 (Google Play steering: restrictions preventing app developers from steering users to offers outside the Google Play Store)	• Opened 25/03/2024 (European Commission, 2024b) • Non-compliance decision 23/07/2026; EUR 430m fine (European Commission, 2026d)
Art. 5(4)	Apple	DMA.100109 (App Store steering: restrictions preventing app developers from steering users to offers outside the App Store)	• Opened 25/03/2024 (European Commission, 2024c) • Non-compliance decision 23/04/2025; EUR 500m fine (European Commission, 2025e)
Art. 5(4), 5(7), 6(4), 6(7)	Apple	DMA.100206 (New business terms (CTF): investigation into the core technology fee, alternative app store rules, and sideloading requirements)	• Opened 24/06/2024 (European Commission, 2024f)

Table 2: Non-compliance investigations under Article 29 DMA (*continued*)

Obligation	**Gatekeeper**	**Case (Subject)**	**Status**
Art. 6(3)	Apple	DMA.100185 (iOS choice screens: investigation into browser choice screens, changing default settings, and app uninstallation)	• Opened 25/03/2024 (European Commission, 2024d) • Closed 23/04/2025 (European Commission, 2025c); EC accepted Apple's changes to the choice screen and new default settings menu.
Art. 6(5)	Alphabet	DMA.100193 (Google Search self-preferencing: preferential treatment of Google's own vertical services)	• Opened 25/03/2024 (European Commission, 2024e) • Non-compliance decision 23/07/2026; EUR 460m fine (European Commission, 2026d)
Art. 6(5), 6(12)	Alphabet	DMA.100231 (Media/publisher demotion: investigation into site reputation abuse policies and alleged demotion of independent media content)	• Opened 12/11/2025 (European Commission, 2025g)

Table 3: Specification proceedings under Article 8(2) DMA

Obligation	**Gatekeeper**	**Case (Subject)**	**Status**
Art. 6(7)	Apple	DMA.100203 (Interoperability with connected devices: specifying how Apple must allow third-party devices to interact effectively with iOS)	• Opened 19/09/2024 (European Commission, 2024g) • Decision 19/03/2025 (European Commission, 2025a) • Waiver clause 04/08/2025 (European Commission, 2025f)

Table 3: Specification proceedings under Article 8(2) DMA (*continued*)

Obligation	**Gatekeeper**	**Case (Subject)**	**Status**
Art. 6(7)	Apple	DMA.100204 (Interoperability request process: specifying how Apple must design the process for developers to request interoperability)	• Opened 19/09/2024 (European Commission, 2024h) • Decision 19/03/2025 (European Commission, 2025b)
Art. 6(7)	Alphabet	DMA.100220 (Interoperability with hardware and software: specifying how Alphabet should grant third-party AI service providers equally effective access to the same features as those available to its own services)	• Opened 27/01/2026 (European Commission, 2026b)
Art. 6(11)	Alphabet	DMA.100209 (Access to anonymized data: specifying the scope of data, anonymization method, conditions of access and eligibility of AI chatbot providers to access data)	• Opened 27/01/2026 (European Commission, 2026a)

Note: Non-compliance investigations under Article 29 DMA address suspected violations and may result in fines of up to 10% of worldwide turnover, rising to 20% for repeated infringements (Article 30 DMA). Specification proceedings under Article 8(2) DMA are constructive regulatory instruments through which the EC specifies how a gatekeeper should implement a complex obligation. They do not entail a finding of non-compliance.