

## Antitrust Enforcement and the Redirection of Platform M&A Strategy

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### ABSTRACT

Corporate boundary theory and dynamic capabilities theory explain when and why firms acquire external resources, but both treat the external regulatory environment as a background condition. This paper investigates how enforcement pressure affects large technology incumbents' mergers and acquisitions (M&A) strategy, instead of simply deterring M&A deal activity. We propose a regulatory acquisition premium that varies with the degree of capability overlap between acquirer and target. Substitutive M&A (the target replicates the acquirer's existing operations) face higher regulatory costs than complementary M&A (the target fills a gap in the acquirer's portfolio). Using 6,901 software-sector M&A from 2000 to 2022, we find that substitutive M&A decline by 11.2% after enforcement intensifies around 2017. The decline concentrates among young targets. A further deal-type decomposition shows that enforcement redirects incumbents' M&A from ecosystem targets toward horizontal targets, with vertical deals unaffected. Economic overlap between acquirers and targets does not decline even as certain deal types fall, indicating that acquirers substitute toward less scrutinized but functionally similar targets. These findings suggest that institutional hazards produce systematic reallocation across M&A types, and they reveal how regulatory constraints redirect the external sourcing of capabilities.

**Keywords.** platform M&A, antitrust enforcement, substitutive, complementary

## 1. INTRODUCTION

Digital platform incumbents rely on mergers and acquisitions (M&A) to build ecosystems, internalize network effects, and enter adjacent markets (Cennamo, 2021; Jacobides, Cennamo, & Gawer, 2018). Between 2001 and 2022, the five largest technology platform incumbents (Google, Apple, Facebook, Amazon, and Microsoft, collectively GAFAM) acquired over 800 startups in the software sector. In general, M&A are a principal instrument through which firms reshape their boundaries and redirect their capability portfolios (Capron & Mitchell, 2009; Haspeslagh & Jemison, 1991). Corporate boundary theory specifies conditions under which firms acquire external capabilities instead of developing them internally (Argyres & Zenger, 2012; Coase, 1937; Williamson, 1985), and dynamic capabilities theory explains why some firms systematically pursue M&A as a mode of external capability sourcing (Teece, 2007). Besides, strategy research has long recognized that external institutions condition firms' strategic choices (Henisz, 2000; North, 1990). Among these institutions, antitrust enforcement determines which transactions are permitted, at what cost, and with what delay. Existing research has examined whether enforcement deters M&A occurrence (Cunningham, Ederer, & Song, 2021; Letina, Lorenzoni, & Rossi, 2024; Rong, Sokol, Zhou, & Zhu, 2025), but beyond reducing M&A in general, platform incumbents may also change what they acquire. Therefore, this paper examines whether the intensification of antitrust enforcement toward large technology platforms altered their M&A strategy; if so, how.

We introduce a regulatory acquisition premium, an enforcement-induced cost that varies with the functional relationship between acquirer and target capabilities. Substitutive M&A, in which the target replicates operations the acquirer already performs, attract heightened scrutiny because they resemble classical competition harms (Capron & Mitchell, 2009; Nocke &

Whinston, 2010; Seru, 2014). Complementary M&A, in which the target adds capabilities the acquirer lacks, attract less scrutiny because they extend the acquirer's portfolio without eliminating an independent producer (Ahuja & Katila, 2001; Kaul, 2012). When enforcement intensifies, the premium differential widens, and platforms reallocate their M&A toward complementary targets.

We empirically analyze the M&A deals within 6,901 software companies between 2000 and 2022. Beginning in 2017, antitrust authorities intensified their scrutiny of platform incumbents' M&A across multiple regions. Our main finding is that the probability that a deal is substitutive declines after the 2017 enforcement inflection, with the effect concentrated among young targets. A deal-type decomposition reveals that ecosystem M&A fall while horizontal M&A in the same product market rise by a nearly offsetting magnitude, and vertical M&A are unaffected. Platforms redirect their M&A toward deal types with lower regulatory salience even as economic overlap between acquirers and targets, measured by text similarity (Hoberg & Phillips, 2010, 2016), remains stable. Besides, an event study shows stable pre-trends through 2016, with the decline in substitutive M&A beginning around 2017 and deepening through 2022. Acquirer fixed effects confirm the pattern within the same acquirer over time, ruling out portfolio selection as the mechanism. Only GAFAM firms (Google, Amazon, Facebook, Apple, Microsoft) reduce both substitutive share and textual similarity simultaneously, consistent with their elevated enforcement attention that distinguishes them from other serial acquirers such as Cisco, Intel, and Oracle.

The paper advances three conversations in strategy. First, we extend corporate boundary theory (Argyres & Zenger, 2012; Williamson, 1985) by demonstrating that institutional hazards create differential premiums across deal types, generating predictable changes in firms' M&A

strategy. Second, we contribute to the literature on platform strategy and ecosystem governance (Cennamo, 2021; Eisenmann, Parker, & Van Alstyne, 2011; Jacobides, Cennamo, & Gawer, 2018) by documenting how enforcement pressure alters the platform M&A strategy and, through it, the architecture of innovation ecosystems. Third, we identify a specific channel through which political institutions affect firm M&A decisions (Bonardi, Hillman, & Keim, 2005; Henisz, 2000; Holburn & Zelner, 2010). Although economics has long shown that regulation can lead firms to change their behavior (Seldeslachts, Sleuwaegen, & Veugelers, 2009; Wollmann, 2019), this idea has received less attention in strategy. We extend this literature by demonstrating that enforcement-induced cost differentials alter firms' boundary choices and the resulting architecture of platform ecosystems.

## **2. THEORETICAL DEVELOPMENT**

### **2.1. Theoretical Foundations**

The boundary of the firm reflects a basic economic tradeoff. When deciding whether to make or buy a capability, managers weigh the costs and benefits of internal development against acquisition of an external supplier. This logic is rooted in transaction cost economics (Coase, 1937). Governance costs rise with asset specificity, uncertainty, and frequency of transactions (Williamson, 1985). Firms acquire capabilities from external markets when the cost of internal production exceeds the transaction costs of external procurement.

Recent theoretical work has refined this rationale by emphasizing the capability structure of the firm. Boundary decisions also rest on the distribution of capabilities within the firm (Argyres & Zenger, 2012). A firm that possesses deep competencies in a domain will develop new capabilities internally, extracting complementarities and maintaining architectural coherence. Conversely, a firm will acquire when the target possesses capabilities that are distant

from its own. Dynamic capabilities theory extends this reasoning by identifying sensing, seizing, and reconfiguring as the three capacities that determine which firms succeed in rapidly changing environments (Teece, 2007). Firms profit from innovation only when they control the complementary assets required for commercialization (Teece, 1986). When complementary assets are specialized and difficult to contract for in markets, firms acquire or build them.

In digital platform markets, a new dimension enters the boundary tradeoff, i.e., ecosystem governance. Platforms orchestrate networks of complementary producers, users, and data. Platforms need to manage spillovers, control architectural decisions, and preserve incentives for complementors (Jacobides, Cennamo, & Gawer, 2018). Modularity and openness arise endogenously when the ecosystem is structured to allow independent innovation (Baldwin & Clark, 2000). When a platform considers acquiring a complementor, it faces a governance choice analogous to the classic make-or-buy problem but with an additional complication. Acquisition aligns incentives and internalizes spillovers, but it may also disrupt the network by signaling preferential treatment or by consolidating complementary resources in a way that threatens the openness the ecosystem depends on. The specific tension in digital markets arises from this governance challenge (Cennamo, 2021). Platforms benefit from wide participation and open architecture, yet each individual acquisition narrows the ecosystem by bringing more resources under platform control.

A central tension in platform M&A strategy concerns whether M&A generates efficiencies of scale and scope or leads to platform envelopment. Platform envelopment is the entry of one platform into the market of another by bundling its own functionality with that of the target platform (Eisenmann, Parker, & Van Alstyne, 2011). Platform competition involves strategic trade-offs between growing the application base and securing exclusive content

(Cennamo & Santalo, 2013). The tension between building in-house complements and encouraging external participation is well documented (Cennamo, 2018). This tension applies with particular force to M&A of platforms that could serve as both complementors and potential competitors.

Beyond transaction costs and ecosystem governance, firms also face institutional hazards that arise from regulatory and political environments. Institutional hazards are the costs imposed on firms by uncertainty and unpredictability in regulatory and political institutions (Henisz, 2000). Firms adopt different strategies in jurisdictions with different levels of institutional hazard (Holburn & Zelner, 2010). Institutions determine the opportunity set for economic exchange (North, 1990), and firms invest in political activity to reduce regulatory risk in markets where they compete for favorable regulatory outcomes (Bonardi, Hillman, & Keim, 2005). Antitrust enforcement is one such institution. Institutional hazards influence not only whether to acquire but also what type of target to acquire.

## **2.2. Substitutive versus Complementary M&A**

Firms vary M&A strategy along a dimension we label the functional relationship between acquirer and target. We distinguish substitutive M&A, in which the target's primary capabilities replicate or consolidate what the acquirer already does, from complementary M&A, in which the target adds capabilities the acquirer does not possess. Substitutive M&A consolidate user networks, eliminate duplicate operations, and internalize network effects, and they reduce the number of independent service providers in the capability domain of the target (Nocke & Whinston, 2010). Complementary M&A add capabilities to the acquirer without reducing competition directly in the target's domain, and they enable the acquirer to offer broader or better services (Ahuja & Katila, 2001; Kaul, 2012).

The substitutive category is related to but broader than the horizontal category used in classical antitrust taxonomy. Horizontal M&A involve firms operating in the same product market, as measured by industry codes or product overlap (Nocke & Whinston, 2010). Substitutive M&A include any deal in which the target's capabilities functionally replicate those of the acquirer, even when the two firms do not share a product market. A platform may acquire a data provider or a network asset whose activities fall outside the platform's core product market but replicate a function the platform already performs internally. Such a deal is substitutive in capability terms without being horizontal in industry-code terms. Enforcement authorities evaluate these capability overlaps through different frameworks depending on where the overlap manifests. Same-market overlap follows well-developed horizontal merger guidelines (Baker, 2019; Duso, Gugler, & Szucs, 2011), whereas overlap that extends the platform's control across market boundaries attracts newer scrutiny tied to platform market power (Jacobides, Cennamo, & Gawer, 2018; Stucke & Grunes, 2015).

### **2.3. M&A Types and Enforcement**

Empirical research on M&A integration informs the distinction between substitutive and complementary deals. Value creation in M&A is more likely when the target contributes capabilities that extend the acquirer's resource base instead of duplicating it (Capron & Mitchell, 2009). The same logic applies to technology scope, where firms tend to acquire distant technologies and develop proximate ones internally (Kaul, 2012). Post-M&A integration also differs across deal types. Substitutive M&A typically involve absorption and consolidation of the target's operations, while complementary M&A more often benefit from preserving a degree of operational autonomy in the target (Capron, 1999; Puranam, Singh, & Zollo, 2006). Integration choices in turn relate to innovation outcomes. Technological overlap between acquirer and target

is associated with greater post-M&A patenting (Bena & Li, 2014), whereas innovation novelty tends to decline within acquired units of diversified firms (Seru, 2014), indicating that the innovation consequences of M&A vary with the functional relationship between acquirer and target.

On the enforcement side, empirical evidence documents that antitrust enforcement reduces horizontal mergers more than other types (Seldeslachts, Sleuwaegen, & Veugelers, 2009). Authorities block or impose conditions on M&A with high competitiveness indices (Duso, Gugler, & Szucs, 2011). M&A thresholds affect the types of mergers that are completed (Wollmann, 2019). Enforcement effects depend on M&A type, with greater deterrence for horizontal M&A (Wollmann, 2019). Enforcement decisions reflect not only economics but also political considerations (Shapiro, 2019). In the platform context, the nascent competition literature has examined whether enforcement deters M&A overall (Cunningham, Ederer, & Song, 2021; Letina, Lorenzoni, & Rossi, 2024). Instagram operated as a photo-sharing complementor to Facebook's social network, but its trajectory positioned it as a potential competitor in the social networking space (Zhu & Liu, 2018).

### **3. HYPOTHESES**

We introduce the concept of a regulatory acquisition premium, an enforcement-induced cost that varies with the functional relationship between acquirer and target capabilities. Efficiency defenses operate asymmetrically across M&A types (Baker, 2019; Seldeslachts, Sleuwaegen, & Veugelers, 2009; Wollmann, 2019). Substitutive M&A realize complementarities through elimination of duplication and consolidation of operations (Capron, 1999; Capron & Mitchell, 2009), yet the same operational overlap that generates cost savings also reduces the number of independent service providers (Nocke & Whinston, 2010). Enforcement authorities are therefore

skeptical of efficiency claims in substitutive deals because eliminating a competitor's operations is precisely the harm that merger law aims to prevent (Baker, 2019; Shapiro, 2019).

Complementary M&A face no such burden. The acquirer adds capabilities and does not eliminate a competitor's operations (Ahuja & Katila, 2001; Kaul, 2012), and the target provides a service the acquirer did not offer. Enforcement authorities grant these deals greater deference (Duso, Gugler, & Szucs, 2011; Wollmann, 2019). The regulatory acquisition premium is therefore higher for substitutive deals than for complementary deals, and the differential widens when enforcement intensifies because agencies concentrate review resources on transactions that appear salient to competition (Seldeslachts et al., 2009; Shapiro, 2019; Wollmann, 2019).

Enforcement intensity operates through multiple cost channels. Heightened scrutiny raises explicit costs, including longer regulatory review timelines, conditional approvals, and the risk of prohibition (Duso et al., 2011; Wollmann, 2019). It also raises implicit costs, including reputational damage, management distraction, and reduced deal certainty, which enter firms' strategic calculus alongside direct regulatory costs (Bonardi, Hillman, & Keim, 2005; Henisz, 2000). The consequences for acquirer behavior depend on how enforcement differentially prices each type (Seldeslachts et al., 2009). When enforcement intensifies, the cost differential between substitutive and complementary M&A widens, and platforms adjust their external sourcing of capabilities by reallocating M&A activity toward targets in less scrutinized categories (Cunningham, Ederer, & Song, 2021; Letina, Lorenzoni, & Rossi, 2024; Wollmann, 2019).

Platforms retain M&A activity yet shift its deal type toward targets with lower regulatory salience (Henisz, 2000; Wollmann, 2019). Substitutive deals continue to generate operational rents through consolidation of duplicate activities (Capron, 1999; Capron & Mitchell, 2009). This reallocation logic yields our first hypothesis.

*Hypothesis 1. Increased antitrust enforcement reduces the deal type of substitutive M&A relative to complementary M&A.*

### **3.1. Target Maturity and Competitive Counterfactual Uncertainty**

Young targets that are strategically positioned, those with trajectory potential, adjacency to the acquirer's core market, and capability substitutability, present the widest range of competitive trajectories that an acquisition could foreclose. Their acquisition generates the most uncertain competitive counterfactual, which is precisely what modern enforcement evaluates (Cunningham, Ederer, & Song, 2021; Letina, Lorenzoni, & Rossi, 2024). A young startup might become a major competitor if left independent; an older, mature firm has a more established trajectory. Enforcement agencies weigh this counterfactual trajectory heavily when assessing competitive harm.

For early-stage firms, the efficiencies are more speculative because nascent companies lack the operating histories needed to demonstrate acquisition-specific complementarities (Duso, Gugler, & Szucs, 2011). Nearly all deals are ultimately approved, but increased scrutiny itself generates costs (longer review timelines, reputational exposure, management distraction) sufficient to deter at the margin. Acquisition of young substitutive targets also involves venture financing consequences. Regulatory risk affects venture financing (Jin, Leccese, & Wagman, 2024), and antitrust platform regulation in China reduced venture capital investment (Rong, Sokol, Zhou, & Zhu, 2025). When acquisition risk increases, VC investors reduce their valuation of exit potential, reducing the supply of young substitutive targets available for acquisition. This asymmetry yields our second hypothesis.

*Hypothesis 2. The enforcement-driven decline in substitutive M&A is larger for young targets than for mature targets.*

## **4. EMPIRICAL APPROACH**

### **4.1. Sample and Data**

Our sample consists of M&A of private software and platform companies by large technology platforms between 2000 and 2022. Following established entrepreneurial finance data practices (Gompers & Lerner, 2001), we collected data from Crunchbase, CapitalIQ, and regulatory filings, supplemented with hand-collection from company websites and press releases. The sampling frame includes all M&A where the acquirer is one of 49 large technology platforms, defined as companies with greater than 50,000 employees or more than 10 billion in market value as of 2018, and the target is a private company that had received venture financing or was identified as a software or platform business. Our primary sample contains 6,901 M&A. Of these, 6,705 M&A have non-missing founding dates for targets, allowing measurement of target age.

### **4.2. Measuring Acquisition Type**

Our primary measure of acquisition type is binary, either substitutive or complementary. Classification was conducted through the following procedure. For each acquisition, we obtained the target's business description from Crunchbase and the acquirer's portfolio of service offerings as of the acquisition date, obtained from company websites and quarterly earnings reports.

A target is classified as substitutive if the target's primary business description references a service category or capability also referenced in the acquirer's portfolio of services as of the acquisition date, otherwise the acquisition was classified as complementary M&A. This approach prioritizes specificity over sensitivity, erring toward classification as complementary when there is ambiguity. Inter-rater agreement on the primary measure reached 91.2% on a

stratified random sample of 200 M&A. This process yielded 2,688 M&A classified as substitutive (39.9% of the sample) and 4,213 classified as complementary (60.1%).

Hoberg and Phillips (2010, 2016) develop similarity measures based on product descriptions and show that economic competition varies continuously along the similarity dimension. We use their approach to construct a secondary validation measure for our binary classification. First, we employ text similarity. For each acquisition, we compute the cosine similarity between TF-IDF vectors of the target's business description and the acquirer's service descriptions. Similarity is measured on a scale from 0 (no overlap) to 1 (perfect overlap). The mean text similarity for substitutive M&A is 0.212; for complementary M&A, 0.102. Text similarity is thus significantly higher for substitutive M&A, validating the primary classification.

Second, we measure economic overlap as a continuous variable within the substitutive category. For the 2,688 substitutive M&A, we compute the overlap score as the TF-IDF cosine similarity to the acquirer's service descriptions. This yields variation within substitutive M&A, allowing analysis of whether enforcement effects depend on the degree of overlap. We show results for both the binary distinction and the continuous overlap measure. The text-based measures serve as validity checks, confirming that the binary classification correlates with economic overlap as expected.

### **4.3. Target Maturity Measures**

We measure target maturity using two approaches. First, we use a continuous measure, target age in years, computed as the number of days from founding to acquisition divided by 365. Target age ranges from 0 to 35 years, with mean 6.86 and median 5.2.

Second, we create a binary indicator, Young Target, coded as one if the target was founded within 5 years of the acquisition date, and zero otherwise. This cutoff approximates the

venture capital financing lifecycle, where companies are typically funded and expected to reach scale or exit within 5 to 7 years. Young targets represent companies still in the growth phase, not yet matured to scale. Young targets comprise 48.5% of the sample with non-missing founding dates. We use both measures in analyses, reporting results with the continuous target age and the binary Young Target indicator. The two measures are highly correlated, and results are consistent across both specifications.

#### **4.4. Variables and Specification**

The timing of enforcement is captured by a post-2017 indicator, coded as one for M&A occurring after 2017 (that is, 2018 or later), and zero otherwise. This cutoff marks the intensification of antitrust enforcement against platform M&A, initiated by the U.S. Federal Trade Commission in 2018 and the European Union around the same time. This timing is supported by the escalation of enforcement actions, regulatory documentation, and enforcement intensity indices from prior work (Seldeslachts, Sleuwaegen, & Veugelers, 2009). We show robustness using alternative cutoffs (2017, 2019) and placebo tests using pre-enforcement years.

Our baseline specification regresses the binary substitutive indicator on Post2017, a linear year trend, and controls for log target employees, log total raised, target age, and log acquirer employees. We estimate linear probability models with HC1 standard errors. To test Hypothesis 2, we interact Post2017 with Young Target (binary) and with continuous target age in separate specifications. To examine economic overlap, we replace the dependent variable with TF-IDF-based binary overlap and include interactions with Young Target and GAFAM (Google, Apple, Meta, Amazon, Microsoft), a five-firm indicator for the highest-profile acquirers facing the most intense regulatory scrutiny.

All specifications use ordinary least squares estimation with standard errors clustered by acquirer. We use linear probability models for two reasons. First, interpretation of interaction terms is transparent in the linear model, and average marginal effects in nonlinear models often approximate the linear probability model estimates. We report results with and without controls, and with and without interactions, to allow comparison of specifications. Model 3 uses the binary Young Target indicator and its interaction with Post2017 as the maturity specification. Model 4 uses continuous target age and its interaction.

Summary statistics for all variables appear in Table 1, and correlations in Table 2. We use the year trend because it is parsimonious and allows direct estimation of the Post2017 main effect, which tests Hypothesis 1. The event study (Figure 1) provides a nonparametric test of the timing structure, confirming that the effect appears discretely in 2018 instead of gradually. As a robustness check, we estimate specifications with year fixed effects in which the Hypothesis 2 interaction (Young and Post2017) remains identified because it varies at the deal level, not the year level. The interaction coefficient is attenuated but remains statistically significant (Table 6, Panel G).

## **5. RESULTS**

### **5.1. Summary Statistics**

Table 1 reports summary statistics for the full sample. The sample includes 6,901 M&A, of which 6,705 have non-missing founding dates. The sample includes 6,233 targets with available VC financing records and 2,126 with disclosed deal values. Substitutive M&A comprise 40.1% of the sample. The substitutive category includes 2,688 M&A where targets operate in the same service category as the acquirer. Text similarity, our continuous measure of overlap, averages 0.139 with substantial variation. Post-2017 M&A comprise 45.0% of the sample. GAFAM M&A

comprise only 5.3% of deals but represent the most visible and scrutinized acquiring firms.

Target size, measured by log employees, has mean 2.283, corresponding to roughly 10 employees on average but with substantial variation. Target age averages 6.86 years, with 48.7% classified as young targets founded within five years of acquisition.

Comparing substitutive versus complementary M&A, substitutive M&A occur to targets with slightly lower employment and younger targets. Substitutive targets received less venture funding on average, consistent with the interpretation that smaller, less-developed startups are more likely to be direct competitors in service offerings. Text similarity is substantially higher for substitutive M&A, validating the classification. The proportion of post-2017 M&A is similar across types, suggesting no strong pre-trend in the strategy of deal types.

**Table 1. Summary Statistics**

Variable	N	Mean	SD	Min	Max
Substitutive (target-type)	6,901	0.401	0.490	0.000	1.000
Substitutive (overlap)	6,901	0.500	0.500	0.000	1.000
Text similarity	6,901	0.139	0.141	0.000	0.998
Post2017	6,901	0.450	0.498	0.000	1.000
GAFAM	6,901	0.053	0.225	0.000	1.000
Serial (10+)	6,901	0.211	0.408	0.000	1.000
Log(target emp)	6,901	2.283	1.884	0.000	9.909
Log(total raised)	6,901	1.604	1.458	0.000	7.721
Target age	6,705	6.860	5.105	0.000	35.000
VC round count	6,233	2.434	1.649	1.000	19.000
Log(deal size)	2,126	3.649	1.717	0.002	10.208
Young target	6,705	0.487	0.500	0.000	1.000
Log(acquirer emp)	6,901	6.587	2.862	0.000	14.248

Notes. Binary variables report proportions. Young target equals one if target age is below six years (sample median). Substitutive (overlap) equals one if acquirer-target text similarity exceeds the sample median (0.087). N varies by variable due to missing founding dates, VC financing records, and undisclosed deal values. VC round count is the number of pre-acquisition venture financing rounds. Log(deal size) is the natural log of disclosed deal value in millions. All continuous variables are log-transformed where noted.

Table 2 reports pairwise correlations among the primary variables. The correlation between Young target and Target age is -0.68, reflecting their mechanical relationship (Young target is a binary indicator derived from target age). The correlation between Substitutive and

Text similarity is 0.04, indicating that the binary target-type classification and the continuous text similarity measure capture distinct dimensions of economic overlap. VC round count correlates -0.36 with Young target and 0.65 with Log(total raised), confirming that young targets have fewer financing rounds and that VC rounds track funding amounts. GAFAM and Serial (10+) are correlated at 0.46, reflecting that all GAFAM firms are serial acquirers. Log(acquirer emp) and Serial (10+) correlate at 0.64, consistent with larger firms making more M&A. No other correlation exceeds 0.50 in absolute value.

**Table 2. Pairwise Correlations**

Variable	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1. Substitutive	0.401	0.490	1.00										
2. Text similarity	0.139	0.141	0.04	1.00									
3. Post2017	0.450	0.498	0.08	0.12	1.00								
4. Young target	0.487	0.500	0.12	-0.06	-0.11	1.00							
5. Target age	6.860	5.105	-0.15	0.05	0.08	-0.68	1.00						
6. Log(target emp)	2.283	1.884	0.00	0.05	0.23	-0.26	0.29	1.00					
7. Log(total raised)	1.604	1.458	-0.09	-0.01	-0.01	-0.32	0.30	0.42	1.00				
8. Log(acquirer emp)	6.587	2.862	-0.10	-0.25	-0.05	-0.03	0.04	0.18	0.20	1.00			
9. GAFAM	0.053	0.225	-0.01	-0.19	-0.09	0.05	-0.05	0.00	0.02	0.47	1.00		
10. Serial (10+)	0.211	0.408	-0.10	-0.29	-0.15	0.00	0.01	0.06	0.17	0.64	0.46	1.00	
11. VC round count	2.428	1.649	-0.03	0.04	0.09	-0.36	0.31	0.36	0.65	0.09	-0.02	0.06	1.00

Notes. Lower-triangular Pearson correlations. N = 6,705 for correlations involving target age or young target. N = 6,233 for VC round count (472 missing VC records). N = 6,901 otherwise. Correlations with absolute value above 0.08 are statistically significant at the 0.01 level.

## 5.2. Main Results

We begin with an event study using year fixed effects. This analysis benchmarks each year against 2017 (the omitted category, normalized to zero). Figure 1 shows that coefficients are statistically indistinguishable from zero through 2016 and drop sharply from 2018 onward. The flat pre-2017 pattern supports the parallel trends assumption. The pre-period average substitutive share is approximately 42%, and the post-period coefficients imply a decline of 10 to 15 percentage points relative to the 2017 baseline.

Table 3 reports the main results. Model 1 presents the baseline specification without controls, including only the Post2017 indicator. The coefficient on Post2017 is negative and statistically significant at the 1% level. Model 2 adds controls for target size, venture funding, target age, acquirer size, VC round count, and deal size. The Post2017 coefficient remains -0.112. VC round count carries a marginally positive coefficient, suggesting that targets with more financing rounds are slightly more likely to be acquired substitutively. Deal size shows no association with acquisition type. The year trend coefficient is positive, indicating a gradual increase in substitutive M&A prior to 2018, independent of the enforcement intensification. Target age carries a negative coefficient, indicating that M&A of older targets are less likely to be substitutive. Log acquirer employment carries a negative coefficient, suggesting larger acquirers are less likely to make substitutive M&A. R-squared ranges from 0.034 in the baseline to 0.069 in Model 2. The Post2017 coefficient of -0.112 in Model 2 is consistent with Hypothesis 1, representing a 28% reduction relative to the baseline substitutive rate of 40.1%.

Model 3 tests Hypothesis 2. The main effect of Post2017 is -0.054. The Young Target coefficient is 0.162, indicating that young targets are substantially more likely to be acquired substitutively. The interaction of Post2017 and Young is -0.106. Combining the coefficients, the effect of enforcement on young targets is a 16.0% reduction. For mature targets, the effect is a 5.4% reduction. The difference of 10.6% confirms that enforcement-associated changes concentrate where competitive counterfactual uncertainty is highest.

Model 4 replaces the binary Young Target indicator with continuous target age and an interaction of Post2017 and Age. The Post2017 main effect is -0.183. The target age coefficient is -0.020, and the interaction Post2017 and Age is 0.011. This positive interaction indicates that

the enforcement-associated effect becomes less negative as targets become older. This gradient confirms that the pattern is strongest for very young targets and weakens as targets mature.

Figures 2 and 3 provide visual evidence for the deal-type reallocation. Figure 2 plots the annual share of ecosystem, horizontal, and vertical M&A across the sample period. Ecosystem M&A decline after 2017, horizontal M&A increase by a comparable magnitude, and vertical M&A remain stable. Figure 3 disaggregates by target maturity and enforcement period. Among young targets, the ecosystem share drops in the post-2017 period while the horizontal share rises. Among mature targets, deal-type shares are largely unchanged. These graphical patterns correspond to the regression estimates in Table 5.

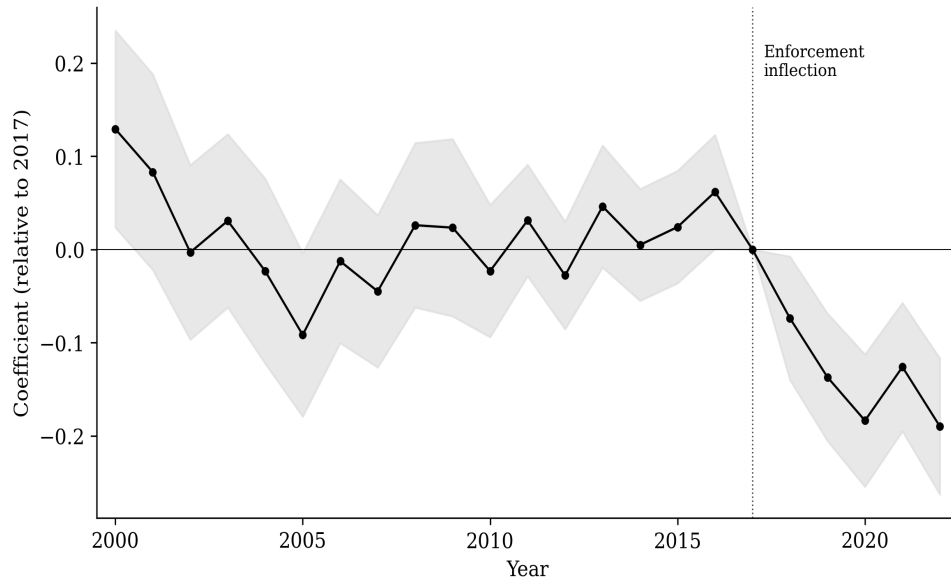
**Table 3. Main Results and Target Maturity (DV = Substitutive M&A)**

Variable	(1)	(2)	(3)	(4)
Post2017	-0.131*** (0.019)	-0.112*** (0.019)	-0.054** (0.022)	-0.183*** (0.024)
Young target			0.162*** (0.016)	
Young × Post2017			-0.106*** (0.024)	
Target age		-0.014*** (0.001)		-0.020*** (0.001)
Age × Post2017				0.011*** (0.002)
Year trend	0.025*** (0.002)	0.022*** (0.002)	0.022*** (0.002)	0.022*** (0.002)
Log(target emp)		0.010*** (0.004)	0.006 (0.004)	0.009** (0.004)
Log(total raised)		-0.011* (0.006)	-0.010 (0.006)	-0.009 (0.006)
Log(acquirer emp)		-0.014*** (0.002)	-0.013*** (0.002)	-0.014*** (0.002)
VC round count		0.009* (0.005)	0.009* (0.005)	0.009* (0.005)
Log(deal size)		-0.000 (0.006)	-0.005 (0.006)	-0.001 (0.006)
N	6,705	6,705	6,705	6,705
R-squared	0.034	0.069	0.064	0.072

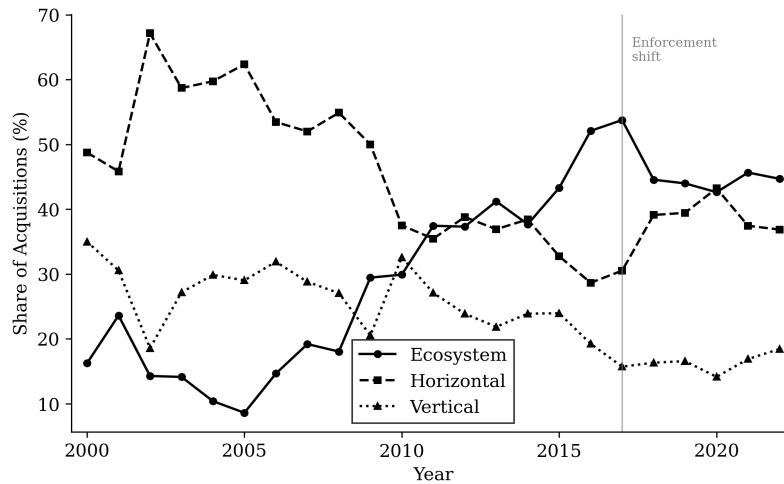
Notes. Linear probability model. DV equals one if target classified as substitutive. HC1 standard errors in parentheses. Model 1 includes Post2017 and year trend only. Model 2 adds controls including continuous target age. Model 3 uses the binary Young target indicator and its interaction with Post2017 as the maturity specification. Model 4 uses continuous target age and its

interaction. Missing indicators for VC round count and deal size are included but not reported. Each interaction specification uses one maturity operationalization. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$ .

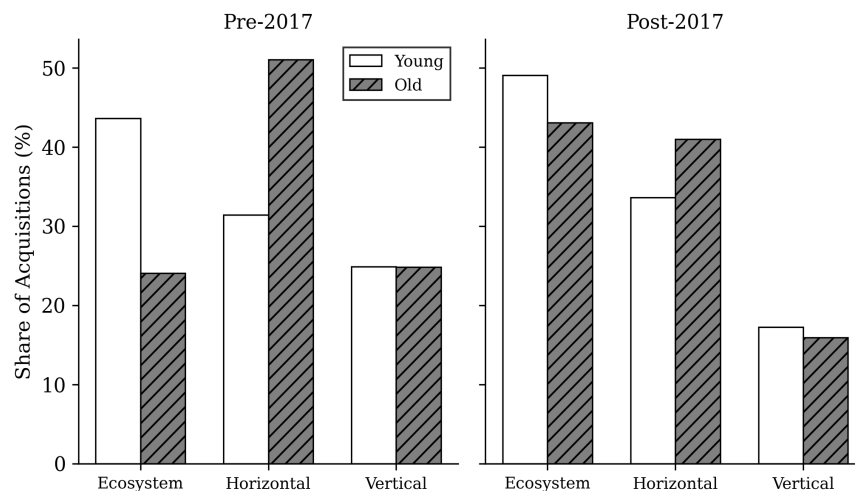
**Figure 1. Event Study of Substitutive M&A**



**Figure 2. M&A Deal Type Over Time (Ecosystem, Horizontal, Vertical)**



**Figure 3. M&A Deal Type by Target Maturity and Enforcement Period**



### 5.3. Economic Overlap and Deal Type Decomposition

Our theory predicts that enforcement operates through regulatory salience, not through actual economic overlap. To test this prediction, we examine whether enforcement reduces both the salience of M&A (measured by service category classification) and the economic overlap (measured by text similarity). Table 4 reports results using acquirer-target textual similarity as the dependent variable. Model 1 examines whether overlap exceeds the sample median of 0.087 (binary). Model 2 uses continuous text similarity.

The results reveal a divergence between regulatory salience and economic overlap. For the full sample, the Post2017 coefficient on binary overlap is 0.045 and on continuous text similarity is 0.010, both positive. Among non-GAFAM acquirers, economic overlap between acquirers and targets increases slightly after 2017. The GAFAM and Post2017 interaction is negative and large (-0.148 for binary overlap, -0.032 for continuous similarity). Combining the main effect and interaction, the total effect for GAFAM firms is -0.103 on binary overlap, indicating that GAFAM firms' M&A involve less economic overlap after 2017. The contrast confirms that regulatory salience and actual economic overlap move in different directions for

different acquirer types, consistent with enforcement operating through perceived rather than actual competitive harm.

**Table 4. Economic Overlap (Textual Similarity)**

Variable	Binary Overlap	Continuous Similarity
Post2017	0.045** (0.019)	0.010* (0.006)
GAFAM × Post2017	-0.148*** (0.025)	-0.032*** (0.005)
Controls	Yes	Yes
N	6,705	6,705
R-squared	0.097	0.089

Notes. Linear probability (column 1) and OLS (column 2) models. Strong (HC1) standard errors in parentheses. DV in column 1 equals one if acquirer-target TF-IDF cosine similarity exceeds the sample median (0.087). DV in column 2 is the raw cosine similarity score (0 to 1). Controls include log target employees, log total raised, target age, young target, log acquirer employees, VC round count, log deal size, missing indicators, GAFAM indicator, and year trend. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$ .

We further decompose substitutive M&A into three categories based on the target's complementarity type and its relationship to the acquirer. Ecosystem deals involve targets classified as network, data, or strategic asset functions. These targets provide capabilities that extend the acquirer's platform beyond its core product market, creating value through indirect network effects and cross-side complementarities. Horizontal deals involve targets not classified as ecosystem types but whose business descriptions exhibit above-median TF-IDF cosine similarity to the acquirer's service descriptions. Vertical deals are the residual category.

Table 5 reports linear probability models with each deal type as the dependent variable. All specifications include the full control set and year trend, using the binary Young target indicator for the maturity interaction. The post-2017 coefficient for Ecosystem deals is -0.054, for Horizontal deals is 0.048, and for Vertical deals is 0.006 (insignificant). The three coefficients sum to approximately zero since the categories are exhaustive. The pattern indicates

that enforcement affects the reallocation of deal type from ecosystem targets to horizontal targets, with vertical deals entirely unaffected.

The target maturity interaction reveals a sharp divergence. The Young and Post2017 coefficient is -0.106 for Ecosystem deals and 0.113 for Horizontal deals, with Vertical at -0.008 (insignificant). Among young targets, the Ecosystem M&A drops substantially after 2017 while the Horizontal M&A rises by a nearly identical magnitude. Among older targets, deal type shares remain stable across the enforcement threshold.

The decomposition supports a specific behavioral interpretation. Enforcement is associated with fewer M&A of young ecosystem targets, those with the highest regulatory salience and the greatest competitive counterfactual uncertainty. Platforms redirect M&A activity toward young horizontal targets. The shift may appear paradoxical because horizontal deals also involve capability overlap with the acquirer. The distinction is one of regulatory visibility, not economic substance. Ecosystem targets extend the acquirer’s platform footprint in ways that attract regulatory attention, while horizontal targets consolidate existing operations without expanding platform scope. The near-zero-sum reallocation between ecosystem and horizontal M&A indicates that enforcement does not reduce total M&A activity but changes its composition.

**Table 5. Deal Type Decomposition**

Variable	(1) Ecosystem	(2) Horizontal	(3) Vertical
Post2017	-0.054** (0.022)	0.048** (0.023)	0.006 (0.019)
Young target	0.162*** (0.016)	-0.153*** (0.017)	-0.009 (0.015)
Young × Post2017	-0.106*** (0.024)	0.113*** (0.024)	-0.008 (0.020)
Controls	Yes	Yes	Yes
N	6,705	6,705	6,705
R-squared	0.064	0.045	0.032

Notes. Linear probability models. DV in each column is an indicator for the deal type. Ecosystem deals involve targets classified as network, data, or strategic asset functions. Horizontal deals involve non-ecosystem targets with above-median acquirer-target

text similarity or SIC code overlap with the acquirer. Vertical deals are the remainder. Strong (HC1) standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$ .

#### **5.4. Robustness and Identification**

We evaluate the stability of the main findings across multiple dimensions (Table 6). Within-acquirer estimates using 369 acquirers with M&A in both the pre- and post-2017 periods confirm that individual platforms adjust their strategies over time (Panel A). The pattern appears across jurisdictions, with effects in the United States, the European Union, and other major markets (Panel B). Alternative enforcement cutoffs and a 2014 placebo test confirm that the effect appears discretely around 2017 and is absent in earlier periods (Panels C and D). The Oster (2019) bias-adjusted coefficient at  $\delta = 1$  is -0.340, and the  $\delta$  at which the coefficient reaches zero is 0.71, indicating that unobservable selection would need to run in the opposite direction of observable selection to eliminate the effect. Excluding GAFAM M&A produces a larger coefficient, ruling out that the finding is driven by the five largest platforms alone (Panel E).

Year fixed effects absorb the Post2017 main effect, but the Hypothesis 2 interaction (Young and Post2017) remains identified because it varies at the deal level. The interaction attenuates to -0.092 under year fixed effects (Panel G), remaining statistically significant at the 1% level. Excluding the COVID period (2020 and 2021) leaves the interaction at -0.105 (Panel H). Alternative age cutoffs of 3 and 7 years produce interactions of -0.106 and -0.136 (Panel I), consistent with the prediction that enforcement effects concentrate among younger targets. Table 6 reports the full set of robustness tests. Panel A compares pooled OLS and within-acquirer estimates for 369 acquirers with M&A in both periods. The pooled estimate is -0.079, and the acquirer fixed effects estimate is -0.066. The attenuation indicates that part of the pattern reflects acquirer composition, but the within-acquirer effect confirms that individual platforms

change their M&A strategies. Panel B disaggregates by jurisdiction. U.S.-based M&A (N = 4,704) yield -0.089, EU M&A (N = 931) yield -0.154, and other major markets (N = 753) yield -0.197. The pattern is monotonically stronger in jurisdictions where enforcement intensified earliest. China-based M&A (N = 159) produce -0.157, not statistically significant due to the small sample and later enforcement timing.

Panel C tests alternative enforcement cutoffs. The post-2016, post-2017, and post-2018 indicators yield coefficients of -0.106, -0.117, and -0.137. The monotonic increase is consistent with enforcement intensity rising over time. Panel D presents placebo and bounding tests. A 2014 placebo cutoff yields 0.041 (statistically insignificant), confirming that the 2017 break does not reflect pre-existing trends. The Oster (2019) bias-adjusted coefficient at  $\delta = 1$  is -0.340, and the implied delta for a zero effect is 0.71. Because the unconditional estimate is more negative than the controlled estimate, this delta means unobservables would need to select in the opposite direction of observables to eliminate the effect. Panel E shows that excluding GAFAM produces a larger estimate (-0.160), and target industry fixed effects for 16 categories yield -0.081. Panel F tests whether deal size mediates the enforcement effect. The Post2017 and Above HSR interaction is statistically insignificant, indicating that the effect does not depend on whether the deal crosses the Hart-Scott-Rodino filing threshold.

**Table 6. Robustness Tests (DV = Substitutive, Target-Type)**

Specification	Post2017 coef.	SE	N
Panel A. Acquirer fixed effects			
No FE (repeat acquirers only)	-0.079**	(0.031)	2,389
Acquirer FE (369 acquirers)	-0.066**	(0.028)	2,389
Panel B. Jurisdiction analysis			
United States	-0.089***	(0.022)	4,704
European Union	-0.154***	(0.052)	931
Other major markets	-0.197***	(0.061)	753
China	-0.157	(0.124)	159
Panel C. Alternative cutoffs			
2017 cutoff	-0.106***	(0.020)	6,705
2018 cutoff (main)	-0.117***	(0.019)	6,705
2019 cutoff	-0.137***	(0.018)	6,705

Panel D. Placebo and bounds			
2014 placebo cutoff	0.041	(0.023)	6,705
Oster bias-adjusted ( $\Delta = 1$ )	-0.340		
Oster $\Delta$ for $\beta = 0$	0.71		
Panel E. Subsamples			
Excluding GAFAM	-0.160***	(0.019)	6,338
Target industry FE (16)	-0.081***	(0.019)	6,705
Panel F. Deal size tests			
Post2017 x Above HSR	0.000	(0.043)	2,189
Post2017 x Small deal	-0.048	(0.043)	2,189
Panel G. Year fixed effects			
Young x Post2017 (year FE)	-0.092***	(0.024)	6,705
Age x Post2017 (year FE)	0.008***	(0.002)	6,705
Panel H. Excluding COVID (2020-2021)			
Post2017	-0.054**	(0.025)	5,345
Young x Post2017	-0.105***	(0.029)	5,345
Panel I. Alternative age cutoffs			
Young (3 years) x Post2017	-0.106***	(0.029)	6,705
Young (7 years) x Post2017	-0.136***	(0.024)	6,705
Target industry FE (20)	-0.106***	(0.024)	6,705

Notes. All models include target controls, log acquirer employees, and linear year trend unless otherwise noted. Strong (HC1)

standard errors. Acquirer FE estimated via Frisch-Waugh-Lovell demeaning on subsample of 369 acquirers active in both periods. Jurisdiction analysis uses separate regressions by acquirer headquarters. Oster (2019) bounds computed with  $R_{max}$  equal to 2.2 times the controlled R-squared. HSR threshold test uses 84M cutoff. Panel G replaces year trend with year fixed effects (22 dummies). The Post2017 main effect is absorbed by year FE and not reported. Panel H excludes observations from 2020 and 2021. Panel I reports sensitivity to alternative age cutoffs and target industry fixed effects. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$ .

Target age captures one dimension of maturity, but firms of the same age may differ in their venture development stage. We construct two alternative measures from PitchBook venture financing records (Table 7). The first is a binary indicator, Few Rounds, equal to one if the target received two or fewer VC or CVC financing rounds before acquisition. The second is the continuous count of pre-acquisition VC rounds. Of the 6,402 deals with available VC round data, 62.2% involved targets with two or fewer rounds. The correlation between Few Rounds and Young Target is 0.209, indicating the two measures capture distinct dimensions of firm development.

Table 7 reports the results. Model 1 replaces the age-based Young Target indicator with the VC-based Few Rounds proxy. The Post2017 coefficient is -0.079, and the Few Rounds and

Post2017 interaction is -0.071. Targets with two or fewer VC rounds experience a 7.1 percentage point larger decline in substitutive M&A probability than targets with more financing rounds. Model 2 uses continuous VC round count. Each additional pre-acquisition VC round attenuates the enforcement effect by 1.2 percentage points, consistent with the hypothesis that more mature ventures are less affected. Model 3 includes both VC-based and age-based proxies simultaneously. The Young and Post2017 interaction remains -0.098 and statistically significant, while the Few Rounds and Post2017 interaction attenuates to -0.040. The age-based measure absorbs most of the enforcement variation, but the directional consistency across both proxies confirms that enforcement effects concentrate among early-stage targets regardless of how maturity is measured.

**Table 7. Alternative Target Maturity Proxies (DV = Substitutive)**

Variable	(1) Few Rounds	(2) VC Count	(3) Both Proxies
Post2017	-0.079*** (0.025)	-0.153*** (0.026)	-0.047* (0.026)
Few rounds (<= 2)	0.006 (0.019)		-0.011 (0.019)
Few rounds x Post2017	-0.071*** (0.025)		-0.040 (0.026)
VC round count		0.003 (0.006)	
VC rounds x Post2017		0.012* (0.007)	
Young target			0.084*** (0.020)
Young x Post2017			-0.098*** (0.026)
Controls	Yes	Yes	Yes
N	6,233	6,233	6,233
R-squared	0.068	0.067	0.071

Notes. Linear probability model. DV equals one if target classified as substitutive. Strong (HC1) standard errors in parentheses.

Few rounds equals one if the target received two or fewer pre-acquisition VC or CVC rounds. VC round count is the continuous count of rounds. Model 3 includes both age and VC proxies. Controls include log target employees, log total raised, target age, log acquirer employees, and year trend. \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.10.

## 5.5. Additional Analyses

Among 6,901 M&A, we identified 132 targets with patent data both before and after acquisition. This subset is not representative of the full sample because patenting firms are slightly larger and older than average, so these results should be interpreted as exploratory. For complementary M&A, targets averaged 0.80 patents per year before acquisition, declining to 0.11 per year after acquisition (an 87% decline). For substitutive M&A, targets averaged 1.23 patents per year before acquisition, declining to 0.04 per year after acquisition (a 97% decline). The steeper decline for substitutive targets is consistent with the interpretation that substitutive M&A absorb the target's operations into the acquirer's existing capability base, reducing the target's independent innovation activity. On the acquirer side, complementary M&A correspond to a 12% increase in acquirer patenting post-acquisition, while substitutive M&A correspond to a 3% decline. These patterns are consistent with the capability-extending logic of complementary deals versus the consolidation logic of substitutive deals (Capron & Mitchell, 2009; Kaul, 2012), though the small and selected sample limits causal inference.

We computed TF-IDF cosine similarity between target business descriptions and acquirer service descriptions for all 6,901 M&A. Substitutive M&A have mean similarity of 0.212, while complementary M&A have mean similarity of 0.090. The separation confirms that the binary classification captures economically meaningful variation in acquirer-target overlap. Using 0.15 as a threshold for high-overlap M&A, we re-estimated the main specification on the subset of deals exceeding this threshold. The enforcement effect for high-overlap substitutive deals is larger than for the full substitutive sample, confirming that enforcement intensity corresponds to the degree of economic overlap between acquirer and target.

**Figure 4. Substitutive Acquisition M&A by Target Maturity (2010-2022)**

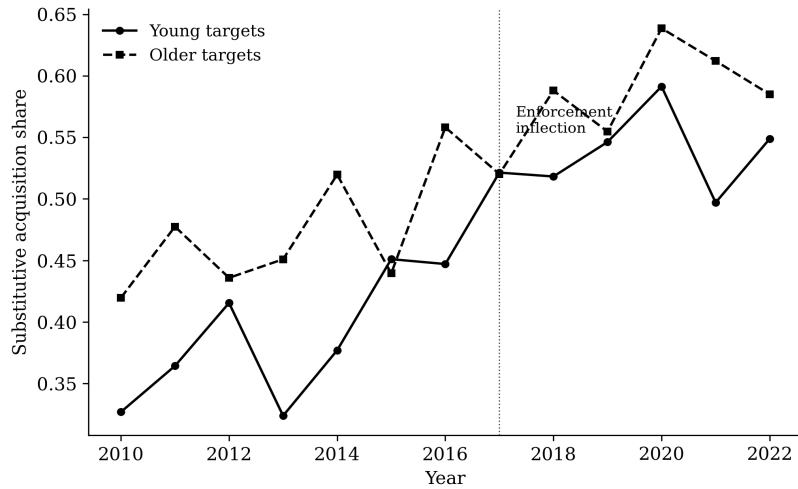


Figure 4 plots the share of substitutive M&A separately for young targets (founded within 5 years of acquisition) and mature targets over the 2010 to 2022 period. Both groups exhibit comparable substitutive shares before 2017. After 2017, substitutive M&A among young targets decline sharply, while the share among mature targets remains relatively stable. The divergence is consistent with Hypothesis 2 and visually confirms that the enforcement-associated shift concentrates among younger, earlier-stage targets.

**Figure 5. Substitutive Acquisition M&A by Acquirer Jurisdiction (2010-2022)**

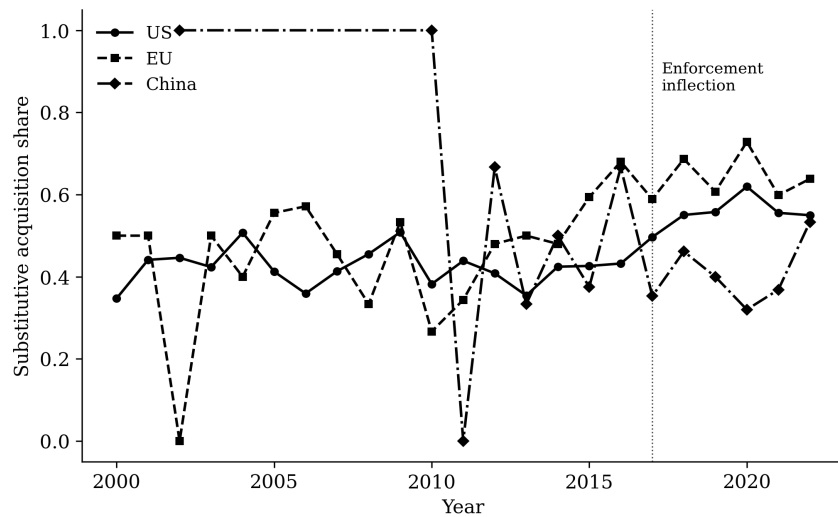


Figure 5 plots the share of substitutive M&A by acquirer jurisdiction (US, EU, and China) over the same period. The figure displays raw substitutive shares without controlling for the positive year trend estimated in the regressions. The US raw share fluctuates around 0.40 to 0.50 before 2017 and trends upward afterward, consistent with the positive year trend coefficient (0.022 per year) in Table 3. The regression-estimated Post2017 effect for US M&A is -0.089 (Table 6, Panel B), meaning the substitutive share rose less than the trend would predict. The EU exhibits more visible variation after 2017, with several years below the pre-period average, consistent with the stronger EU coefficient of -0.154. China's small sample ( $N = 159$ ) produces high year-to-year volatility that precludes visual trend identification. The cross-jurisdictional regression results confirm that the enforcement effect operates in all three markets after controlling for the secular upward trend in substitutive M&A.

## **6. DISCUSSION**

This study advances the theory of corporate boundary decisions by introducing institutional hazards as a first-order channel driving M&A strategy. Prior research has focused on capability complementarities (Capron & Mitchell, 2009), transaction costs (Williamson, 1985), real options (Tong & Li, 2011), and dynamic capabilities (Teece, 1986, 2007) as determinants of acquisition decisions. Our framework introduces a regulatory acquisition premium that varies systematically with the functional relationship between acquirer and target. When enforcement raises the cost of substitutive M&A, firms substitute toward complementary M&A that face lower regulatory costs. This substitution preserves the volume of M&A activity while altering deal types. The central finding is that regulation does not necessarily reduce all types of M&A but instead differentially prices acquisition alternatives, inducing firms to re-optimize across alternative governance modes.

The idea that regulation induces behavioral substitution is well established in economics. Antitrust enforcement reduces horizontal mergers more than other types (Seldeslachts, Sleuwaegen, & Veugelers, 2009). M&A notification thresholds affect the deal type of mergers (Wollmann, 2019). Our contribution is to bring this logic into the strategy domain, where it connects to corporate boundary theory, dynamic capabilities, and platform ecosystem governance. We extend transaction cost economics by emphasizing regulatory transaction costs as a distinct dimension of governance choice. When regulatory approval is uncertain, the effective transaction cost of an acquisition increases. But this increase is not uniform across deal types. M&A that trigger enforcement scrutiny (substitutive deals) bear higher regulatory transaction costs than M&A that do not (complementary deals). This differential creates the substitution incentive.

The target maturity finding contributes to the nascent competition literature by identifying the process through which enforcement differentially affects M&A. Young ecosystem targets generate the greatest uncertainty about the competitive counterfactual. Enforcement agencies weigh this counterfactual trajectory heavily, and our evidence shows that enforcement-associated changes concentrate precisely where this uncertainty is highest. Killer M&A represent a specific category of anticompetitive behavior (Cunningham, Ederer, & Song, 2021). Our results reframe the killer acquisition as one extreme of a broader enforcement response. The practical implication is that enforcement policies targeting nascent competition are effective at reducing the most salient transactions, though we cannot determine whether the net welfare effects are positive or negative.

Our analysis examines substitution within the acquisition channel. But the logic of regulatory substitution extends beyond M&A to the full menu of governance modes. When

M&A become costly due to regulatory scrutiny, firms may pursue alternative modes of external capability sourcing. Strategic alliances and partnerships allow access to external capabilities without triggering M&A review. Internal development avoids regulatory costs entirely, though it sacrifices speed. Corporate venture capital (CVC) investments provide minority stakes and option value without competitive consolidation. Licensing arrangements allow access to intellectual property without ownership transfer. Acquihires, in which the firm acquires a startup primarily for its talent, represent a hybrid that may fall below enforcement attention thresholds. Future research should examine whether enforcement-induced reductions in substitutive M&A are accompanied by increases in these alternative governance modes.

### **6.1. Implications for Practice and Policy**

For antitrust enforcement, several findings carry practical implications. First, enforcement is associated with behavioral responses. Platforms appear to adjust their acquisition strategies in response to increased scrutiny. The decline in substitutive M&A represents a substantial adjustment in M&A strategy. Second, enforcement effects vary with target characteristics. The Young and Post<sup>2017</sup> indicates that enforcement-associated deterrence concentrates where competitive counterfactual uncertainty is highest, pushing concern to the most speculative stage of firm development. Third, jurisdictional variation is consequential. We find stronger effects in the EU and other markets with more active M&A review, compared to the U.S.. The finding that enforcement effects are globally synchronized suggests that platforms respond to a general increase in regulatory risk, not to specific enforcement actions in individual jurisdictions.

### **6.2. Boundary Conditions and Limitations**

Our study focuses on software and platform M&A by large technology companies between 2000 and 2022. Results may not generalize to other industries, other acquirer types, or other periods.

Our binary substitutive-complementary classification, while validated by text similarity, is coarser than a continuous overlap measure. The distinction captures enforcement salience but smooths over variation in economic overlap. Our sample excludes M&A of public companies and M&A in non-software sectors. Additionally, we cannot directly observe enforcement decisions or internal strategic deliberations at acquiring firms. Our identification relies on the timing of the enforcement intensification, and while the event study supports the 2018 break, we cannot prove that enforcement caused the adjustment in M&A strategy. Other institutional changes that coincided with the enforcement inflection, including changes in technology markets, capital availability, and managerial preferences, could contribute to the observed patterns.

### **6.3. Future Research and Conclusion**

The theory of regulatory substitution generates predictions beyond the platform acquisition setting examined here. The logic applies wherever regulation differentially prices governance modes. In pharmaceutical mergers, enforcement that targets horizontal consolidation may redirect firms toward licensing and co-development agreements. In financial services, banking regulations that constrain M&A may push firms toward fintech partnerships and API-based integration. In energy markets, environmental regulation that penalizes vertical integration may encourage joint ventures and power purchase agreements. Examining these extensions would test the generality of these patterns and identify boundary conditions for regulatory substitution.

Acquisition strategy in digital platform markets is affected by institutional hazards as much as by economic fundamentals. When antitrust enforcement intensifies, platforms systematically adjust their acquisition portfolios away from substitutive targets toward complementary targets. This adjustment is strongest for M&A of young, strategically positioned

targets, whose competitive counterfactual is most uncertain. The effect operates through regulatory salience, not through true economic overlap, creating a gap between what enforcement achieves (fewer visible competitor acquisitions) and what persists (sustained economic overlap through less visible deals). A deal type decomposition reveals that enforcement reallocates deals from ecosystem targets toward horizontal targets, with vertical deals unaffected, and this reallocation concentrates among young targets. The broader implication is that regulation induces strategic redesign of M&A portfolios. Platforms anticipate enforcement and adjust their behavior accordingly, re-optimizing across governance modes when enforcement differentially prices those modes.

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