



Antitrust deregulation and long-term performance of acquiring firms

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ABSTRACT

This study analyzes the impact of antitrust deregulation in 2007 on the long-term performance of acquiring firms using data from 1,185 completed mergers and acquisitions (M&A) in Korea from 1999 to 2017. We measure performance using a 12-month buy-and-hold cumulative abnormal average return estimated with the difference-in-differences model. We find that, on average, shareholder returns on horizontal acquisitions are significantly higher. However, no evidence indicates whether increased market power or improved cost efficiency drives this relationship. For M&A in chaebol firms, firm value decreases significantly after a merger. Based on this finding, we argue that the overall decline in chaebol firm value stems from M&A mainly pursued for tunneling purposes. The subsample analyses demonstrate that managerial entrenchment problems cause a decline in the value of chaebol firms. However, no evidence supports the market power and cost efficiency hypotheses regarding non-chaebol firms.

1. Introduction

Contemporary antitrust laws designed to encourage fair competition, prevent monopolies, and protect consumers from anticompetitive business practices have a long history in developed markets. Merger control is a key tool for preventing anticompetitive practices and protecting market competition by enabling regulatory agencies to block harmful mergers before they occur (Viscusi et al., 1995). A rich, though non-unanimous, body of literature examines the effects of regulatory reforms on business combinations, covering both price and non-price consequences for consumer well-being in Western markets (Eckbo, 1983; Eckbo and Wier, 1985; Stillman, 1983). Nonetheless, several countries in the Asia-Pacific region have switched from centralized to market-driven economic systems. Many countries, however, linger in this transition and postpone the implementation of antitrust regulation.¹ Few studies explore how these laws affect mergers and acquisitions (M&A) in non-Western economies and their subsequent post-merger stock returns. South Korea, a leading economy in the Asia-Pacific region, offers a unique setting to examine the application of Western concepts of merger control and fair competition.

South Korea's antitrust regulations have undergone significant changes, including both advancements and setbacks, often reflecting the new government's five-year political agenda. In 1980, the establishment of the Korea Fair Trade Commission (KFTC) marked a pivotal step in enforcing the Monopoly Regulation and Fair-Trade Act (MRFTA). Initially, the KFTC focused its efforts on overseeing chaebols, large business conglomerates, and resolving disputes between companies related to unfair trade practices and

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¹ See Chung et al. (2024) for a general review of global antitrust regulations.

Table 1
Brief history of antitrust regulation in Korea.

	Year	Stricter?	Summary
(1)	1980	Yes	• The Fair Trade Commission (FTC) is established.
(2)	1997	Yes	• All competition-harming merger and acquisition (M&A) deals are monitored and regulated. • Before this revision, only deals by acquirers' equity of five billion KRW or a total asset of 20 billion KRW were monitored.
(3)	1998	Yes	• The new revision establishes a new division to monitor deals and collect fines more effectively.
(4)	2007	No	• Firms can use more leverage to finance mergers (i.e., the mandatory debt-to-equity ratio changed from 100 % to 200 %). • The restriction on shareholding applies only to companies with assets of two trillion KRW or more, provided they belong to chaebols with assets of ten trillion KRW or more (the restriction amount has also increased from 25 % of net assets to 40 %).

Note: Table 1 provides a brief history of antitrust regulation in Korea from 1980 to 2007. In 2007, Korea experienced antitrust deregulation after nearly three decades. KRW = South Korean won.

subcontracting. Starting in 2000, the KFTC revamped the MRFTA by bolstering its investigative capacity, imposing penalties for cartel activities, and dedicating more resources to strengthening merger controls (Kim, 2002). South Korea's antitrust regulations have since evolved significantly, emphasizing market competition and addressing antitrust violations involving both domestic and foreign companies.² However, new regulatory regimes often create uncertainty, and the 2007 amendments concerning the "Restriction on Total Amount of Shareholding of Other Company" are particularly important in this context.

Under the administration of President Roh Moo-hyun (2003–2008), South Korea faced several obstacles in boosting corporate competitiveness. The antitrust deregulation aimed to reduce regulatory burdens, enabling firms to restructure quickly, pursue mergers, and expand abroad. This policy was also viewed as a political strategy to appeal to the *chaebols* ahead of the presidential election and to maintain strong ties with these conglomerates. In addition, regulatory easing of competition law was intended to signal openness to global capital and maintain South Korea as an attractive destination for foreign direct investment. In general, the 2007 antitrust deregulation was largely motivated by the government's ambition to improve corporate competitiveness, reduce regulatory burdens on *chaebols*, and stimulate growth.

Although South Korea's antitrust regulations limited the influence of chaebols on other companies, the 2007 antitrust deregulation effectively reversed this restriction. Before the amendments, all chaebol companies with assets of six trillion KRW or more could hold shares in other companies worth no more than 25 % of their net assets. Following the 2007 amendments, the government mandated that companies with assets of two trillion KRW or more, or those belonging to chaebols with assets exceeding ten trillion KRW, limit their shareholdings to 40 % of net assets. Therefore, (1) the restriction no longer applied to chaebols with total assets below ten trillion KRW, (2) only companies with assets of two trillion KRW or more were required to comply, and (3) the maximum permissible shareholding increased from 25 % to 40 % of net assets. Although the government formally abolished the shareholding restriction in 2009, it had not been enforced since 2007 (Kim et al., 2012). Furthermore, companies could increase their leverage because the mandatory debt-to-equity ratio for holding companies rose from 100 % to 200 %. The government also reduced ownership requirements for subsidiary firms (both listed and unlisted) by 10 % (see Table 1).

Another distinctive feature of South Korean companies is the prevalence of corporate groups that comprise multiple firms. These Korean corporate groups, or chaebols, are interconnected through mutual investments or cross-shareholding arrangements and are typically controlled by owner-managers. Because many Korean corporate groups invest across diverse industries, the parent (holding) company's financial data consolidates the performance of unrelated subsidiaries. Consequently, holding shares in a corporate group is akin to holding a diversified business portfolio. The KFTC publicly discloses large corporate groups and regulates their governance structures and unfair trade practices. Most publicly listed companies within these corporate groups own multiple listed or unlisted subsidiaries. In May 2023, the KFTC reported 82 chaebols with 3,076 subsidiaries across various industries.³

The existing literature has extensively examined the corporate governance practices of family-run conglomerates (*chaebols*) and their affiliated companies. For example, Chang and Hong (2000) find that *chaebols* employ various strategies to strengthen control over affiliated companies, including mutual share ownership, internal business dealings, and cross-guarantees of debt. Furthermore, Chang (2003) highlights that these firms' boards include individuals connected to chaebol families, diminishing board decision transparency. According to agency theory, managers tend to pursue personal goals when firms have close business relationships and weak governance, creating potential conflicts with other shareholders' interests. For instance, chaebol owners tunnel resources to affiliated targets for acquisition advantages, thereby eroding minority shareholder value (Bae et al., 2002), and they offer preferential pricing to controlling shareholders through equity-linked private securities issuance within the group (Baek et al., 2006). Due to flaws in chaebol-affiliated companies' governance, outside shareholders struggle to protect their interests against chaebols' self-interested decisions.

This distinctive market setting provides a valuable context for examining the applicability of Western theories to enhance our understanding of emerging markets. Prior research yields either contradictory findings on long-term post-merger returns, primarily due to difficulties in isolating merger impacts on stock performance, or focuses solely on short-term post-merger returns (Kim et al.,

² For a general review and the most up-to-date summary of antitrust regulations in Korea, see <https://globalcompetitionreview.com/review/the-asia-pacific-antitrust-review/2021/article/south-korea-overview>.

³ For a complete list of chaebols, see the KFTC website http://www.ftc.go.kr/www/selectReportUserView.do?key=10&rptype=1&report_data_no=10019.

2025). Before the introduction of antitrust regulations, few mergers occurred, allowing us to isolate the influence of tighter merger control policy on long-term firm value. Thus, this study establishes a causal relationship between the relaxation of antitrust legislation and the long-term post-merger returns of newly combined firms. We achieve this by examining changes in buy-and-hold abnormal returns (BHARs) after merger announcements, which we interpret as a proxy for long-term firm value under the antitrust deregulation. In addition, we analyze changes in post-merger business activities, including sales and costs, to assess how the antitrust deregulation fosters or suppresses competition in the market.

Our study contributes to the existing literature in the following ways. First, we provide empirical evidence on the long-term performance of acquiring firms following antitrust deregulation in an East Asian country, offering a new perspective to the M&A literature. Second, we capture the impact of deregulation on chaebol firms, a distinctive feature of the Korean economy. In general, we find that long-term shareholder returns improve following such regulatory relaxation. However, in chaebol firms, long-term shareholder returns deteriorate despite the overall improvement. Third, our subsample analysis shows that mergers and acquisitions driven by tunneling purposes prompt this negative market reaction in chaebol firms.

2. Literature review and hypothesis development

Conventional merger and acquisition (M&A) literature examines the impact of tightening regulations on post-merger performance. In this regard, we expect the impact to reverse when regulations are relaxed. We briefly review the literature on how antitrust regulations affect post-merger firm value and corporate performance.

2.1. Market power hypothesis

According to the market power hypothesis, strict antitrust regulations may prevent acquirers from using excessive profits to pursue anticompetitive mergers (Robinson, 1969; Stigler, 1964). Hence, relaxed merger controls should promote more horizontal M&A activity, and the market should react positively to news of such mergers. Antitrust laws reduce post-merger monopolistic gains from horizontal mergers, such as increases in market share.

Substantial empirical evidence shows that horizontal mergers may lead to market dominance and subsequently reduce competition. For instance, Barton and Sherman (1984) reported higher prices and profits across product lines after Xidex acquired Scott Graphics and Kalvar Corporation in the duplicating microfilm industry. Similarly, Kim and Singal (1993) analyzed post-merger price shifts in the airline sector and found price hikes on routes operated by merged firms. Focarelli and Panetta (2003) also document post-merger anticompetitive pricing in the banking industry, while Ashenfelter and Hosken (2008) report similar findings in consumer products.

Thus, we hypothesize that the market reacts positively to mergers following antitrust deregulation. Moreover, we anticipate that firms will be more inclined to merge with larger targets—a market-concentrating M&A strategy that the central regulatory agency might have challenged had the revision not occurred (Prager, 1992). In addition, we expect acquirers' sales to increase substantially relative to their peers, as relaxed merger controls facilitate market dominance following horizontal M&A.

2.2. Cost efficiency hypothesis

Antitrust laws may limit improvements in post-merger economies of scale. This assumption rests on the idea that antitrust regulations curtail acquirers from enhancing productivity and purchasing efficiency through economies of scale, which could harm market competition and consumer welfare (Fee and Thomas, 2004). Alternatively, merging companies can achieve efficiency gains through operational streamlining, management changes, and cost reductions. Empirical studies support the view that horizontal mergers lead to efficiency improvements. Analyses of stock market reactions to merger announcements using event-study methods consistently conclude that horizontal mergers are effective. For instance, Maksimović et al. (2011) and Li (2013) illustrate that acquiring firms enhance target productivity by improving capital and labor efficiency and leveraging comparative advantage. In our research, we use cost of goods sold (COGS) and selling, general, and administrative expenses (SG&A) as indicators of direct and indirect costs, respectively, to assess post-merger changes in acquiring firms' overall cost efficiency (Fee and Thomas, 2004). If the cost efficiency hypothesis holds, we anticipate that both costs will decrease post-horizontal M&A due to the relaxation of merger controls in 2007.

2.3. Managerial entrenchment hypothesis

This stream of research focuses on the principal–agent problem in the market for corporate control. Managers' risk appetites influence their M&A decisions: risk-averse managers avoid additional risks and thus pursue suboptimal goals. In contrast, risk-seeking managers favor value-decreasing M&As, leading to value erosion as a consequence of suboptimal risk-taking (Jensen, 1986). The agency explanation suggests that, under enforced antitrust laws, managers may pursue acquisitions that reduce value. Such laws provide safeguards against hostile and cross-border takeover attempts, though they may reduce overall competition in the domestic market (Dissanaike et al., 2020; Frattaroli, 2020). Using U.S. plant-level data, Bertrand and Mullainathan (2003) show that manufacturing plants protected by business combination law experience higher wages and employment. However, their productivity and profitability decline. In addition, they observe a lower likelihood of plant closures and new plant establishments in states with business combination legislation.

Chaebol firms employ M&As to tunnel resources in the Korean market (Bae et al., 2002), and the resulting agency costs likely affect

share prices. Given chaebols' dominant influence in Korea's corporate landscape, we postulate that owner-managers' incentives to tunnel resources through value-eroding M&As outweigh the threat of hostile takeover. If the managerial entrenchment hypothesis holds, we expect the market to significantly discount share prices when merger control weakens due to the 2007 revision.

3. Data and methodology

3.1. Data

We collected our data from multiple sources. Data on horizontal mergers are from the mergers and acquisitions (M&A) database of Securities Data Company (SDC) Platinum. We include only completed M&As from 1999 to 2017, covering nine years before and after the 2007 antitrust deregulation. In addition, we exclude deals worth less than one million U.S. dollars and those in the financial and utility sectors. We include only completed deals in which the acquirer is publicly listed on the KRX (Korea Stock Exchange), holds less than 50 % of the target's shares before the M&A, and acquires full ownership upon completion.

Although 171 cross-border deals are included, we do not impose restrictions on the target firms' countries of origin. For accounting information, our data are from Compustat Global, and we eliminate observations lacking essential firm- or deal-level characteristics. For consistency, we ensure that the acquiring firm's national code in the SDC database matches the one in Compustat. In this study, we define a horizontal merger as an M&A deal in which both the acquiring and target firms share the same three-digit standard industrial classification (SIC) code. Finally, we winsorize all the variables at the upper and lower 1 % tails. Our final dataset includes 1,185 completed horizontal merger transactions.

We employ buy-and-hold abnormal returns (BHARs) to measure the long-term performance of acquiring firms after the antitrust deregulation, as follows:

$$BHAR[T_1, T_2] = \prod_{t=T_1}^{T_2} (1 + R_{i,t}) - \prod_{t=T_1}^{T_2} (1 + R_{m,t})$$

where $R_{i,t}$ is the return on acquiring firm stock i at time t , and $R_{m,t}$ is average return of firms in the industry to which the acquiring firm belongs at time t . Specifically, we consider 12-month BHARs: $BHAR[0,12]$, the difference between the 12-month cumulative stock returns on acquiring firms and the corresponding cumulative industry average stock returns from the merger announcement day.

Our regression models include control variables to mitigate selection bias. We incorporate firm- and deal-level attributes identified in the literature as pivotal factors influencing merger decisions. At the firm level, we include the natural logarithm of the acquirer's total assets (Size), return on assets (ROA), growth prospects (Tobin's Q), and asset tangibility normalized by book assets (Tangibility). These variables are critical components of a firm's underlying financial health. We also include the acquiring firm's leverage and cash reserves (Total Leverage and Cash), as prior research shows that firms with substantial cash reserves and low leverage ratios tend toward value-diminishing mergers (Jensen, 1986).

At the deal level, Moeller et al. (2005) show that larger completed deals yield lower merger performance for acquiring firms; thus, we include relative deal size as a control variable. Following Myers and Majluf (1984), we also consider the payment method (cash, stock, or combined), as it reflects information asymmetry surrounding the deal and affects the acquirer's announcement returns. For deal type, tender offers provide greater flexibility for non-financial objectives than standard mergers (Fuller et al., 2002). Finally, Fuller et al. (2002) indicate that target type (public or private) may affect bidding shareholders' gains, which tend to increase when the target is a private firm. Therefore, we include the type of target as a control variable for liquidity discounts.

3.2. Methodology

We employ a difference-in-differences (DiD) model to examine the impact of the antitrust deregulation on the long-term performance of acquiring firms. Our main regression equation is as follows:

$$BHAR(0, 12)_{it} = \alpha + \beta_1 After*Horizontal_i + \beta_2 Horizontal_i + \theta Controls_{it} + Year_t + Industry_k + \epsilon_{it}, \quad (1)$$

where i denotes the company, t the year, and k the three-digit SIC code. The dependent variable, $BHAR(0,12)$, represents the acquiring firm's long-term (12-month) gain or loss in an M&A deal from the merger announcement date. *After* is a binary indicator tracking completed M&A deals after 2008. *Horizontal* is a binary indicator that equals one if both parties to the deal share the same three-digit SIC code (Alfaro & Charlton, 2009).

We include all control variables described in the previous section to mitigate potential confounding effects on merger outcomes. Industry and year fixed effects control for time-varying economic conditions and time-invariant differences across industries, respectively. We account for correlations in merger outcomes within industries by clustering standard errors at the industry level. Moreover, we identify the effect of the 2007 revision (i.e., merger control easing) on chaebol firms by employing an extended difference-in-differences (DiD) model as follows:

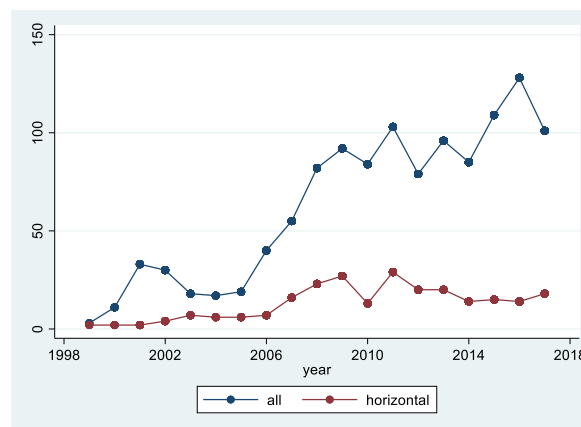
$$BHAR(0, 12)_{it} = \alpha + \beta_1 After*Horizontal_i*Chaebol_i + \beta_2 After*Horizontal_i + \beta_3 Horizontal_i*Chaebol_i + \beta_4 Horizontal_i + \theta Controls_{it} + Year_t + Industry_k + \epsilon_{it}, \quad (2)$$

Table 2

Number of completed M&A deals initiated by listed firms in Korea by year.

Year	All M&A Deals	Horizontal Deals
1999	3	2
2000	11	2
2001	33	2
2002	30	4
2003	18	7
2004	17	6
2005	19	6
2006	40	7
2007	55	16
2008	82	23
2009	92	27
2010	84	13
2011	103	29
2012	79	20
2013	96	20
2014	85	14
2015	109	15
2016	128	14
2017	101	18

Note: Table 2 presents the total number of completed M&A deals and the number of horizontal deals initiated by listed firms in Korea by year. In the early 2000s, Korea's market maturity was developing, with the number of yearly completed M&A deals by publicly listed Korean firms increasing significantly.

**Fig. 1.** Yearly Merger and Acquisition (M&A) Trend in the Korean Market

Note: Fig. 1 plots the yearly distribution of M&As in Korea from 1999 to 2017.

where the *Chaebol* dummy equals 1 if the acquirer is a member of a chaebol conglomerate. Chaebol refers to a corporate group in South Korea in which the combined assets of its subsidiaries exceed ten trillion KRW. The FTC uses the prior fiscal year's consolidated financial statements to determine firms' inclusion on, or exclusion from, the chaebol list.⁴ We also add interaction terms to the model to assess the market reaction to M&A news for chaebol and non-chaebol firms after the 2007 revision. We explore various post-M&A outcomes by slightly modifying the above equation. For instance, we replace the dependent variable with *Log(DealValue)* to estimate the effect of the regulatory change on deal size. We also consider the natural logarithm of cost of goods sold (COGS) and selling, general, and administrative (SG&A) expenses, scaled by the acquirer's sales, to examine changes in cost behavior after the new business combination regulations. We use lagged accounting variables (e.g., sales, COGS, and SG&A) from one to three years to capture the time required for the new regulation to affect post-merger corporate activities. Please refer to the appendix for the complete list of variables used in this study.

⁴ See the following article for a complete list (in Korean) provided by the FTC: https://www.ftc.go.kr/www/selectReportUserView.do?key=10&rpttype=1&report_data_no=10019.

Table 3
Descriptive statistics.

Variable	N	Mean	Median	S.D.	P25	P75
After	1,185	0.812	1.000	0.381	1.000	1.000
Horizontal	1,185	0.213	0.000	0.425	0.000	0.000
Chaebol	1,185	0.179	0.000	0.395	0.000	1.000
BHAR[0,12]	1,185	0.071	0.041	0.128	−0.135	0.285
Ln(DealValue)	1,185	2.632	2.491	1.592	1.351	3.735
Ln(Sales)	1,168	12.773	11.533	2.253	10.924	15.334
Ln(COGS)	1,168	0.535	0.553	0.136	0.356	0.591
Ln(SGA)	1,168	0.216	0.152	0.171	0.091	0.277
Ln(Asset)	1,185	6.125	5.632	2.063	4.363	7.353
Relative Size	1,081	0.235	0.063	0.393	0.026	0.253
RND	1,185	0.011	0.000	0.035	0.000	0.021
ROA	1,152	−0.053	0.011	0.135	−0.039	0.066
Total Leverage	1,169	0.332	0.319	0.153	0.1675	0.423
Cash	1,185	0.089	0.083	0.068	0.023	0.105
Tangibility	1,185	0.325	0.335	0.193	0.163	0.435
Tobin's Q	1,075	1.353	1.215	0.835	0.935	1.532
Pure Cash	1,185	0.326	0.000	0.463	0.000	1.000
Pure Stock	1,185	0.131	0.000	0.328	0.000	0.000
Tender	1,185	0.007	0.000	0.071	0.000	0.000
Public Target	1,185	0.091	0.000	0.283	0.000	0.000

Note: Table 3 summarizes the key variables in our study from 1999 to 2017. Variable definitions are presented in the appendix.

4. Empirical analysis

4.1. Sample characteristics

Table 2 presents the number of completed mergers and acquisitions (M&A) deals initiated by listed firms in Korea by year, and Fig. 1 plots their yearly distribution. As discussed in the introduction, there were only a few observations in the early 2000s.⁵ There are two possible explanations for this observation. First, the number of firms publicly listed on the Korean Stock Exchange might have been insufficient, limiting the number of completed deals. Second, foreign investors might have found Korean merger data less attractive, leading to limited tracking by the Securities Data Company (SDC). In the early 2000s, as Korea's market matured, the number of yearly completed M&A deals by publicly listed firms increased significantly, enabling a more detailed analysis.

4.2. Data description

Table 3 summarizes the key variables in our study for 1999–2017. We find that most of the deals (over 80 %) in the sample occurred from 2008, suggesting that relaxed merger controls may have played a critical role in increasing mergers among Korean firms. We also observe that horizontal mergers account for around 20.7 % of these transactions, while approximately 18.8 % involve chaebol acquirers. In addition, the data show that 0.06 % of the mergers are tender offers, with 8.5 % involving a public target firm. Our study assesses the impact of easing merger control regulations on horizontal acquisitions between two publicly traded firms; therefore, this distribution aligns well with our purpose.

We use the natural logarithm of COGS and SGA, scaling them by total assets for the same year, for standardization purposes. Approximately 33.7 % of completed deals involved cash payments, whereas 12.5 % relied exclusively on stock payments. The remaining transactions, therefore, involved a combination of cash, stock, and debt. Examining the 12-month buy-and-hold abnormal returns (BHARs), we find a mean of 0.069 and a standard deviation of 0.135, indicating considerable variability within our sample. Regarding firm-level characteristics, we observe that acquiring firms hold relatively little cash compared to debt, with total assets consisting of approximately 29.3 % debt, 7.4 % cash, and 30.8 % intangible assets. Additionally, the sample firms' average return on assets is about −3.6 % and the average Tobin's Q is around 1.347. Thus, the Korean firms conducting M&As were generally unprofitable and undervalued during our sample period. This situation suggests that firms may have pursued M&As as a viable strategy to escape poor performance or achieve goals beyond maximizing firm value.

4.3. Empirical findings

Table 4 presents the impact of antitrust deregulation on the acquirer's 12-month cumulative average stock return following the merger announcements, reported with and without control variables (see Columns 1 and 2).

⁵ A two-year average proportion of horizontal acquisitions to the overall acquisitions before 2008 is approximately 23.30 % (i.e., 2006 and 2007). After 2008 (i.e., 2008 and 2009), the proportion increases to about 28.70 %. Due to limited data availability, we can interpret this small increase in the two-year average of the proportion as regulatory relaxation increasing following the relaxation of the business combination laws.

Table 4
Relaxation of antitrust laws and BHARs in the Korean market.

	BHAR[0,12]	BHAR[0,12]
After × Horizontal	0.051* (2.23)	0.062* (1.99)
Horizontal	−0.014* (−2.25)	−0.036* (−2.35)
Ln(Asset)		−0.006* (−2.17)
Relative Size		0.038* (2.21)
ROA		0.021 (0.69)
Total Leverage		0.043 (1.61)
Cash		−0.004 (−0.04)
Tangibility		0.002 (0.08)
Tobin's Q		0.001 (0.55)
Pure Cash		−0.004 (−0.42)
Pure Stock		0.081* (2.13)
Tender		−0.001 (−0.01)
Public Target		−0.011 (−0.62)
Constant	−0.059 (−0.12)	0.009 (0.29)
Year Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	Yes
Observations	1,184	1,043
Adjusted R-squared	0.0071	0.0852

Note: Table 4 presents the results of estimating Equation (1) presented in the methodology section. We demonstrate that the relaxation of merger controls leads to a notable change in the acquirer's BHARs. Columns 1 and 2 display the impact of the change in merger control policy on acquirers' BHARs upon merger announcements. Column 1 excludes the control variables, while Column 2 includes the complete set of variables as specified in the regression equation. ***, **, and * indicate statistical significance at the 1 %, 5 %, and 10 % levels, respectively.

In Column 1, the regression coefficient for *After × Horizontal* is 0.051. It is statistically significant at the 10 % level, suggesting that the acquirer's announcement return increases by approximately 5.10 % following the revision of the merger control policy for horizontal mergers. However, the coefficient for *Horizontal* is −0.014. It is also statistically significant at the 10 % level, indicating that, on average, acquirers lost about 1.40 % following a horizontal acquisition before the revision became effective. These findings contradict those of Dutta and Jog (2009), who report no significant long-term abnormal returns following M&A events in Canada, and André et al. (2004), who find that the long-term performance of Canadian acquiring firms is negatively affected after the event announcement. This finding dismisses the possibility that horizontal mergers benefit shareholders, as the market typically discounts (or sells off) the acquiring firm's shares upon news of a horizontal merger. Our findings suggest managers may have made value-destroying horizontal acquisitions during the sample period. We measure the impact of the regulatory relaxation on post-merger firm value more clearly by running the difference-in-differences model and including control variables.

Elwert and Winship (2014) and Elwert (2013) argue that adding control variables can result in a significant positive or negative coefficient for two variables that have no causal relationship due to overcontrol bias or endogenous selection bias. In addition, Li (2021) argues that adding control variables may fail to rule out alternative interpretations and can create a different explanation. However, despite several statistically insignificant control variables, our results do not suffer from these issues, as the changes in size and statistical significance of our main explanatory variables are negligible when control variables are included. In Column 2, the coefficient for *Horizontal* is −0.036. At the 10 % significance level, the analysis reveals that whether the merger is horizontal or vertical affects the acquirer's post-merger performance; specifically, the market penalizes acquirers for horizontal acquisitions completed before the revision. However, our results show that the increase in firm value—captured by the positive 12-month BHAR around the merger announcement (coefficient for *After × Horizontal* = 0.062, statistically significant at the 10 % level)—is consistent with our earlier prediction that relaxed merger controls would incentivize horizontal acquisitions, whether by assimilating market power, improving cost efficiency, or pursuing private benefits at the expense of outside or minority shareholders. We require further analyses to determine the motives underlying these transactions.

Table 5
Relaxation of Antitrust Laws based on Merger and Acquisition (M&A) Size.

	Log(DealValue)	Log(DealValue)
After $\times$ Horizontal	0.743* (2.25)	0.277 (1.29)
Horizontal	−0.425 (−1.37)	−0.300 (−1.54)
Ln(Asset)		0.522*** (13.17)
Relative Size		2.540*** (14.47)
ROA		0.252 (1.21)
Total Leverage		−0.617* (−2.57)
Cash		−0.494 (−0.86)
Tangibility		−0.267 (−0.84)
Tobin's Q		0.263*** (4.01)
Pure Cash		0.146 (1.33)
Pure Stock		0.258 (1.92)
Tender		0.255 (0.62)
Public Target		0.730*** (5.02)
Constant	5.650*** (3.97)	0.246 (0.26)
Year Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	Yes
Observations	1,184	1,043
Adjusted R-squared	0.2074	0.6258

Note: Table 5 presents the impact of horizontal mergers after the relaxation of antitrust law on the size of M&A deals in Columns 1 and 2. Column 1 excludes the control variables, while Column 2 includes the complete set of variables as specified in the regression equation. ***, **, and * indicate statistical significance at the 1 %, 5 %, and 10 % levels, respectively.

4.4. Market power hypothesis

Prior studies cite merger control as a highly effective instrument because the primary regulatory authority can preemptively prevent mergers that could harm competition and consumer interests (Viscusi et al., 1995). Thus, relaxing merger regulations may lead firms to choose larger targets, grow into dominant industry players, and overshadow competitors. Specifically, we observe meaningful changes in deal size after the revision of merger controls and in companies' post-merger sales, consistent with the market power hypothesis (Prager, 1992).

Furthermore, our results show that the coefficients of *After $\times$ Horizontal* are positive in Columns 1 and 2 of Table 5. The magnitude is substantial, with an increase of approximately 74.3 % in deal size after the relaxation of competition laws, and the coefficient is statistically significant at the 10 % level for the two-way difference-in-differences model without controls. This result appears partially consistent with the market power hypothesis, which posits that firms merge to improve their monopolistic gains, but that such gains depend on the stringency of merger control regulation. This hypothesis suggests that investors react positively to news of a horizontal acquisition when regulatory agencies do not actively monitor or restrict market competition. Chung et al. (2024), for instance, indicate that acquirers are likely to select smaller targets due to antitrust regulation, which reduces the monopolistic gain from a horizontal merger but fails to demonstrate the opposite outcome. We provide additional empirical evidence to support this hypothesis by demonstrating that companies are more likely to merge with larger targets when antitrust law becomes less stringent.

One would expect that becoming a shareholder of a market leader would yield greater benefits than becoming a shareholder of a market follower. Adding control variables to offset noise decreased the coefficient to 27.7 % for horizontal deal size, which remains substantial but is no longer statistically significant. Thus, our results might suggest that acquirers tend to focus on larger targets to achieve greater operating efficiency following the antitrust deregulation. However, these results are not conclusive; therefore, we further examine post-merger sales behavior, as presented in Table 6.

As previously discussed, we examine forward-looking sales for up to three years after merger completion to account for the time required for post-merger effects to take effect. Columns 1–3 measure the impact of merger control revisions on all firms. Following the relaxation of controls, the average firm in our sample continues to expand its core operations after a horizontal merger at rates of approximately 15.4 %, 12.6 %, and 12.9 % in the first, second, and third years, respectively. However, these coefficients are

Table 6

Relaxation of antitrust laws on forward-looking sales.

	<i>Log (Sales)_{t+1}</i>	<i>Log (Sales)_{t+2}</i>	<i>Log (Sales)_{t+3}</i>
After × Horizontal	0.154 (1.14)	0.126 (0.76)	0.129 (0.81)
Horizontal	−0.062 (−0.60)	0.003 (0.04)	0.021 (0.17)
Ln(Asset)	0.956*** (51.25)	0.946*** (48.29)	0.947*** (47.95)
Relative Size	−0.007 (−0.09)	0.004 (0.05)	−0.062 (−0.54)
ROA	0.937*** (4.36)	0.775** (2.86)	0.63 (1.92)
Total Leverage	−0.093 (−0.51)	−0.705** (−2.94)	−0.656* (−2.13)
Cash	0.586 (1.43)	0.067 (0.16)	−0.35 (−0.61)
Tangibility	−0.082 (−0.37)	0.091 (0.39)	−0.082 (−0.32)
Tobin's Q	0.110*** (3.94)	0.092* (2.38)	0.103 (1.82)
Pure Cash	−0.013 (−0.22)	0.012 (0.21)	0.025 (0.39)
Pure Stock	0.052 (0.81)	0.049 (0.63)	0.062 (0.61)
Tender	0.067 (0.42)	0.337 (1.49)	−0.245 (−0.51)
Public Target	0.091 (1.35)	0.005 (0.06)	−0.052 (−0.59)
Constant	6.759*** (28.05)	6.997*** (18.71)	7.143*** (16.45)
Year Fixed Effects	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes
Observations	962	911	883
Adjusted R-squared	0.9466	0.9294	0.9157

Note: Table 6 presents the impact of horizontal mergers after the relaxation of antitrust law on post-merger sales for up to three years. Following the relaxation of controls, the average firm in our sample continues to expand its core business activities at rates of approximately 15.4 %, 10 %, and 12.9 % for the first, second, and third years, respectively, for horizontal mergers completed after the revision took effect. These results, however, are statistically insignificant. ***, **, and * indicate statistical significance at the 1 %, 5 %, and 10 % levels, respectively.

statistically insignificant and do not support the market power hypothesis. Therefore, we cannot conclude that the sources of post-horizontal merger gains stem from increased market power.⁶ Next, we look for meaningful changes in post-merger cost behaviors.

4.5. Cost efficiency hypothesis

We use COGS and SGA as proxies for firms' cost efficiency and apply the standard normalization procedure to all dependent variables using acquirers' assets each year.⁷ First, we investigate the effect of horizontal M&As on forward-looking direct cost efficiency (COGS). Table 7 shows that the coefficients of *After × Horizontal* are negative, which might imply a decrease in firms' core business costs post-merger—approximately 1.01 % in the year following the merger and up to 3.20 % in the third year after the

⁶ We also conduct the same tests for the market power hypothesis using subsamples divided by firm type (chaebol vs. non-chaebol). Despite a notable change in target selection, there is no verifiable improvement in sales figures up to three years after a horizontal acquisition. This result suggests that relaxing antitrust regulation makes it easier for non-chaebols to acquire larger targets by using more debt instruments to finance deals. However, this change was insufficient for non-chaebols to enhance market power post-M&As. Even after acquisitions, non-chaebols often face stiff competition from chaebols, which typically hold dominant market power in chaebol-dominated sectors. The scalability of the merged entity in those sectors is also an issue in achieving long-term market power gains.

⁷ In addition to examining the log-scaled cost variables, we analyze the effect of relaxation on raw cost figures as well as forward-looking raw cost figures and their yearly differences. We also test the effect of relaxation on profit margin, defined as net income over sales, which serves as a proxy for cost efficiency or synergetic gains. None of these additional tests produced statistically significant results. We omit the detailed results for brevity, but they are available upon request.

Table 7
Relaxation of antitrust laws on forward-looking direct costs.

	<i>Log (Cogs)_{t+1}</i>	<i>Log (Cogs)_{t+2}</i>	<i>Log (Cogs)_{t+3}</i>
After × Horizontal	−0.011 (−0.50)	−0.031 (−1.32)	−0.032 (−1.32)
Horizontal	−0.002 (−0.11)	0.018 (0.93)	0.015 (0.79)
Ln(Asset)	−0.014** (−3.27)	−0.011* (−2.47)	−0.013** (−2.70)
Relative Size	−0.042 (−1.89)	−0.051* (−2.03)	−0.067** (−2.70)
ROA	−0.012 (−0.40)	−0.047 (−1.03)	−0.065 (−1.24)
Total Leverage	0.087** (2.61)	0.161*** (3.79)	0.125** (3.32)
Cash	−0.075 (−0.84)	−0.103 (−0.92)	−0.204 (−1.37)
Tangibility	−0.042 (−0.79)	−0.036 (−0.57)	−0.051 (−0.94)
Tobin's Q	−0.026** (−2.67)	−0.032** (−2.76)	−0.028* (−2.53)
Pure Cash	−0.002 (−0.25)	0.003 (0.34)	0.005 (0.44)
Pure Stock	−0.003 (−0.18)	0.008 (0.44)	0.018 (1.14)
Tender	0.039 (1.25)	0.019 (0.54)	0.033 (0.81)
Public Target	0.003 (0.19)	−0.003 (−0.17)	−0.005 (−0.26)
Constant	0.626*** (10.94)	0.591*** (13.55)	0.598*** (11.53)
Year Fixed Effects	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes
Observations	962	911	882
Adjusted R-squared	0.5341	0.5054	0.5214

Note: Table 7 presents the impact of horizontal mergers after the relaxation of antitrust law on COGS. Columns 1–3 of Table 7 show that the coefficients of After × Horizontal are negative but lack statistical significance at any meaningful level. These findings suggest that the costs associated with core business activities of a horizontally merged firm decrease by approximately 1.04 % in the year following the merger and up to 3.22 % in the third year after adopting a less stringent merger control regime. ***, **, and * indicate statistical significance at the 1 %, 5 %, and 10 % levels, respectively.

relaxation of merger control. However, they lack statistical significance at any meaningful level for all three years (see Columns 1–3).⁸ We then observe the opposite pattern when examining forward-looking indirect cost efficiency (SGA).

As observed in Columns 1–3 of Table 8, the average firm in our sample incurs increasing indirect costs during the three years following a horizontal acquisition. Specifically, SGA falls by 0.109 % in the first year but increases by 3.60 % in the third year. These values are statistically insignificant at all levels and do not decrease uniformly; thus, the finding does not support the cost-efficiency explanation of post-merger returns for firms in Korea.⁹

4.6. Managerial entrenchment

In Table 4, the coefficient of *After × Horizontal* is 0.051, which is statistically significant at the 10 % level. If the managerial entrenchment hypothesis holds, this coefficient should have been negative, indicating increased managerial incentives for value-destroying M&As due to relaxed competition laws. According to the managerial entrenchment hypothesis, the decline in the 12-month BHAR around the merger announcement reflects this agency cost. The findings in Table 4 contradict this for average firms;

⁸ We conduct the same tests for the cost efficiency hypothesis using subsamples divided by firm type (chaebol vs. non-chaebol). However, the results are insignificant, suggesting that normalization or sample selection is unlikely to explain these outcomes. Therefore, there is no conclusive evidence to show that the positive influence of merger control relaxation on announcement returns derives from improved cost efficiency for either non-chaebol or chaebol firms. From a cost management perspective, non-chaebols often lack support from group resources, which may hinder their ability to realize cost efficiencies quickly. In addition, they face heightened integration risks, particularly when merging with firms that have different management styles.

⁹ We repeat the same experiments, covering both the market power and cost efficiency hypotheses, on subsamples divided by whether the firm belongs to a manufacturing industry. We find that direct costs decrease in the second and third years after a horizontal merger, while indirect costs increase in all three years for non-manufacturing firms. Assuming that the benefits of greater direct cost efficiency outweigh the drawbacks of higher indirect costs, we conclude that there is support for the cost-efficiency hypothesis, at least for non-manufacturing firms in South Korea.

Table 8
Relaxation of antitrust laws on forward-looking indirect costs.

	Log (SGA)_{t+1}	Log (SGA)_{t+2}	Log (SGA)_{t+3}
After $\times$ Horizontal	−0.001 (−0.05)	0.029 (1.12)	0.036 (1.15)
Horizontal	0.005 (0.30)	−0.028 (−1.48)	−0.034 (−1.42)
Ln(Asset)	−0.002 (−0.45)	−0.001 (−0.08)	−0.0039 (−1.08)
Relative Size	0.0182 (0.88)	0.040 (1.86)	0.019 (1.08)
ROA	−0.244*** (−3.49)	−0.070 (−0.99)	−0.037 (−0.59)
Total Leverage	0.007 (0.16)	0.019 (0.43)	−0.007 (−0.22)
Cash	0.005 (0.04)	0.078 (0.67)	0.319* (2.23)
Tangibility	−0.063 (−1.11)	−0.094 (−1.59)	−0.039 (−0.80)
Tobin's Q	0.016 (1.78)	0.032*** (3.88)	0.026** (3.04)
Pure Cash	−0.004 (−0.49)	−0.008 (−0.77)	−0.015 (−1.49)
Pure Stock	0.003 (0.25)	−0.007 (−0.44)	−0.019 (−1.26)
Tender	−0.011 (−0.57)	−0.006 (−0.20)	−0.011 (−0.36)
Public Target	−0.010 (−0.71)	0.002 (0.10)	0.013 (0.87)
Constant	0.162*** (3.73)	0.176*** (4.46)	0.198*** (5.00)
Year Fixed Effects	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes
Observations	962	911	883
Adjusted R-squared	0.5857	0.5430	0.5698

Note: Table 8 presents the impact of horizontal mergers after the relaxation of antitrust law on indirect costs as proxied by SGA. The average firm in our sample faces an increasing indirect cost for the three years following a horizontal acquisition. These values are insignificant at any level and do not decrease uniformly. ***, **, and * indicate statistical significance at the 1 %, 5 %, and 10 % levels, respectively.

however, we must assess their applicability to chaebols. We perform this analysis using a difference-in-differences model identical to the baseline, adding a chaebol dummy and its interaction with an indicator for horizontal M&A and the year of merger control relaxation. Table 9 presents the estimation results after including the chaebol dummy in the baseline model, as shown in the second equation.

We examine whether the relaxation of merger controls alters the market reaction depending on whether the firm is a chaebol. Table 9 shows the relationship between the 12-month BHAR and interaction terms in Column 1 (without control variables) and Column 2 (with control variables). As shown in Column 2, the coefficients for *After $\times$ Horizontal* and *Horizontal* are 0.053 and −0.036, respectively, and both are statistically significant at the 5 % level. These findings are consistent with the baseline results in Table 4, and we should interpret them similarly.

In addition, we observe notable patterns when we include Chaebol in the interaction terms (*After $\times$ Horizontal $\times$ Chaebol* and *Chaebol $\times$ Horizontal*). First, our results indicate a coefficient of −0.089 for the triple interaction term (statistically significant at the 5 % level), using clustered standard errors at the three-digit SIC level. By contrast, we observe a coefficient of 0.036 for *Chaebol $\times$ Horizontal* (statistically significant at the 10 % level). These findings suggest a positive long-term market reaction to horizontal mergers initiated by chaebol firms over the sample period. However, this relationship reverses entirely when the effect of merger control easing begins in 2008. This result suggests that investors may accept chaebol firms' acquisitions as a legitimate means of establishing a competitive edge when the central regulatory agency does not intervene. When merger regulations are relaxed, investors sell off chaebol firms' equity by approximately 8.90 % if the deal is horizontal. Overall, horizontal mergers tend to negatively affect the long-term firm value of chaebol, as shown by the Horizontal coefficient of −0.036. Investors react negatively to chaebol-initiated horizontal mergers due to relaxed merger controls, which increase incentives for value-eroding acquisitions (Bae et al., 2002; Cheung et al., 2006; Peng et al., 2011). Therefore, we should interpret the results in Column 2 as consistent with the management entrenchment hypothesis.

5. Robustness checks

5.1. Sensitivity of various BHAR windows

To ensure the robustness of the results, we rerun our regression models using several other time windows for the buy-and-hold

Table 9

Relaxation of antitrust laws and BHARs for chaebol firms in the Korean market.

	BHAR[0,12]	BHAR[0,12]
After $\times$ Horizontal $\times$ Chaebol	−0.082*** (−3.91)	−0.089** (−3.15)
After $\times$ Horizontal	0.053** (2.53)	0.053** (2.62)
Chaebol $\times$ Horizontal	0.053 (1.16)	0.036* (2.12)
Horizontal	−0.038** (−2.59)	−0.036** (−2.83)
Ln(Asset)		−0.003 (−1.54)
Relative Size		0.051* (2.29)
ROA		0.017 (0.81)
Total Leverage		0.083 (1.88)
Cash		−0.015 (−0.12)
Tangibility		0.002 (0.08)
Tobin's Q		0.001 (0.81)
Pure Cash		−0.016 (−0.91)
Pure Stock		0.031* (2.24)
Tender		0.031 (0.98)
Public Target		−0.012 (−0.25)
Constant	−0.063 (−1.36)	−0.036 (−0.98)
Year Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	Yes
Observations	1,184	1,043
Adjusted R-squared	0.0105	0.0422

Note: Table 9 reports estimation results after including the chaebol dummy in the baseline model, as presented in Equation (2). Column 1 shows the relationship between the BHARs and interaction terms. Column 2 examines the full effect by considering the complete set of dependent, independent, and control variables. In Column 2, the coefficient for After $\times$ Horizontal is 0.0581 and is statistically significant at the 5 % level, while that for Horizontal is −0.0567 and is statistically significant at the 5 % level. The coefficient for the triple interaction term (After $\times$ Horizontal $\times$ Chaebol) is −0.0923, with a t-statistic of −3.28, statistically significant at the 5 % level, using a clustered standard error at the three-digit SIC level. By contrast, the coefficient for Chaebol $\times$ Horizontal is 0.0489 and is statistically significant at the 10 % level. ***, **, and * indicate statistical significance at the 1 %, 5 %, and 10 % levels, respectively.

cumulative abnormal returns (BHARs). The results are reported in Table 10. Instead of using 12-month BHARs, we analyze 18-, 24-, 30-, and 36-month BHARs after merger announcements.

Our results show that post-merger long-term returns for horizontal M&As, as indicated by After $\times$ Horizontal, are positive following the relaxation of merger controls in 2007 and are statistically significant at the 10 % level or better, except for the 18-month BHARs. The BHARs exhibit increasingly positive values as the time window expands, whereas they are increasingly negative for After $\times$ Horizontal $\times$ Chaebol. With respect to chaebol merger announcements, we find statistically significant results at the 10 % level for all time windows, except for the 36-month BHAR in Column 4. The sign of the coefficients for After $\times$ Horizontal $\times$ Chaebol and After $\times$ Horizontal remains opposite, even as the time window varies, supporting the managerial entrenchment hypothesis. This also indicates that the findings are not dependent on our choice of specific BHAR window dates.

Table 10
Different BHARs windows (sensitivity analysis).

	BHAR[0,18]	BHAR[0,24]	BHAR[0,30]	BHAR[0,36]
After × Horizontal × <i>Chaebol</i>	−0.035** (−3.31)	−0.131** (−2.63)	−0.045* (−2.19)	−0.092* (−2.11)
<i>Chaebol</i> × Horizontal	0.012* (2.25)	0.053* (2.35)	0.043* (2.31)	0.063 (1.53)
After × Horizontal	0.062 (1.35)	0.034** (2.53)	0.034* (2.35)	0.123* (2.53)
Horizontal	−0.023* (−2.16)	−0.053*** (−3.83)	−0.073** (−2.39)	−0.083* (−2.14)
Ln(Asset)	−0.023* (−2.22)	−0.021 (−1.73)	−0.001 (−0.12)	−0.008 (−1.81)
Relative Size	0.053* (2.35)	0.073** (2.54)	0.053* (2.11)	0.031 (0.93)
ROA	0.023 (0.63)	0.004 (0.22)	−0.003 (−0.07)	0.063 (1.83)
Total Leverage	0.035* (2.23)	0.046 (1.63)	0.012 (0.53)	0.044 (0.69)
Cash	0.023 (0.16)	−0.043 (−0.63)	−0.049 (−0.61)	−0.135 (−0.73)
Tangibility	−0.016 (−0.36)	−0.023 (−0.23)	−0.025 (−0.77)	−0.083 (−1.85)
Tobin's Q	0.007 (1.53)	0.016 (1.63)	0.021 (0.93)	0.021 (1.35)
Pure Cash	−0.002 (−0.23)	0.023 (0.57)	0.004 (0.76)	0.017 (1.33)
Pure Stock	0.034* (2.12)	0.035* (2.36)	0.053** (2.73)	0.012*** (3.98)
Tender	0.002 (0.15)	0.084 (1.64)	0.001 (0.21)	0.025 (0.93)
Public Target	−0.023 (−0.91)	−0.036 (−1.73)	−0.025 (−1.35)	−0.021 (−0.99)
Constant	−0.015 (−0.83)	−0.054 (−0.99)	−0.093 (−1.81)	−0.043 (−1.57)
Year Fixed Effects	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
Observations	1,043	1,043	1,043	1,043
Adjusted R-squared	0.0353	0.0363	0.0212	0.0031

Note: Table 10 presents the regression results after we adjust the time windows for the BHARs. ***, **, and * indicate statistical significance at the 1 %, 5 %, and 10 % levels, respectively.

5.2. Managerial entrenchment hypothesis: other instruments of tunneling

In addition to the experiments conducted in Section 4.7, we explore the relevant literature to examine various methodologies and proxy variables used to identify tunneling. Several approaches have been proposed for assessing tunneling. For instance, Bae et al. (2002), Cheung et al. (2006), and Peng et al. (2011) define tunneling as a negative cumulative abnormal return over a specified period following an M&A announcement.¹⁰ Given the Korean market context, we follow Bae et al.'s (2002) empirical model because the rationale behind this approach is straightforward. A post-M&A decrease in a company's value (BHAR), particularly for well-performing firms, suggests that tunneling rather than value-adding objectives may motivate the M&A.

Essentially, chaebol firms can be classified into two groups based on their cash flow-to-total assets (or operating cash flow, OCF) values. We then compare the mean and median BHAR for each group and conduct a simple *t*-test (Bae et al., 2002). The testing process is as follows. First, we estimate the median values of OCF for all firms and classify them into two groups depending on whether they are chaebols or non-chaebols. Then, we create four subgroups using the median values of OCF within each group. Finally, we apply the DiD approach using these subgroups. The results of this experiment are reported in Table 11.

We only observe a statistically significant result for non-chaebol firms with OCF lower than the median (see Column 2). Since relaxed antitrust regulations in 2007 facilitated debt-financed M&A, the result suggests that the market tends to reward underperforming non-chaebol companies participating in horizontal M&A that rely more heavily on debt-financed deals. Our findings also indicate a statistically significant reduction in firm value for chaebol firms with OCF higher than the median (see Column 3). The

¹⁰ In contrast, Jiang et al. (2010) and Li (2010) employ ORECTA or OREC as a proxy for tunneling. ORECTA stands for “other receivables over total assets” and is calculated by dividing the value of receivables—such as interest, loans, and income tax refunds—by total assets. OREC represents the value of other receivables without scaling it by total assets. These metrics are commonly used in studies of the Chinese market. Specifically, Jiang et al. (2010) argue that controlling shareholders extracted billions of RMB from hundreds of affiliated companies by appropriating about 30 %–40 % of the total value of other receivables for personal gain.

Table 11

Relaxation of antitrust laws and BHARs by operating cash flow.

	Non- <i>Chaebol</i> firms		<i>Chaebol</i> firms	
	OCF higher than the median	OCF lower than the median	OCF higher than the median	OCF lower than the median
	BHAR[0,12]	BHAR[0,12]	BHAR[0,12]	BHAR[0,12]
After × Horizontal	0.012 (0.53)	0.035* (2.35)	−0.032* (−2.23)	0.018 (0.63)
Horizontal	−0.035* (−2.12)	−0.031 (−1.83)	0.063 (1.83)	−0.034 (−1.64)
Ln(Asset)	0.035** (2.34)	−0.005 (−0.93)	0.001 (0.33)	−0.006 (−0.83)
Relative Size	0.053 (1.83)	0.053 (1.83)	−0.063 (−0.83)	−0.025 (−0.98)
ROA	−0.035 (−1.53)	0.035 (1.63)	0.134 (0.63)	0.193 (0.43)
Total Leverage	0.043 (0.63)	0.035 (1.35)	−0.053 (−0.35)	0.096 (1.46)
Cash	0.454 (1.84)	−0.242* (−2.25)	−1.335*** (−3.64)	0.234 (0.83)
Tangibility	0.005 (0.23)	0.009 (0.35)	−0.046 (−0.23)	−0.183 (−1.25)
Tobin's Q	−0.014* (−2.36)	0.015 (0.53)	0.063* (2.34)	0.253 (0.35)
Pure Cash	0.007 (0.74)	−0.003 (−0.63)	0.023 (0.84)	0.034 (0.53)
Pure Stock	0.054* (2.25)	0.083 (1.93)	0.035 (1.63)	0.013 (1.74)
Tender	0.194* (2.26)	−0.063 (−0.99)	0.053 (1.35)	0.035 (1.43)
Public Target	−0.046 (−1.64)	0.023 (0.73)	−0.053** (−2.99)	0.001 (0.73)
Constant	−0.123 (−1.46)	0.163 (1.83)	−0.034 (−0.36)	−0.034 (−0.64)
Year Fixed Effects	Yes	Yes	Yes	Yes
Industry Fixed Effects	Yes	Yes	Yes	Yes
Observations	442	394	106	101
Adjusted R-squared	0.1353	0.0632	0.1253	0.0053

Note: Table 11 presents the impact of horizontal mergers after the relaxation of antitrust law on chaebol and non-chaebol firms. The sub-samples are created using operating cash flow (OCF). ***, **, and * indicate statistical significance at the 1 %, 5 %, and 10 % levels.

Table 12

Relaxation of antitrust laws and BHARs by total assets.

	Total Asset Above 6 trillion KRW	Total Asset Above 10 trillion KRW
	BHAR[0,12]	BHAR[0,12]
After × Horizontal	−0.115** (−2.63)	−0.036*** (−3.73)
Horizontal	0.074** (−2.73)	0.062** (−2.53)
Constant	−0.136 (−1.26)	−0.235 (−0.98)
Controls	Yes	Yes
Year Fixed Effects	Yes	Yes
Industry Fixed Effects	Yes	Yes
Observations	169	125
Adjusted R-squared	0.1353	0.1473

Note: Table 12 presents the impact of horizontal mergers after the relaxation of antitrust law on highly and marginally affected firms, based on total assets exceeding six trillion and ten trillion KRW. The results are consistent across both types of firms. ***, **, and * indicate statistical significance at the 1 %, 5 %, and 10 % levels, respectively; KRW = South Korean won.

results for chaebols with below-median OCF are, however, statistically insignificant, as reported in Column 4.

Thus far, the findings are broadly consistent with Bae et al. (2002). Since the relaxation of antitrust regulations in 2007 facilitated debt-financed mergers and acquisitions (M&A), we argue that well-performing, cash-rich chaebols were less incentivized to participate in leveraged acquisitions. Consequently, the market interprets chaebols' horizontal acquisition announcements as efforts toward tunneling. Therefore, these results support the managerial entrenchment hypothesis. The 2015 merger between Samsung C&T (the construction and trading arm of the Samsung Group) and Cheil Industries, a holding company controlled by the Lee family, is a notable

example. This horizontal merger was considered a way to strengthen the Lee family's grip on the Samsung Group. It was primarily equity-driven, with Samsung using its internal capital and stock swaps rather than significant external debt. The merger faced significant backlash from shareholders, including U.S. hedge fund Elliott Investment Management, which argued that the deal undervalued Samsung C&T shares to benefit the Lee family, leading to a decline in Samsung C&T's stock price due to investor distrust. The long-term value was also questioned as it prioritized family control over economic efficiency, leading to a perceived loss in firm value.

Next, we examine the impact of horizontal mergers and antitrust deregulation on firms based on their total assets. We split the sample into two groups based on firm size: those with total assets above six trillion KRW and those with total assets above ten trillion KRW. The results are reported in Table 12.

We begin our analysis with the first column. In our sample, all companies with total assets exceeding six trillion KRW are classified as chaebols; therefore, the interaction variables, including chaebol ($After \times Horizontal \times Chaebol$ and $Chaebol \times Horizontal$), are similar to those without chaebol ($After \times Horizontal$ and $Horizontal$). Companies with total assets exceeding six trillion KRW show a 12-month BHAR decrease of approximately 11.50 % following the relaxation of antitrust regulation. In comparison, companies with total assets exceeding ten trillion KRW exhibit a 12-month BHAR decrease of approximately 3.60 %, suggesting that the effect of horizontal M&A following the 2007 relaxation of antitrust law varies by company size.

The antitrust regulation does not prohibit chaebols' M&A activities. Instead, it seeks to prevent monopolistic M&A by imposing more stringent disclosure requirements on chaebol merger deals that may restrict market competition. From this perspective, the 2007 amendments to the "Restriction on Total Amount of Shareholding of Other Company" lowered reporting requirements and facilitated leverage for smaller chaebols with total assets between six and ten trillion KRW. Therefore, our findings imply that the regulatory easing incentivized smaller chaebols to exploit private gains through tunneling. The market recognizes that these companies are more inclined to enhance their competitive position by acquiring competitors, given improved leverage access and reduced monitoring pressure after the 2007 revision. Hence, the results in Table 12 support our proposition that the 2007 merger control relaxation led to value erosion for chaebols and value enhancement for non-chaebols following horizontal acquisition announcements.

6. Concluding remarks and implications

Using data on 1,185 successfully executed M&As in South Korea between 1999 and 2017, we investigated the effect of the 2007 antitrust deregulation on the acquiring company's long-term value. We measured this value using the 12-month buy-and-hold cumulative abnormal return (BHAR) and employed a difference-in-differences model for our analysis. Since we analyze only completed mergers and acquisitions, our sample focuses on finalized deals. This means that the announcement return and subsequent cumulative returns reflect the value of the deal and are not affected by the uncertainty of whether the deal will be completed.

Our findings indicate that, on average, shareholder returns from horizontal acquisitions improve significantly. However, whether increased market power or improved cost efficiency from horizontal M&A activities drives this enhancement remains unclear. Instead, we observe a significant decline in chaebol firm value, suggesting a link between this decrease and tunneling-initiated M&A activities. We further explored subsample analyses, revealing that issues related to managerial entrenchment contribute to a decline in the value of such firms. Nevertheless, our empirical evidence is insufficient to support the market power and cost-efficiency hypotheses when examining non-chaebol firms.

Our study has significant policy implications. Prior studies primarily focused on the effect of strengthening competition laws in developed and developing markets. Meanwhile, our study investigates whether easing such laws in developing economies characterized by weak corporate governance yields the opposite outcome. The deregulation of competition law was designed to ease the M&A process and help firms maintain competitiveness both domestically and globally. Our results, however, indicate that relaxing competition regulations does not necessarily induce market optimism toward horizontal acquisitions, particularly for family-owned conglomerates such as chaebols. By contrast, the market tends to reward underperforming non-chaebols. The findings offer significant insights for regulators, who should pay closer attention to the nature of M&A activity—whether it prioritizes competitiveness or family control—and to the potential adverse impacts on investor confidence. This result also suggests that governments should consider the contextual differences between emerging and developed markets when adopting effective competition laws.

Author statement

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Appendix. Variable descriptions

Variable	Definition
Independent Variables	
After	Equals one if a merger occurred after 2007 (the relaxation of an antitrust regulation).
Horizontal	Equals one if the acquirer and the target share the first three-digit SIC code (Alfaro & Charlton, 2009), indicating a horizontal acquisition.
Chaebol	Equals one if the acquirer is a member firm of the <i>chaebol</i> conglomerate. The Korean FTC uses the prior fiscal year's consolidated financial statements to designate firms for inclusion or exclusion from the <i>chaebol</i> list.
Dependent Variables	
BHAR $[T_1, T_2, 12]$	An acquirer's t -day buy-and-hold cumulative abnormal return (BHAR) calculated using the industry average adjusted model. The abnormal return is the difference between the daily stock return and the market return.
Ln(DealValue)	The natural log of the merger's one-year lagged transactional value.
Ln(Sales) $_t$	The natural log of the acquirer's t -year lagged sales value.
Ln(COGS) $_t$	The acquirer's t -year lagged cost of goods sold (COGS) scaled by total assets.
Ln(SGA) $_t$	The acquirer's t -year lagged selling, general, and administrative (SGA) costs scaled by total assets.
OCF	The acquirer's operating cash flow (OCF) scaled by total assets.
Control Variables	
Ln(Asset)	The natural logarithm of the acquirer's total assets.
Relative Size	The merger's transactional value scaled by the acquirer's market value of equity. The market value of equity is calculated by multiplying the acquirer's common shares outstanding by the stock price in U.S. dollars.
ROA	The acquirer's net income scaled by total assets (ROA = return on assets).
Total Leverage	The acquirer's long-term debt and debt in current liabilities scaled by total assets.
Cash	The acquirer's cash scaled by total assets.
Tangibility	The acquirer's net property, plant, and equipment scaled by total assets.
Tobin's Q	The acquirer's market value of equity, plus book assets minus book shareholder equity, all scaled by total assets.
Pure Cash	Equals one if the consideration payment is fully in cash.
Pure Stock	Equals one if the consideration payment is fully in stock.
Tender	Equals one if the target launched a tender offer.
Public Target	Equals one if the target firm is public.

Data availability

The authors do not have permission to share data.

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