

Target industry takeover competition and the wealth effects of mergers and acquisitions: International evidence

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Abstract

This paper studies how target industry takeover competition affects shareholder gains around mergers and acquisitions (M&As). We find that target industries with higher M&A activity negatively (positively) affect bidder (target) announcement returns, while the impact on bidder-target combined returns is negligible. The results corroborate the overpayment argument of acquiring targets from competitive industries. Importantly, we document that the lower bidder announcement returns associated with higher industry takeover competition are mitigated when bidders are from countries with better institutional quality, suggesting that country governance can prevent bidder managers from overpaying the targets.

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Abstract

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Keywords: Industry takeover competition; mergers and acquisitions; M&A returns, corporate governance.

JEL codes: G34, D40.

1. Introduction

A growing body of literature addresses the effect of competition in the international market for corporate control and suggests that acquisition announcement returns are asymmetrically distributed between the bidder and the target (e.g., Andrade, Mitchell, and Stafford, 2001; Bradley, Desai, and Kim, 1988; Netter, Stegemoller, and Wintoki, 2011; Renneboog and Vansteenkiste, 2019), and more so when takeover competition is higher at the country level (Alexandridis, Petmezas, and Travlos, 2010; Humphery-Jenner and Powell, 2011; Rossi and Volpin, 2004; Shams, 2021). Leveraging on these studies, a commonly held view is that bidders offer hefty premiums to targets to win the bidding contest in the presence of intense takeover competition. This might happen for two main reasons: First, the likelihood of facing more competing bidders is higher when takeover market competition is also higher, thus the outcome of the auction game may result in a higher premium. Second, when bidders target a company in a more competitive market, they tend to offer a higher premium (Boone and Mulherin, 2007; Schwert, 1996) as an anticipation strategy to discourage other potential raiders, particularly in the absence of well-functioning mechanisms of corporate governance.

Evidence that bidder (target) shareholders earn lower (higher) announcement returns when takeover market competition is higher, mainly due to overpaying, exists for different markets, such as the U.K. (Rossi and Volpin, 2004), the U.S. (Alexandridis, Petmezas, and Travlos, 2010), and Australia (Shams, 2021). While prior studies examine the impact of takeover competition on mergers and acquisitions (M&As) announcement returns in different markets/countries, the purpose of our study is to investigate the effect of target industry takeover competition on the value created by M&As to bidders and targets. Although those cross-country differences may explain part of the cross-sectional variation in announcement returns, there are also industry-level competitive disparities in the takeover markets that can affect the returns to the bidder and target shareholders. For instance,

even within the same country, acquiring a target from an industry that faces strong takeover activity is expected to affect announcement returns differently than acquiring a firm from a slow takeover industry. Thus, we postulate that above and beyond the documented differences in takeover market competition across countries (Alexandridis, Petmezas, and Travlos, 2010; Rossi and Volpin, 2004; Shams, 2021), target industries also differ in their degree of takeover competition, which may significantly impact acquisition outcomes. In particular, we ask the following questions: First, are the acquisition announcement returns lower (higher) for bidders (targets) when the target industry faces greater takeover competition? Second, do acquirers pay a higher premium when target industry takeover competition is higher? Third, does this competition enhance the combined bidder-target announcement returns or merely affect the distribution of gains between bidders and targets? Fourth, does the quality of the bidders' corporate governance moderate the tendency to pay hefty bid premiums when target industry takeover competition is higher?

We measure industry takeover competition as the number of listed target firms divided by the total number of listed firms within a target industry in each year and country.¹ Our sample covers 1670 completed public majority² mergers and acquisitions from 2000 to 2019 from thirty countries. We first test whether target industry takeover competition affects the cumulative abnormal returns (CARs) around M&A announcements. Our results show that industry takeover competition negatively (positively) affects bidder (target) CARs, both statistically and economically significant, while bidder and target combined CARs remain unaffected. The results persist after controlling for country-level competition, bidder and target firm characteristics, deal characteristics, and macroeconomic variables. Our evidence suggests that target industry takeover competition significantly impacts the partition of gains, where bidders lose, and targets gain, but the combined

¹ This measure differs from country-level competition where the number of target firms is scaled by the total number of listed firms within a country in each year.

² We define public majority acquisitions as those where both bidder and target are public companies and the bidder owns less than 50% of the target's equity before the acquisition and more than 50% after the acquisition.

value is not significantly affected. The findings on the acquirer and target returns support the overpayment argument and are consistent with the existing work on takeover competition (see, Alexandridis, Petmezas, and Travlos, 2010; Rossi and Volpin, 2004; Shams, 2021). The findings on the combined CARs do not support the idea that greater industry competition in the takeover market improves the monitoring role of the market for corporate control in leading managers to make better investment decisions. In this regard, the effect is negligible.

We next examine directly whether the lower announcement returns earned by acquirers are related to higher premiums paid for the targets to win other raiders' bids, as empirical evidence seems to suggest (see among others, Humphery-Jenner and Powell, 2011; Shams, Gunasekarage, and Colombage, 2013). Consistent with these studies, one would expect that takeover premium is higher when industry takeover competition is stronger. We find that the takeover premium is on average 2.20 to 2.25 percentage points (pp) higher when industry takeover competition is one standard deviation higher. The results support the argument that overbidding is the underlying reason for the negative association between the bidder announcement returns and target industry takeover competition.

Finally, we examine whether the institutional quality of the bidder's country mitigates the negative returns to bidders associated with higher industry takeover competition. The literature shows that bidders from countries with higher shareholder rights and accounting standards tend to engage in better acquisitions (Rossi and Volpin, 2004), and their returns are higher when the difference in home country governance of the bidder and target is higher (Ellis, Moeller, Schlingemann, and Stulz, 2013).³ Starks and Wei (2013) and Bris and Cabolis (2008) document that bidder returns are a

³ There is a vast literature on how cross-country differences in governance standards influence investment decisions, stock returns, market valuations, and external financing costs (Beck, Demirgüç-Kunt, and Levine, 2003; Berkowitz, Pistor, and Richard, 2003; Cremers and Nair, 2005). Several studies show that firms domiciled in better-governed countries face fewer agency conflicts and reach higher standards of interest alignment between managers and shareholders (see, among others, Young et al., 2008; Col and Errunza, 2022).

function of the home country's governance and show that bidder shareholders earn higher returns and pay fairer premiums when their home country's governance is better. To measure the quality of the bidder's country governance, we use World Governance Indicators issued by the World Bank (see Kaufmann, Kraay, and Mastruzzi, 2009) and the revised Anti-director index proposed by Djankov et al. (2008). We find that the reported negative impact of industry takeover competition on bidder CARs is mitigated when bidders are from countries with higher governance standards, suggesting a limit beyond which the acquirer must withdraw from the deal. These findings are consistent with the existing literature on country governance (Ellis, Moeller, Schlingemann, and Stulz, 2017; Klapper and Love, 2004; Martynova and Renneboog, 2008) and support the views that countries with higher governance quality face lower agency costs, and bidders from these countries make better acquisitions.

Our work makes three significant contributions to the M&A literature. Firstly, despite the existing work on takeover competition at the country level, we know little about how takeover competition in the target industry affects announcement returns. Understanding cross-country differences in takeover competition is important when deciding on cross-border acquisitions. However, the overwhelming majority of acquisitions are domestic, making it even more relevant for managers to understand the competitive nature of specific industries in the market for corporate control when deciding about the next acquisition. Indeed, we show that target industries vary considerably in our measure of takeover competition, and this has an impact on how the gains from acquisitions accrue to bidder or target shareholders. Thus, our study adds to the literature on takeover competition (Bradley, Desai, and Kim, 1988; Humphery-Jenner and Powell, 2011; Morck, Shleifer, and Vishny, 1990; Shams, Gunasekarage, and Colombage, 2013) and, importantly, extends the work of Alexandridis, Petmezas, and Travlos (2010) by demonstrating that industry-level takeover competition has an essential effect on cumulative abnormal returns beyond takeover competition at

the country level. Secondly, we expand the understanding of competitive bid outcomes (Aktas, Bodt, and Roll, 2010) and the asymmetric distribution of returns between merging firms in the takeover market due to pressures on bidders to win the auction game by industry takeover competition, leading them to pay higher premiums. We thus contribute to the literature that shows that the winner's curse hypothesis persists in the takeover market (Baker, Ruback, and Wurgler, 2007; Thaler, 1998) and can be traced to the hubris hypothesis of Roll (1986), where managers fall prey to the winner's curse and end up paying higher bid premiums. Thirdly, we contribute to the literature that relates the quality of country-level governance to higher bidder announcement returns, and fewer agency problems, in the market for corporate control (Ellis et al., 2013; Starks and Wei, 2013; Bris and Cabolis, 2008). Specifically, we show that the higher institutional quality of the bidder's country mitigates the negative returns to bidders and the higher bid premiums associated with stronger industry takeover competition.

The remainder of the work is arranged as follows: in Section 2, we describe the sample and data, and show summary statistics; in Section 3, we discuss the methodology; in Section 4, we test the impact of target industry takeover competition on M&A announcement returns; in Section 5, we show the association between target industry takeover competition and bid premium; in Section 6, we test the moderating effect of the bidder's country governance on announcement returns and bid premium; in Section 7, we present robustness tests; Section 8 concludes the study.

2. Data and summary statistics

The initial sample comes from Refinitiv (Thomson Reuters) Securities Data Corporation (SDC) and covers twenty years from 2000 to 2019 and thirty countries.⁴ We take completed M&A deals where bidders and targets are publicly listed firms with stock price data available from the

⁴ In the Internet Appendix, Table IA.1, we present the sample distribution by country. About 26% of the deals are from bidders located in United States, followed by 23% and 11% deals from the bidders domiciled in the Japan and Canada.

DataStream. We screened out deals that SDC categorizes as repurchases, self-tenders, spinoffs, privatizations, and recapitalizations. We then consider only majority control acquisitions in which bidders own less than 50% of target stocks pre-acquisition and hold more than 50% post-acquisition.⁵ We further dropped deals where bidders are from the financials and utilities industries. Finally, we end up with 1670 M&A deals with complete data covering all variables.⁶

Table 1 shows the sample distribution by the target's industry (Fama-French 48-industry classification) including, the number of targets, average industry takeover competition, and average CARs to combined firms over the twenty years. Almost 14.5% of targets are in the electronic equipment industry⁷, 13% in chemicals, and 10% in the mining industry. We calculate industry takeover competition as the ratio of the number of acquired targets to total public firms within the same industry, year, and country. We observe that lab equipment, paper, and personal services are the top three competitive industries, followed by drugs, computer software, and steel. The bidder and target CARs are the five-day cumulative abnormal returns around the announcement day, and the combined CARs are the weighted average of the bidder and target returns, based on the companies' market value six days before the acquisition, adjusted for the bidder's toehold on the target's equity. The average combined CARs are positive in the most competitive industries and negative in the least competitive industries, indicating that the takeover value increases with higher industry competition in the takeover market.

[INSERT TABLE 1 HERE]

⁵ We follow the previous literature on the wealth effects of M&As and M&A bid premiums and focus only on controlling acquisitions of the target, as these are the ones that effectively change corporate control and significantly impact corporate value. Our results are also valid for 100% ownership acquisitions.

⁶ The details of the data cleaning process are presented in the Internet appendix (Table IA.2).

⁷ Although the electronic equipment industry dominates our sample, the results for competition still hold when we drop deals from this industry.

Panel A of Table 2 provides summary statistics of each variable we use in this study. The average bidder, target, and combined five-day cumulative abnormal returns are -1%, 13.2%, and 2.8%, respectively. We find that the average industry takeover competition is 4% with a considerable standard deviation of 5.5%. The acquirer's average country-level competition is 1.8% with a standard deviation of 3.3%. The average number of bidders in our M&A sample is 1.05 and a median of 1 (the maximum number of bidders in an acquisition in our sample is three). Among deal-specific characteristics: dummy variables for cash-financed deal, same-industry deal, and cross-border deal. Mostly, bidders pay in cash (50.5%), engage in same-industry deals (63.8%), and domestic acquisitions (75.5%). The acquirer and target characteristics include leverage, long-term debt scaled by total assets; Tobin's q, total assets minus book value of equity plus the market value of equity scaled by total assets; size, the logarithm of total assets; all of them are computed a year before the announcement day. The mean values of the bidder's leverage, Tobin's q, and size are 0.15, 0.60, and 16.56, respectively. The target's average leverage, Tobin's q, and size are 0.14, 0.58, and 13.37, respectively. The run-up in stock price is the sum of abnormal returns for a window of 90 days up to 20 days before the deal announcement. The average bidder and target stock price run-up is 1% and 2.5%, respectively. We use the weighted average stock price run-up of the bidder and target for combined returns regressions; the mean value of the combined stock price run-up is -2.6%. Finally, we show country characteristics including GDP growth, GDP per capita, world governance indicators index (WGI), and Anti-director index (ADI) with the mean value of 2.09, 1.08, 86.90, and 3.36, respectively. All of these variables are defined in the Appendix.

Panel B shows the means of all variables for the groups of high and low target industry takeover competition and tests the differences. To estimate the difference in means, we use a two-tailed t-test that examines the mean difference between higher and lower industry takeover competition. We divide the sample into two groups of high and low competition based on the median

value of industry takeover competition. The results show that bidder (target) CARs are lower (higher) for the group of high industry takeover competition. Bid premium is also higher when industry takeover competition is higher, which is consistent with our predictions. The number of competing bidders also tends to be slightly higher in more competitive environments. The group of deals with higher industry takeover competition also tend to be greater in size, exhibit higher bidder's stock price run-up, and lower target Tobin's Q.

[INSERT TABLE 2 HERE]

In Table 3, we present the Pearson correlation matrix. We find that the bidder returns are negatively correlated with industry takeover competition while the target returns are positively correlated. The correlation coefficients are statistically significant. The correlation between the combined CARs and industry takeover competition is positive, albeit insignificant. We also observe a positive and statistically significant correlation among industry takeover competition, country takeover competition, cash financed (dummy), cross-border (dummy), and relative deal size. Overall, we find a lower level of correlation between industry takeover competition and control variables except for country takeover competition. Our results exist if we remove country takeover competition from the baseline models (Table 4).

[INSERT TABLE 3 HERE]

3. Methodology

3.1 Cumulative abnormal returns

If the acquisition of a public target is unanticipated, the takeover value should be reflected in the announcement returns. We expect that the industry takeover competition should negatively affect the bidder's cumulative abnormal returns and positively affect the combined and target cumulative abnormal returns. We use the following market model to estimate expected returns:

$$R_{act} = \alpha_{ac} + \beta_{ac}R_{ct} + \varepsilon_{act}, t=-255, \dots, -25 \quad (1)$$

where R_{act} is the DataStream daily return for the bidder or target in country c ; R_{ct} is the daily market index return for country c ; ε_{act} is the excess return. To calculate cumulative abnormal returns for five days period ($t-2, t+2$) around the announcement date, we follow Fama, Fisher, Jensen, and Roll, (1969) standard event study methodology, using an estimation window of $(-255, -25)$ days prior to the deal. The cumulative abnormal returns are the difference between actual and expected daily returns. The following model is used to test the industry takeover competition effect on the cumulative abnormal returns:

$$CAR(-2, +2)_{m,t} = \alpha + \beta_1 ITC_{m,i,t-1} + \sum \beta_x Country\ controls_{a,t-1} + \sum \beta_y Deal\ controls_{m,t} + \sum \beta_z Firm\ controls_{a,t-1} + \lambda_t + \eta_i + \gamma_c + \varepsilon_{i,t} \quad (2)$$

where $CAR(-2, +2)_{m,t}$ is the acquirer's or target's cumulative abnormal return around the five-day event window for deal m at time t ; α is the intercept; $ITC_{m,i,t-1}$ is the target's industry takeover competition for deal m , the industry i and one year before the deal announcement. Fama-French 48 industry categories are used for industry classification. $Country\ controls_{a,t-1}$ is a vector of country-specific characteristics for the bidder a one year prior to the deal, and it includes: country competition; country governance, Gross Domestic Product (GDP) growth, log GDP per capita; $Deal\ controls_{m,t}$ is a vector of deal-specific characteristics for deal m at time t ; $Firm\ controls_{a,t-1}$ is a vector of firm-specific characteristics for bidder a and one year before the deal announcement. The deal specific-controls include: number of bidders; cash-financed deal, a binary variable with value of one if the payment is made with cash and zero otherwise; cross-border deal, an indicator

variable that equals one for cross-border deals and zero for domestic deals; same industry deal, a binary variable that is equal to one if the merging firms belong to the same Fama-French 48 industry and zero otherwise; relative deal size, deal-value divided by the bidder's market value of equity; number of bidders, natural logarithm of the number of bidders involved in an M&A deal. The firm-specific controls include leverage, Tobin's q , size, and stock price run-up. To control for omitted factors that can influence the CARs, we add dummies for year, λ_t , industry, η_i , and country, γ_c . Finally, we mitigate the effect of outliers by winsorizing one percent of the distribution tails of CARs and firm-specific controls.

For examining the industry takeover competition effect on the target returns, we use the same model but replace bidder CARs with target CARs and bidder characteristics with target characteristics. Following Bradley, Desai, and Kim (1988), we compute the combined returns of the acquirer and target by constructing the value-weighted portfolio of merging firms. The weights are assigned based on the equity's market value six days before the deal announcement, and target-weighted returns are adjusted for the toehold, similar to Wang and Xie (2009).

3.2 Target industry takeover competition

Following Alexandridis, Petmezas, and Travlos (2010), we calculate competition as the total acquired firms scaled by total listed firms. They use this measure for the country-level competition in the takeover market, and we employ it at the industry level. More specifically, we calculate competition within a target industry in each year and country. We use Fama-French 48 industry categories, excluding financials and utilities. Based on this measure, more competitive industries have a higher percentage of acquired firms. In robustness tests, we use different thresholds for competitive industries (i.e., median, terciles, and quintiles) to examine if the pattern of announcement returns differs between more and less competitive industries.

3.3 Control variables

We control for three categories of variables linked with cumulative abnormal returns: country characteristics, deal characteristics, and bidder/target firm characteristics.⁸

The country characteristics that we use as controls include country governance, GDP per capita, GDP growth, and country-level competition, all of which are calculated one year before the deal. The literature on country-level competition (Alexandridis, Petmezas, and Travlos, 2010; Rossi and Volpin, 2004; Shams, 2021) finds that bidders earn negative returns in competitive takeover markets and vice versa. The targets, on the other hand, earn positive returns in competitive takeover markets. Following Ellis et al. (2017), we control for country governance using the average of World Governance Indicators (WGI), which is expected to positively affect bidders' announcement returns. We further control for financial development and economic growth using two macro-economic variables - log of GDP per capita and GDP growth.

We consider some deal-related characteristics like cross-border deal, cash-financed deal, same-industry deal, relative deal size, and number of bidders. Cross-border M&As allow firms to get additional rents because of different tax systems (Col, 2017; Servaes and Zenner, 1994), gaps in governance standards (Martynova and Renneboog, 2008; Ellis et al., 2017), cultural proximity (e.g., Ahern, Daminelli, and Fracassi, 2015; Dinc and Erel, 2013), or bidder's currency appreciation (Erel, Liao, and Weisbach, 2012). As for the method of payment, the literature documents higher announcement returns related to cash payments (Graham, Lemmon, and Wolf, 2002). Same-industry deals can create higher returns due to economies of scale (Masulis, Wang, and Xie, 2007). We classify deals as 'same-industry' if the merging firms share the same Fama-French 48-industry classification. Larger deals tend to have a greater impact on announcement returns (Moeller, Schlingemann, and Stulz, 2004); therefore, we also control relative deal size. The number of bidders involved in an M&A

⁸ To review the determinants of M&As and their wealth effects, see Martynova and Renneboog (2008) and Jensen and Ruback (1983).

deal can affect announcement returns (Bradley, Desai, and Kim, 1988; Schwert, 1996; Alexandridis, Petmezas, and Travlos, 2010) and thus we used the natural logarithm of the number of competing bidders as an additional control variable.

We also control for bidder and target characteristics, namely leverage, size, and Tobin's q . Finally, we control run-up in the stock price (Golubov, Petmezas, and Travlos, 2012; Rosen, 2006; Brigida, Madura, and Viale, 2014) of the bidder and target for the period (-90, -20). If the deals are highly anticipated in competitive industries, the stock prices of both the bidder and target should increase before the deal announcement (i.e., run-up) which can capture a proportion of post-announcement stock price reaction.

4. Does target industry takeover competition affect M&A announcement returns?

4.1 Univariate analysis

In Panel B of the descriptive statistics table (Table 2), we show the results of univariate tests for the difference in means of all variables used in our main regressions. Here, we focus on the dependent variables from our models (bidder, target and combined CARs, and bid premium) to examine how they differ between the groups of high and low target industry takeover competition. To do so, we divide our sample into two categories of higher and lower competition and create a binary variable equal to 1 for industries above the median value and 0 otherwise. We conjecture that the bidder (target) returns must be lower (higher) for competitive industries.

There are 840 (50%) M&A deals in the sample with higher competition and 830 (50%) deals with lower competition. We observe that the average disparity in the bidder CARs between higher and lower competition is -1.3% (-0.013×100), significant at the 1% level. The target CARs and takeover premiums show an average difference of 6.1% and 4.3%, respectively, between higher and lower competition groups. We also find that the mean combined returns for the higher competition

group are -0.3% and -5.1% for the lower competition group. The difference in means is -4.8%, but not statistically significant. This suggests that target industry takeover competition does not appear to have a significant impact on whether companies engage in better or worse deals.

In brief, bidders acquiring public targets lose value due to a higher premium for winning the bid, and the targets get an advantage of that. The univariate analysis also shows that the industry competition in the takeover market is neither harmful nor beneficial for value creation. We proceed to examine the reported relationship in a multivariate framework.

4.2 Multivariate analysis

The results of the univariate analysis show that the reported average difference in CARs between the higher and lower competitive industries is negative for the bidder and combined CARs while positive for target CARs and takeover premium. However, it is inconclusive whether the disparity among returns observed in the univariate analysis is due to industry takeover competition. If the bidders pay higher premiums to win the bid, then bidder (target) CARs should be lower (higher), *ceteris paribus*. Conversely, if target industry takeover competition impacts synergies positively by monitoring managers and encouraging them to engage in better deals, then combined CARs should be higher. So, we proceed with multivariate tests to check the effect of the target's industry takeover competition on announcement returns after controlling for other competition measures, deal characteristics, firm characteristics, and country characteristics.

[INSERT TABLE 4 HERE]

In Models (1) and (2) of Table 4, we show regression estimates of the effect of target industry takeover competition on the CARs of bidders and targets, separately. The results show that competition has a significantly negative (positive) effect on bidder (target) CARs at the 5% level, demonstrating that with the increase in industry takeover competition, target returns increase while bidder returns decrease. Economically, a one standard deviation increase in the industry takeover

competition reduces bidder CARs by 0.27 pp⁹ and increases target CARs by 4.39 pp. In Models (3) and (4), we added both bidder's and target's leverage, Tobin Q, and size as control variables and obtained identical results as in the first two models. We further estimate Eq. (2) using the value-weighted average of the bidder and target CARs as the dependent variable. In Model (5), the estimated coefficient on our key variable of interest - industry takeover competition - is negative, albeit insignificant, meaning that the impact on the combined returns is negligible.¹⁰

The results support the notion that higher takeover competition in the target industry takeover competition is associated with lower (higher) bidder (target) announcement returns. These results suggest that the merging firms do not equally share the valuation effects of higher industry takeover competition. It further implies that the industry takeover competition significantly impacts the partition of gains, where bidders lose, and the targets gain, but the combined value is not significantly affected.

Among the control variables, we find that country takeover competition positively affects target CARs while bidder and combined CARs remain unaffected. This supports previous studies that have reported a positive relation between target returns and country competition (Alexandridis, Petmezas, and Travlos, 2010; Rossi and Volpin, 2004). Bidder CARs are higher when the bidder firm comes from a country with higher governance quality, which aligns with prior research on country governance (Cremers and Nair, 2005; La Porta et al., 1998). Target CARs are higher when the bidder pays solely in cash, corroborating previous work on the role of cash payments in M&As (see for instance, Graham, Lemmon, and Wolf, 2002). A higher relative deal size negatively affects bidder

⁹ In Model (1) of Table 5, the coefficient on industry competition is -0.0495 (t-statistic of -2.055) with 0.055 standard deviation. So, an increase of one standard deviation in target industry competition decreases bidder CARs by 0.27 percentage points (Standard deviation $\times$ β coefficient $\times$ 100 = 0.055 $\times$ -0.0495 $\times$ 100 = -0.27).

¹⁰ Following Wang and Xie (2009), we use an alternative event window of 11 days to estimate CARs. We find that the effect of industry takeover competition on the bidder, target, and combined 11-day CARs is qualitatively similar (see Table IA.3 in the Internet Appendix), indicating that our results are not confined to the 5-day event window.

returns, endorsing what other authors find (Ahmed and Elshandidy, 2021; Moeller, Schlingemann, and Stulz, 2004; Wang and Xie, 2009).

Our results on target industry takeover competition suggest that differences in takeover competition across industries are relevant to explain the partition of takeover gains between bidder and target shareholders, with the latter earning higher returns when competition is higher. Our findings are consistent with the earlier studies on country-level takeover competition (see, Alexandridis, Petmezas, and Travlos, 2010; Rossi and Volpin, 2004; Shams, 2021) and competing bidders (Bradley, Desai, and Kim, 1988; Humphery-Jenner and Powell, 2011; Morck, Shleifer, and Vishny, 1990; Shams, Gunasekarage, and Colombage, 2013). More importantly, the results extend the work of Alexandridis, Petmezas, and Travlos (2010) and show that the target industry takeover competition also affects the announcement returns beyond the country-level competition in the takeover market. Our analysis controls for deal and firm characteristics, year, industry, and country fixed effects; the results persist after using different thresholds for competitive industries and testing alternative windows of CARs.

5. Does target industry takeover competition increase bid premium?

Paying a high bid premium is the most common explanation for the asymmetric distribution of acquisition gains between bidders and targets – bidders overpay to win the bid and lose value post-acquisition. Thus, it is expected that target industry takeover competition positively affects the premium paid by the bidder. On one hand, M&A deals in industries with higher takeover activity are more likely to have multiple raiders competing for the same target. This can put pressure on the winning bidder to pay a higher premium to secure the acquisition. On the other hand, acquirers who anticipate higher takeover competition in the target industry tend to make a more generous initial

offer by paying a higher premium. This strategy can discourage other potential raiders from entering the bidding process, increasing the acquirer's chances of completing the acquisition.

To measure the acquisition premium, we use the ratio of the bidder's offer price to the target stock price four (or one) weeks prior to the deal announcement, provided by the SDC database. We test our prediction by estimating Equation (2) but replacing the dependent variable with the takeover premium four or one week before the announcement. We exclude the run-up variable as a control in this analysis. The results in Table 5 show that the bid premium is higher when industry takeover competition is higher, suggesting that overbidding is a possible explanation for the lower returns earned by bidders in such acquisitions. The coefficients on "industry takeover competition" are positive and statistically significant in both regression models. For instance, from Model (1) a one standard deviation increase in the target industry takeover competition improves the premium by 2.20 pp, on average.

[INSERT TABLE 5 HERE]

We next analyze whether the suggested overbidding associated with higher industry takeover competition can be explained by managerial hubris, which presumes failures to the monitoring role of the board of directors. To do so, we split the sample into two groups of high and low board effectiveness measured by the Refinitiv ESG score "board function"¹¹, using the sample median as a cutoff. There is a vast literature (see, among others, Billett and Qian, 2008; Jensen, 2005) on the overpaying argument that supports the hubris hypothesis of Roll (1986). Our evidence aligns with this view. In Table 6, we show that higher levels of target industry takeover competition lead managers from acquirers with weaker boards to engage in hubristic behavior by paying larger premiums. Consistently, we also show that announcement returns are particularly lower (higher) for

¹¹ The results (untabulated) are very similar if we use the Refinitiv ESG score "board structure", which gives higher scores, for example, to companies with more independent boards.

bidder (target) shareholders when boards are less efficient. Thus, our evidence suggests that in reaction to higher target industry takeover competition acquirers tend to overbid as a strategy to win the deal when they can more easily dominate the boards.

[INSERT TABLE 6 HERE]

6. The moderating effect of bidder's country institutional quality

In this section, we test whether the institutional quality of the bidder's home country mitigates the negative association between industry takeover competition and bidder announcement returns. Based on previous research, we conjecture that bidders from countries with better institutional quality can earn higher returns and mitigate the negative effect of target industry takeover competition on bidder returns. To test this prediction, we estimate the following model:

$$\begin{aligned}
 BIDDER\ CAR\ (-2, +2)_{m,t} = & \alpha + \beta_1 ITC_{m,i,t-1} + \beta_2 high\ institutional\ quality_{a,t-1} + \\
 & \beta_3 ITC_{m,i,t-1} \times high\ institutional\ quality_{a,t-1} + \beta_x Country\ controls_{a,t-1} + \\
 & \sum \beta_y Deal\ controls_{m,t} + \sum \beta_z Bidder\ controls_{a,t-1} + \lambda_t + \eta_i + \gamma_c + \varepsilon_{i,t} \quad (3)
 \end{aligned}$$

We measure the bidder country's institutional quality using the World Bank's Governance Indicators (Kaufmann, Kraay, and Mastruzzi, 2009). The indicators vary over time and have a score from 0 (minimum) to 100 (maximum). The indicators reflect scores on six dimensions of the institutional quality of a country: anticorruption, regulatory quality, government effectiveness, political stability, citizen's freedom to elect a government, and the rule of law. Based on these six dimensions, we compute the mean index (WGI index) for each country. In addition, we also use the revised Anti-director index proposed by Djankov et al. (2008) as a proxy for country-level investor protection. To identify the better institutional quality of the bidder's home country, we create a binary variable that is equal to one if the governance score is more than the world median and zero otherwise.

Table 7 estimates cross-sectional regressions of acquirer CARs on the interaction term between industry takeover competition and the bidder country's institutional quality/investor protection. Like before, all regressions contain industry, country, and year-fixed effects. The interaction between the industry takeover competition and the bidder's home country institutional quality is the key variable of interest. In Models (1) and (5), the estimated coefficients on the interaction term $[IC_{m,i,t-1} \times \text{high institutional quality}_{a,t-1}]$ are positive and statistically significant for bidder returns. The economic magnitude is also higher; in Model (1), we find that the average competition effect is 0.15 pp higher when the bidder's home country institutional quality is higher. In Model (5), we replace the World's Bank governance indicators with the Anti-director index and find similar results. Our findings suggest that the lower bidder announcement returns associated with higher takeover competition are mitigated when firms are from countries with better institutional quality or higher investor protection.

[INSERT TABLE 7 HERE]

These results are aligned with prior research on country-level governance (Cremers and Nair, 2005; La Porta et al., 1998), suggesting that the acquirers from countries with higher governance quality conduct better deals, and agency costs are lower in these countries (see e.g., Young et al., 2008; Ellis et al., 2017; Li et al., 2020). Moreover, our results support the studies of Starks and Wei (2013) and Bris and Cabolis (2008), which find that bidders from countries with poor governance standards tend to pay higher premiums to targets. In summary, we find that although bidders earn lower returns in M&A deals when takeover competition is higher in the target industry, this effect is mitigated if bidders are domiciled in countries with higher institutional or regulatory standards.

Apart from the bidder returns, we also examined how the bidder's country governance affects takeover premium, target and combined CARs. Specifically, we tested whether the bidder's country WGI index and the Anti-director index moderate the relationship between target industry takeover

competition and bid premium, target CARs, and combined CARs. We observe that better corporate governance can alleviate the premium paid when there is higher competition in the target industry. Furthermore, we find that in such deals, target CARs tend to be relatively lower, which indicates that the asymmetry in M&A gains between bidder and target shareholders can be mitigated when corporate governance is stronger.

7. Robustness tests

We examine the robustness of the effect of industry takeover competition on announcement returns documented above and show the results in Table 8.

First, we use an alternate measure of target industry takeover competition, defined as the market capitalization of all target firms in a certain industry divided by the total market capitalization of that industry in a given year and country. Our results are consistent with the previous analysis and show that bidders experience significantly lower returns, while targets earn higher returns when target industry takeover competition is higher (Panel A of Table 8). Also, we test yet another alternative definition of target industry takeover competition by identifying the most and least competitive industries. We use tercile and quintile distributions of industry takeover competition to identify competitive and non-competitive industries. The industries lying in the 1st tercile and 1st quintile are considered to be non-competitive, while the 3rd tercile and 5th quintile are the competitive ones. We further use a dummy for higher industry takeover competition (IC dummy) that equals one if the competition measure is above the median and zero otherwise. We show the results in Panel B of Table 8. In Models (1) and (4), acquirers obtain higher gains when they buy targets from non-competitive industries (i.e., 1st tercile or 1st quintile). These findings echo the argument of Alexandridis et al. (2010) that the potential for higher bidder returns exists only in non-competitive takeover markets.

Second, to strengthen our argument and mitigate potential issues arising from international differences, we used a subsample of US domestic deals to investigate the impact of target industry takeover competition on M&A announcement returns.¹² Our findings, shown in Panel C of Table 8, confirm the conclusions drawn from Table 4, thus providing additional support to our argument. Additionally, we removed sample firms that make several acquisitions (frequent acquirers) to test whether our results are affected by potential cross-correlation biases. We then re-estimated the regressions of bidder, target, and combined CARs, excluding deals made by acquirers involved in more than three acquisitions over the sample period. The literature on frequent acquirers suggests several definitions for serial acquirers (e.g., Golubov et al., 2015 define serial acquirers as those making three or more acquisitions over a three-year rolling window). We opted for a more restrictive definition (more than three deals by the same acquirer over the sample period) to ensure that our conclusions are not affected by this problem. The results, presented in Panel C of Table 8, are qualitatively similar to what we found in Table 4.

Third, we used some additional control variables that can affect announcement returns including a categorical variable for multiple bidders (instead of the number of competing bidders) and the number of financial advisors. Prior research has shown that the presence of multiple bidders and financial advisors partially explains the variation in M&A announcement returns (Linnainmaa, Melzer, and Previtero, 2021; Schwert, 1996; Alexandridis, Petmezas, and Travlos, 2010). We thus re-estimate our models including a dummy variable that captures the existence of multiple bidders (Models (1) to (3) of Panel D of Table 8), and the natural logarithm of (1+ number of financial advisors) as reported in Models (4) to (6) of Panel D. The results are similar to what we reported in our baseline regressions in Table 4. We also tested an alternate version of the models by including the level of takeover competition in the acquirer's industry (Models (7) to (9) of Table 8, Panel D) as

¹² We are thankful to an anonymous reviewer for this analysis.

it may also explain some of the variation in M&A announcement returns. However, we found that the coefficient on this additional control variable is not statistically significant. Overall, the results in Panel D of Table 8 show the same pattern for target industry takeover competition uncovered throughout the study.

[INSERT TABLE 8 HERE]

Finally, we address potential concerns that our results may suffer from endogeneity in the form of selection bias. It may be the case that firms with certain characteristics that impact acquisition returns may also be more prone to target firms in more competitive industries, thus what we attribute to industry takeover competition may be driven by other factors. To overcome this concern, we create two comparable samples of acquisitions with high versus low industry takeover competition using the Propensity Score Matching technique (PSM). We first divide the sample into two groups of high and low takeover industry takeover competition using the sample median as a cutoff. We use a one-to-one matching (with a 0.01 calliper distance) to find pairs of comparable deals from the groups of high and low takeover industry competition. Panel A of Table 9 shows the differences in the mean of the variables used as covariates in the matching process for subsamples of high and low takeover competition. We estimate a logit model using all the control variables from our baseline model (Eq. 2) as covariates and results are reported in Model (1) of Panel B¹³. In Panel B of Table 9 (Models 2 to 4), we re-estimate our baseline model using the matched sample and find results in line with what we uncover in Table 4.¹⁴

[INSERT TABLE 9 HERE]

¹³ In the Internet Appendix, Table IA.4, we use alternative proxies for stock price run-up to better isolate the real effects of target industry competition on merger outcomes from selection biases. Specifically, we include the bidder stock returns for months 2-3, 4-6, 7-12, and 13-36 before the merger month. We also test our baseline model using these alternative proxies for stock price run-up. In all these additional analyses we find similar qualitative results.

¹⁴ We also tested the effect of target industry takeover competition on takeover premiums and bidder returns for the subsample of matched firms. The results are similar to what we find in Tables 4 and 5 and presented in the Internet Appendix, Table IA.5.

8. Conclusion

We study the effect of target industry takeover competition on M&A announcement returns using an international sample of M&A deals from 2000 to 2019 covering thirty countries. We find evidence that the average cumulative abnormal returns to the bidder (target) shareholders are lower (higher) when the target firm is from an industry with higher takeover competition. Our results suggest that the industry takeover competition significantly affects the gains to the bidder and target shareholders, where bidders lose and the targets gain, but the impact on the combined value is negligible. The negative association between industry competition and bidder returns suggest that, *ceteris paribus*, bidders overpay for winning the bid when facing more takeover competition in the target industry. This idea is confirmed by our finding of a positive relation between target industry takeover competition and the premium paid by acquirers. Consistent with prior studies, we find that the quality of the bidder's corporate governance matters for mitigating the tendency for overbidding in the presence of stronger industry takeover competition. Our results show that bidders from countries with better institutional quality, and generically better corporate governance, earn higher announcement returns and pay lower premiums than their counterparts from countries with weaker institutional quality. Our results pass several robustness tests, including the use of alternative measures of industry takeover competition, the use of a matched sample of high and low-competitive industries' deals, controlling for country-level takeover competition, and a variety of deal, firm, and country characteristics motivated by previous studies.

We add to the literature by extending the study of Alexandridis, Petmezas, and Travlos (2010) and showing that there is considerable heterogeneity in industry takeover competition that affects M&A announcement returns and bid premiums beyond the country-level takeover competition. The results of this study provide insights for managers, policymakers, and regulators on how the takeover market responds to competitive industries. Acquisition managers must understand the competitive

landscape of the target industry so they can make informed decisions on the best strategy to succeed. Shareholders should also be aware of the potential risks of being expropriated when bidders target companies in industries with high takeover competition, particularly if the bidders have weaker corporate governance. Although most studies include industry-fixed effects in multivariate analysis, it's relevant to explore how specific industry-related factors, such as the level of takeover activity, impact shareholder wealth creation and distribution. Boards equipped with this knowledge and alert to the risks of overbidding can perform better monitoring and prevent managers from engaging in hubristic behavior and expropriating bidders' shareholders when targeting companies in highly competitive industries.

Our work is subject to a limitation resulting from the data screening process that we use to implement our empirical research design. We only consider non-financial controlling acquisitions of public targets and require complete data for all variables used in the study, including pricing data for both bidders and targets covering every day of the event and estimation windows, as well as the market capitalization of both firms six days prior to the deal. As a result, the representativeness of our study may be subject to debate if we want to extend its conclusions to larger samples of deals that include private targets and minority acquisitions.

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Appendix: Variable definitions

Variable	Definition
Cumulative Abnormal Returns and premium:	
Bidder and target CARs	5-day cumulative abnormal returns around the announcement date. The CARs are calculated using the market model for the period (-255, -25). Source: DataStream.
Combined CARs	The weighted average of bidder and target CARs where weights are assigned on the market value of equity six days before the acquisition. The target weighted CARs are also adjusted for toehold. Sources: DataStream and Securities Data Corporation (SDC).
Takeover premium	Ratio of the offer price to the target's stock price four/one week before the deal announcement. Source: SDC.
Takeover competition:	
Industry takeover competition	No. of acquisitions divided by listed targets in each industry, year, and country. Source: SDC and WorldScope.
Country takeover competition	No. of acquisitions divided by listed targets in each year, and country. Source: SDC and WorldScope.
Log of number of bidders	Natural logarithm of the number of competing bidders in a deal. Source: SDC.
Deal characteristics:	
Cash financed deal	Dummy variable: 1 for the purely cash-financed deal, 0 otherwise. Source: SDC.
Cross border deal	Dummy variable: 1 if cross border deal, 0 otherwise. Source: SDC.
Same industry deal	Dummy variable: 1 for same industry deal, 0 otherwise. Source: SDC.
Relative deal size	Deal value/Bidder market value of equity. Sources: SDC and WorldScope.
No. of financial advisors	Total number of financial advisors involved in a deal. Source: SDC.
Bidder and target characteristics:	
Bidder and target run-up	The sum of abnormal returns using the market model for a window of 90 days up to 20 days before deal announcement. Source: DataStream.
Combined run-up	Weighted average of bidder and target stock price run-up, weights are based on the market value of equity. Source: DataStream.
Leverage	Long-term debt/total assets. Source: WorldScope.
Tobin's Q	(assets – book value of equity + market value of equity) / assets. Source: WorldScope.
Size	Natural logarithm of book value of assets. Source: WorldScope.
Bidder board function	It is a percentage score ranging from 0 (minimum) to 100 (maximum). Source: Refinitiv (ASSET4) ESG.
Country characteristics:	
World governance indicator (WGI) index	Average of world governance indicators. Source World Bank.
GDP growth	Annual growth in real GDP. Source: World Development Indicators.
Log GDP per capita	Log of real GDP (current US dollars)/average population. Source: World Development Indicators.
Anti-director index	Proxy for minority shareholder protection. Source: Djankov et al. (2008).

Table 1: Distribution by the target's industry

The table reports the number of target firms acquired, competition, bidder returns, target returns, and combined returns based on the target industry. The sample comprises M&As of listed targets reported in Securities Data Corporation (SDC) from 2000 to 2019. We consider majority control deals where the bidder holds a minority stake of the target (less than 50%) before the deal announcement and ends up with a majority stake (greater than 50%) after the deal. We use Fama-French 48 industrial categories excluding financials (SIC codes 6000-6999) and utilities (SIC codes 4900-4949). No. of targets is the total number of acquired target firms in each corresponding industry for the whole sample period. Mean industry takeover competition is the yearly average competition in the target industry defined as the number of acquired targets divided by the number of registered targets in each country. The bidder and target CARs are the five-day cumulative abnormal returns around the announcement date calculated using the market model for the period (-255, -25). The combined CARs are the weighted average of the bidder and the target CARs. Total shows sample size, the sample mean competition, and mean CARs. Firm-specific variables and CARs are winsorized at the 1st and 99th percentiles.

Industry	Full sample					High industry takeover competition			Low industry takeover competition		
	(1) No. of targets	(2) Mean industry takeover competition (%)	(3) Mean Bidder CARs (%)	(4) Mean Target CARs (%)	(5) Mean combined CARs (%)	(6) Mean Bidder CARs (%)	(7) Mean Target CARs (%)	(8) Mean combined CARs (%)	(9) Mean Bidder CARs (%)	(10) Mean Target CARs (%)	(11) Mean combined CARs (%)
Agriculture	2	0.061	-1.659	20.407	1.483	-1.450	9.440	0.422	-1.869	31.374	2.544
Food products	25	4.580	-3.477	2.273	-0.038	-4.345	1.983	-0.047	1.079	3.793	0.012
Soda	11	1.168	-1.620	3.921	0.472	-3.056	0.448	1.140	-1.082	5.224	0.221
Beer	15	1.462	-0.160	5.939	0.564	-1.888	10.326	1.124	1.568	1.553	0.005
Toys	6	0.519	-0.283	5.932	0.166	-1.998	2.054	-0.032	-0.283	5.932	0.166
Fun	12	2.939	-2.462	0.586	-0.114	-2.045	9.395	1.543	-3.856	-3.817	-0.361
Books, printing & publishing	7	1.983	-2.321	13.715	2.089	-1.498	29.066	0.220	-3.977	39.637	5.364
Household consumer goods	26	2.252	-0.801	25.742	0.173	-1.609	3.698	0.054	1.524	14.661	0.016
Cloths apparel	10	1.250	-0.965	3.218	-0.011	-4.390	5.390	1.738	-0.690	3.012	-0.038
Healthcare	23	1.908	-4.348	5.828	1.899	-2.173	16.363	0.780	-3.426	15.456	5.442
Medical equipment	77	3.346	-2.393	18.419	0.875	-2.182	25.89	1.228	-4.051	33.952	1.595
Drugs	21	6.019	-2.195	25.294	1.033	-2.087	13.300	3.406	-2.234	23.485	0.439
Chemicals	213	3.051	-1.816	10.865	2.818	-0.308	-0.305	-0.108	-1.648	9.367	2.456
Rubber & plastic products	76	1.452	-1.423	1.452	-0.014	-1.019	-1.008	-0.256	-2.537	3.209	0.079
Textile	9	1.309	1.690	1.673	-0.184	-2.593	10.997	0.679	2.463	2.439	-0.164
Construction material	13	3.729	-0.709	9.624	0.913	-5.762	3.997	0.127	3.530	6.534	1.441
Construction	31	2.759	-2.770	3.069	0.035	-4.319	0.737	0.961	0.222	2.142	-0.058
Steel	18	5.150	-3.707	1.372	1.393	-4.156	21.139	1.644	-1.566	3.593	2.904
Fabricated products	7	0.230	-0.505	-0.500	-0.012	-1.162	15.950	0.078	-0.505	-0.500	-0.012
Machinery	40	2.613	-2.931	16.562	1.052	-3.535	21.336	1.704	-1.928	12.817	0.568
Electrical equipment	22	1.960	-0.326	13.955	0.081	-6.780	37.859	0.284	1.466	9.680	0.089
Automobiles	25	2.041	-2.032	12.890	1.016	-5.199	7.434	0.781	0.224	0.222	-0.016
Ships	4	0.725	-0.650	-0.644	-0.005	-2.436	10.586	0.678	-0.650	-0.644	-0.005
Gold	2	1.591	-3.907	18.418	0.019	-2.590	8.163	0.709	-1.034	-1.023	-0.246
Mining	169	0.402	0.675	6.525	0.778	-2.639	9.548	0.017	0.675	6.525	0.778

Coal	78	2.120	-3.749	7.420	1.479	-2.407	12.335	1.421	-3.283	7.415	1.704
Oil, petroleum, and natural gas	29	1.323	-1.802	9.601	0.844	-1.842	31.108	0.487	-1.670	9.396	0.878
Telecommunication	4	1.372	-2.479	42.064	4.477	-2.562	18.554	1.105	-2.479	42.064	4.477
Personal services	56	6.810	-3.697	8.412	0.802	-2.345	21.924	0.805	-5.172	8.743	0.926
Business services	3	3.284	-2.677	8.360	-0.121	-2.642	37.940	2.026	-2.807	4.353	-0.586
Computer	12	1.289	-0.738	7.855	0.815	-3.038	19.497	1.294	1.598	1.582	-0.033
Computer software	70	5.984	-0.789	18.131	0.925	-1.823	7.094	-0.169	0.049	7.815	1.274
Electronic equipment	241	2.040	-1.894	13.943	0.829	-4.233	10.257	0.891	0.110	0.109	0.000
Lab equipment	8	9.505	-2.238	18.233	0.821	-2.413	19.389	0.864	-2.060	12.106	0.848
Paper	81	6.837	-2.441	28.846	1.485	-1.936	13.32	0.556	-2.150	15.617	0.697
Transportation	38	2.219	-2.733	18.879	1.422	-3.096	41.623	4.045	-0.142	13.625	2.509
Wholesale	51	1.599	-1.645	4.337	0.217	-2.031	6.730	0.312	-1.532	2.583	0.463
Retail	31	3.048	-2.568	13.382	0.947	-5.179	6.181	3.055	-1.652	15.100	0.977
Meals	40	4.653	-1.452	16.000	0.698	-1.450	9.440	0.422	1.080	7.064	0.260
Real estate	39	3.337	-1.529	8.508	0.728	-4.345	1.983	-0.047	-1.180	4.385	0.875
Aircraft	14	1.954	-1.207	17.275	1.611	-3.056	0.448	1.140	-0.158	3.749	0.259
Others	11	4.013	-1.010	3.434	0.384	-1.888	10.326	1.124	-0.159	0.688	0.445
Total	1670	4.411	-2.216	14.677	0.925	-2.699	18.129	0.963	-1.536	9.825	0.870

Table 2: Descriptive statistics

Panel A presents descriptive statistics of all variables used in regression analysis. Panel B presents differences in means between the groups of deals with high and low target industry takeover competition. The sample covers all majority control M&A deals reported in Securities Data Corporation (SDC) from 2000 to 2019, where both the bidder and target are public firms. The bidder and target CARs are the 5-day cumulative abnormal returns around the announcement date that are calculated using the market model for the period (-255, -25). The combined CARs are the weighted average of the bidder and the target CARs. Takeover premium is the offer price ratio to the target's stock price four or two weeks before the deal announcement. Industry takeover competition is defined as the percentage of listed targets acquired in each industry, year, and country. We use Fama-French 48 industrial categories excluding financials (SIC codes 6000-6999) and utilities (SIC codes 4900-4949). Country takeover competition is the percentage of listed acquired targets in each year, industry, and country. The CARs, takeover premium, bidder, and target characteristics are winsorized at the top and bottom 1% level. Firm-specific variables and CARs are winsorized at the 1st and 99th percentiles. Definitions of other variables are described in the Appendix.

Panel A: descriptive statistics of all variables	(1) N	(2) Mean	(3) Median	(4) S.D.	(5) Min	(6) Max
Cumulative Abnormal Returns and premium						
Bidder CARs	1670	-0.010	-0.012	0.039	-0.097	0.023
Target CARs	1670	0.132	0.008	0.331	-0.063	0.605
Combined CARs	1670	0.028	0.007	0.030	-0.009	0.055
Takeover Premium	1670	0.373	0.300	0.410	-0.085	0.960
Takeover competition						
Industry takeover competition	1670	0.040	0.017	0.055	0.003	0.143
Country takeover competition	1670	0.018	0.010	0.033	0.001	0.073
Log number of Bidders	1670	0.035	0.005	0.160	0.001	0.856
Deal characteristics						
Cash financed (dummy)	1670	0.505	1.000	0.500	0.000	1.000
Cross-border (dummy)	1670	0.245	0.000	0.430	0.000	1.000
Same industry (dummy)	1670	0.638	1.000	0.481	0.000	1.000
Relative deal size	1670	0.147	0.036	0.280	0.000	0.683
Bidder and target characteristics						
Bidder run up	1670	0.010	0.001	0.061	-0.094	0.095
Target run up	1670	0.025	-0.004	0.643	-0.856	0.093
Combined run up	1670	-0.026	-0.020	0.863	-0.516	0.473
Bidder leverage	1670	0.157	0.146	0.133	0.001	0.423
Bidder Tobin Q	1670	0.609	0.600	0.229	0.212	0.942
Bidder size	1670	16.567	16.220	2.649	12.873	21.654
Target leverage	1670	0.145	0.095	0.177	0.010	0.533
Target Tobin Q	1670	0.587	0.535	0.324	0.117	0.969
Target size	1670	13.372	13.190	2.746	9.852	18.313
Country characteristics						
GDP growth	1670	2.096	2.281	1.640	-0.240	4.077
GDP per capita	1670	1.082	0.828	2.022	-0.952	3.000
World governance indicator index	1670	86.907	86.213	7.433	36.046	98.117
Anti-director index	1670	3.369	3.000	0.619	1.000	5.000

Panel B: Means of high and low target industry takeover competition	High industry takeover competition		Low industry takeover competition		T-test
	N	Mean	N	Mean	Difference
Cumulative Abnormal Returns and premium					
Bidder CARs	840	-0.026	830	-0.013	-0.013***
Target CARs	840	0.163	830	0.102	0.061***
Combined CARs	840	-0.003	830	-0.051	-0.048
Takeover Premium	840	0.394	830	0.351	0.043**
Takeover competition					
Country takeover competition	840	0.025	830	0.011	0.014
Log of number of Bidders	840	0.044	830	0.026	0.018**

Deal characteristics					
Cash financed (dummy)	840	0.619	830	0.388	0.231
Cross-border (dummy)	840	0.308	830	0.180	0.128
Same industry (dummy)	840	0.626	830	0.650	-0.024
Relative deal size	840	0.174	830	0.118	0.056***
Bidder and target characteristics					
Bidder run up	840	0.003	830	-0.002	0.001***
Target run up	840	-0.050	830	0.102	0.052*
Combined run up	840	-0.003	830	-0.051	-0.048
Bidder leverage	840	0.168	830	0.145	0.023
Bidder Tobin Q	840	0.567	830	0.653	-0.086
Bidder size	840	16.389	830	16.752	-0.363
Target leverage	840	0.162	830	0.129	0.033
Target Tobin Q	840	0.545	830	0.630	-0.085**
Target size	840	13.139	830	13.611	-0.472
Country characteristics					
GDP growth	840	2.192	830	1.998	0.194
GDP per capita	840	1.157	830	1.006	0.151
World governance indicator index	840	85.730	830	88.119	-2.389***
Anti-director index	840	3.246	830	3.497	-0.251**

Table 3: Correlation Matrix

The sample consists of 1670 completed M&As reported in Securities Data Corporation (SDC) between 2000 and 2019. Both the bidder and target are public firms. We consider only those deals where the bidder owns less than 50% of the target's shares before the deal announcement and owns more than 50% after the deal completion. The key variable of interest ("Industry takeover competition") is the percentage of listed targets acquired each year, industry, and country. Financials(SIC codes 6000-6999) and utilities (SIC codes 4900-4949) are excluded. Firm-specific variables and CARs are winsorized at the 1st and 99th percentiles. All variables are defined in the Appendix; ***, **, and * show statistical significance level at 1%, 5% and 10% respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(1)	1.00																
(2)	-0.01	1.00															
(3)	-0.12*	0.33*	1.00														
(4)	-0.11*	0.17*	0.03	1.00													
(5)	-0.01	-0.01	-0.05	0.37*	1.00												
(6)	0.02	-0.05	-0.03	-0.17*	-0.12*	1.00											
(7)	-0.03	-0.02	0.01	0.03	0.03	0.02	1.00										
(8)	-0.31*	-0.04	-0.09*	0.03	-0.01	-0.02	-0.02	1.00									
(9)	0.10*	0.15*	-0.02	0.19*	0.04	-0.03	0.01	-0.09*	1.00								
(10)	0.03	-0.01	-0.01	0.08*	0.28*	0.05	0.06	-0.04	0.25*	1.00							
(11)	-0.06*	-0.01	0.05	-0.05	-0.03	0.09*	0.07*	0.03	-0.17*	0.03	1.00						
(12)	-0.25*	-0.01	0.23*	0.08*	-0.10*	0.02	0.06	-0.02	-0.14*	-0.07*	0.08*	1.00					
(13)	0.00	0.03	0.04	0.05	-0.08*	-0.03	0.01	-0.01	0.05	0.00	-0.04	0.15*	1.00				
(14)	0.15*	-0.04	-0.04	-0.09*	0.09*	-0.04	-0.04	0.02	-0.20*	-0.09*	-0.04	-0.17*	0.25*	1.00			
(15)	0.18*	-0.01	-0.10*	-0.01	0.13*	-0.16*	0.01	0.04	0.16*	0.07*	-0.14*	-0.35*	0.04	0.37*	1.00		
(16)	-0.04	-0.04	-0.02	0.03	0.02	-0.14*	0.01	0.02	-0.07*	-0.02	0.01	0.10*	-0.03	0.00	-0.24*	1.00	
(17)	-0.05	-0.04	-0.02	0.02	0.08*	-0.04	-0.05	0.06	0.05	0.05	0.00	-0.02	0.03	-0.04	0.01	-0.40*	1.00

(1) Bidder CARs
(2) Target CARs
(3) Combined CARs
(4) Industry takeover competition
(5) Country takeover competition
(6) Country governance
(7) Log of number of bidders
(8) Run up
(9) Cash financed (dummy)

(10) Cross-border (dummy)
(11) Same industry (dummy)
(12) Relative size
(13) Bidder leverage
(14) Bidder Tobin Q
(15) Bidder size
(16) GDP growth
(17) GDP per capita

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 4: Industry takeover competition and announcement returns

The sample consists of 1670 completed M&As reported in Securities Data Corporation (SDC) between 2000 and 2019. Both the bidder and target are public firms. We consider only those deals where the bidder owns less than 50% of the target's shares before the deal announcement and owns more than 50% after the deal completion. The 5-day cumulative abnormal returns (CARs) around the announcement date for both bidders and targets are calculated using the market model for the period (-255, -25). The combined CARs are the weighted average of the bidder and the target CARs, where weights are assigned based on equity's market value six days before the acquisition. The key variable of interest ("Industry takeover competition") is defined as the number of acquired targets divided by the total number of registered targets each year, industry, and country. We use Fama-French 48 industrial categories for industry classification, excluding financials (SIC codes 6000-6999) and utilities (SIC codes 4900-4949). Firm-specific variables and CARs are winsorized at the 1st and 99th percentiles. We define all variables in the Appendix; t-statistics are shown in parenthesis, and standard errors are corrected for heteroscedasticity (White, 1980). ***, ** and * show statistical significance level at 1%, 5% and 10% respectively. Each regression controls for year, industry, and country fixed effects, whose coefficients are not shown for brevity.

Dependent variables	(1) Bidder CARs (-2, +2)	(2) Target CARs (-2, +2)	(3) Bidder CARs (-2, +2)	(4) Target CARs (-2, +2)	(5) Combined CARs (-2, +2)
Industry takeover competition	-0.0495** (-2.055)	0.7996*** (3.142)	-0.0521** (-2.151)	0.6736** (2.568)	-0.0244 (-1.529)
Country takeover competition	-0.0656 (-1.061)	0.2742* (1.715)	-0.0620 (-1.019)	0.1918* (1.755)	-0.0080 (-0.319)
Country governance	0.0010*** (3.839)	-0.0045*** (-2.787)	0.0010*** (3.719)	-0.0030* (-1.755)	-0.0002 (-1.232)
Log of number of bidders	-0.0019 (-0.280)	-0.0429 (-1.172)	-0.0013 (-0.192)	-0.0583 (-1.280)	-0.0021 (-0.312)
Run up	-0.2005*** (-6.287)	-0.0023 (-1.624)	-0.2007*** (-6.298)	-0.0027* (-1.692)	-0.0013 (-0.744)
Cash financed dummy	0.0035 (1.369)	0.0756*** (4.012)	0.0025 (0.960)	0.0689*** (3.139)	0.0022 (1.269)
Cross-border dummy	0.0015 (0.597)	-0.0065 (-0.315)	0.0014 (0.590)	-0.0094 (-0.459)	0.0021 (0.850)
Same industry dummy	-0.0004 (-0.181)	-0.0013 (-0.072)	-0.0001 (-0.060)	0.0062 (0.331)	-0.0004 (-0.306)
Relative deal size	-0.0278*** (-5.880)	-0.0156 (-0.655)	-0.0256*** (-5.058)	-0.0063 (-0.268)	0.0151*** (2.679)
Bidder leverage	0.0159 (1.389)		0.0123 (1.028)	-0.0732 (-1.063)	-0.0019 (-0.216)
Bidder Tobin Q	0.0084 (0.996)		0.0098 (1.143)	0.0852 (1.366)	0.0089* (1.670)
Bidder size	0.0002 (0.261)		0.0008 (1.038)	0.0094 (1.486)	-0.0023*** (-4.262)
Target leverage	-0.0014 (-1.176)	0.0100 (0.964)	-0.0015 (-1.274)	0.0078 (0.701)	0.0020** (2.347)
Target Tobin Q	-0.0003 (-0.484)	-0.0118** (-2.446)	-0.0002 (-0.351)	-0.0080 (-1.539)	-0.0001 (-0.215)
Target size		0.0263 (0.551)	0.0098 (1.586)	0.0220 (0.424)	0.0021 (0.425)
GDP growth		0.0338 (0.608)	-0.0040 (-1.221)	0.0376 (0.631)	-0.0030 (-1.449)
GDP per capita		-0.0060 (-1.428)	-0.0011* (-1.745)	-0.0087 (-1.520)	0.0034*** (3.980)
Constant	-0.0776** (-2.535)	0.0404 (0.320)	-0.0726** (-2.363)	-0.2568* (-1.687)	-0.0165 (-1.124)
Year, industry, and country dummies	Yes	Yes	Yes	Yes	Yes
N	1670	1670	1670	1670	1670
R ²	0.2711	0.1678	0.2738	0.1987	0.1865

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 5: Industry takeover competition and bid premium

The sample consists of 1670 completed controlling acquisitions reported in Securities Data Corporation (SDC) between 2000 and 2019. Both the bidder and target are public firms. Takeover premium is defined as the offer price ratio to the target's stock price four or one week before the deal announcement. The key variable of interest ("Industry takeover competition") is the percentage of listed targets acquired each year, industry, and country. For industry classification, we use Fama-French 48 industrial categories excluding financials (SIC codes 6000-6999) and utilities (SIC codes 4900-4949). Firm-specific variables and CARs are winsorized at the 1st and 99th percentiles. We define all variables in the Appendix; t-statistics are shown in parenthesis, and standard errors are corrected for heteroscedasticity (White,1980). ***, ** and * show statistical significance level at 1%, 5% and 10% respectively. Each regression controls for year, industry, and country fixed effects, whose coefficients are not shown for brevity.

Takeover premium		
Dependent variables	(1) Premium (4 weeks before)	(2) Premium (1 week before)
Industry takeover competition	0.4003* (1.789)	0.4095* (1.755)
Country takeover competition	-0.7854** (-2.547)	-0.7277** (-2.364)
Country governance	-0.0037** (-2.298)	-0.0038** (-2.189)
Log of number of bidders	0.1839*** (3.295)	0.1933*** (2.967)
Cash financed dummy	0.0691*** (3.097)	0.0808*** (3.474)
Cross-border dummy	0.0407 (1.580)	0.0436* (1.660)
Same industry dummy	0.0213 (0.976)	0.0335 (1.507)
Relative deal size	-0.0387 (-1.379)	-0.0163 (-0.598)
Target leverage	-0.0583 (-0.975)	-0.0389 (-0.587)
Target Tobin Q	0.1065** (2.505)	0.1195** (2.213)
Target size	-0.0348*** (-8.984)	-0.0388*** (-8.815)
GDP growth	-0.0106 (-0.947)	-0.0015 (-0.124)
GDP per capita	-0.0185** (-2.106)	-0.0316*** (-3.110)
Constant	1.0069*** (5.070)	1.0476*** (4.956)
Year, industry, and country dummies	Yes	Yes
N	1670	1670
R ²	0.1180	0.1229

Table 6: Board effectiveness, M&A outcomes, and target industry takeover competition

Table shows regressions of premium and announcement returns on subsamples of firms with “high board function quality” (i.e., better monitoring and higher independence of the board) and “low board function quality”. We create a dummy variable that equals one if the board function score is above the sample median and zero otherwise. We used percentage scores from ASSET4 ESG as the proxy for board monitoring. Premium is the ratio of offer price to the target’s stock price four or one week before the deal announcement. The bidder and target CARs are the 5-day cumulative abnormal returns around the day of deal announcement and combined CARs are the weighted average of the bidder and the target CARs, all of them are winsorized at the top and bottom 1% level. Firm-specific variables and CARs are winsorized at the 1st and 99th percentiles. We define all variables in the Appendix; t-statistics are shown in parenthesis, and standard errors are corrected for heteroscedasticity (White,1980). ***, ** and * show statistical significance level at 1%, 5% and 10% respectively.

	Lower board function score					Higher board function score				
Dependent variables:	(1) Premium (4 weeks before)	(2) Premium (1 week before)	(3) Bidder CARs (-2, +2)	(4) Target CARs (-2, +2)	(5) Combined CARs (-2, +2)	(6) Premium (4 weeks before)	(7) Premium (1 week before)	(8) Bidder CARs (-2, +2)	(9) Target CARs (-2, +2)	(10) Combined CARs (-2, +2)
Industry takeover competition	0.8908** (2.116)	0.5651* (1.677)	-0.0956** (-2.150)	0.4341** (2.425)	-0.0466 (-1.218)	0.3030 (0.817)	0.0595 (0.162)	-0.0483 (-1.183)	0.3858 (1.051)	-0.0112 (-0.482)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year, industry, and country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	831	831	831	831	831	839	839	839	839	839
<i>R</i> ²	0.1697	0.0868	0.2328	0.2786	0.2537	0.2320	0.2459	0.2345	0.1743	0.2251

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 7: Industry takeover competition and bidder's home country governance

Panel A shows regression results for the effect of target industry takeover competition on bidder returns when bidders are from countries with higher level of corporate governance. High country governance is a dummy variable that equals one if the governance score of the bidder country is above the sample median and zero otherwise. We used scores on individual world governance indicators (WGI) and Anti-director index (ADI) as the measure of country governance. The variable of interest here is interaction between industry takeover competition (ITC) and high country governance (HCG). Our dependent variable is 5-day cumulative abnormal returns (CARs) around the announcement date for bidders are calculated using the market model for the period (-255, -25). Panel B shows the moderating effect of HCG and ITC on bid premium, target and combined CARs, when country governance is measured by the median WGI index and the Anti-director Index. Firm-specific variables and CARs are winsorized at the 1st and 99th percentiles. All variables are defined in the Appendix; t-statistics are shown in parenthesis, and standard errors are corrected for heteroscedasticity (White,1980). ***, ** and * show statistical significance level at 1%, 5% and 10% respectively. Other control variables and year, industry, and country dummies are included in the regressions, but the coefficients are omitted for brevity.

Country governance measures:	World governance indicators (WGI) index				Anti-director index (ADI)			
Dependent variables:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CARs (-2, +2)	Bidder CARs (-2, +2)	Target CARs (-2, +2)	Combined CARs (-2, +2)	Premium (4 weeks before)	Bidder CARs (-2, +2)	Target CARs (-2, +2)	Combined CARs (-2, +2)	Premium (4 weeks before)
Industry takeover competition (ITC)	-0.0535** (-2.203)	0.6669** (2.533)	-0.0258 (-1.629)	0.4517* (1.882)	-0.0520** (-2.144)	0.6799*** (3.412)	-0.0248 (-1.555)	0.4182* (1.698)
High Country governance (HCG)	0.0294* (1.690)	0.0177 (0.232)	-0.0047 (-0.582)	-0.0529 (-0.567)	0.0214** (2.272)	-0.0473 (-1.557)	-0.0009 (-0.166)	-0.1010 (-1.149)
ITC x HCG	0.1537*** (2.734)	-0.6238* (-1.662)	-0.0610 (-1.200)	-0.1700* (-1.777)	0.1283** (2.094)	-0.4978* (-1.660)	-0.0335 (-0.567)	-0.4094 (-0.591)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year, industry, & country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1670	1670	1670	1670	1670	1670	1670	1670
R ²	0.2764	0.1991	0.1873	0.1211	0.2758	0.1340	0.1867	0.1246

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 8: Robustness tests

This table reports regression results for the effect of industry takeover competition on announcement returns using alternative measure of target industry takeover competition (Panels A and B), for subsamples (Panel C), and adding additional control variables (Panel D). Our dependent variables, in separate regressions, are 5-day cumulative abnormal returns (CARs) around the announcement date for both bidders (BCARs) and targets (TCARs). In Panel A, we used an alternative measure of target industry takeover competition - the total market value of target firms divided by the total market capitalization of all public firms within an industry, country, and year. We used terciles, quintiles, and median distributions of industry competition as a cutoff for the firms related to lower (1st tercile and 1st quintile) and higher (3rd tercile and 5th quintile) levels of competition (Panel B). In Panel C, we used subsamples of U.S. domestic deals and deals of non-frequent acquirers. Panel D shows results for baseline models including additional control variables such as multiple bidders, number of financial advisors, and bidder industry takeover between the bidder and target. Firm-specific variables and CARs are winsorized at the 1st and 99th percentiles. All variables are defined in the Appendix; T-statistics are shown in parenthesis, and Standard errors are corrected for heteroscedasticity (White,1980). ***, ** and * show statistical significance level at 1%, 5% and 10% respectively.

Panel A: Alternative measure of target industry takeover competition									
	(1)	(2)	(3)						
	Bidder CARs	Target CARs	Combined CARs						
	(-2, +2)	(-2, +2)	(-2, +2)						
Industry takeover competition	-0.0054*	0.0091*	0.0015						
	(-1.730)	(1.751)	(0.736)						
Control variables	Yes	Yes	Yes						
Year, industry, and country dummies	Yes	Yes	Yes						
N	1670	1670	1670						
R ²	0.2730	0.1930	0.1858						

Panel B: Competitive vs non-competitive industries									
Dependent variables:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	BCARs	TCARs	CCARs	BCARs	TCARs	CCARs	BCARs	TCARs	CCARs
	(-2, +2)	(-2, +2)	(-2, +2)	(-2, +2)	(-2, +2)	(-2, +2)	(-2, +2)	(-2, +2)	(-2, +2)
1st tercile	0.0179***	0.0091	0.0028*						
	(5.803)	(0.417)	(1.699)						
3rd tercile	-0.0066**	0.0892***	-0.0032						
	(-2.479)	(3.503)	(-1.482)						
1st quintile				0.0253***	0.0159	0.0052**			
				(8.333)	(0.555)	(2.383)			
2nd quintile				0.0171***	0.0014	0.0061**			
				(5.282)	(0.056)	(2.274)			
4th.quintile				0.0047	0.0112	-0.0012			
				(1.517)	(0.436)	(-0.483)			
5th quintile				0.0029	0.1311***	-0.0001			
				(0.793)	(3.594)	(-0.020)			
IC Dummy							-0.0112***	0.0429**	-0.0038**
							(-4.550)	(2.139)	(-2.290)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year, industry, & country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1670	1670	1670	1670	1670	1670	1670	1670	1670
R ²	0.3139	0.1732	0.1885	0.3064	0.1784	0.1911	0.2824	0.1665	0.1878

Panel C: Subsamples	U.S. deals			Excluding frequent acquirers		
	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variables	Bidder CARs (-2, +2)	Target CARs (-2, +2)	Combined CARs (-2, +2)	Bidder CARs (-2, +2)	Target CARs (-2, +2)	Combined CARs (-2, +2)
Industry takeover competition	-0.0697** (-2.382)	0.4833** (2.069)	-0.0198 (-1.115)	-0.0550* (-1.650)	0.7239** (2.234)	-0.0147 (-0.731)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes
Year, industry, and country dummies	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	265	265	265	1049	1049	1049
<i>R</i> ²	0.3082	0.1739	0.0827	0.3014	0.2324	0.2394

Panel D: Additional control variables	Multiple bidders			Number of financial advisors			Bidder industry takeover competition		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent variables:	Bidder CARs (-2, +2)	Target CARs (-2, +2)	Combined CARs (-2, +2)	Bidder CARs (-2, +2)	Target CARs (-2, +2)	Combined CARs (-2, +2)	Bidder CARs (-2, +2)	Target CARs (-2, +2)	Combined CARs (-2, +2)
Industry takeover competition	-0.0523** (-2.156)	0.6747** (2.572)	-0.0242 (-1.519)	-0.0539** (-2.219)	0.6686** (2.562)	-0.0233 (-1.450)	-0.0472* (-1.923)	0.5911** (2.322)	-0.0266* (-1.660)
Multiple bidders dummy	-0.0131 (-0.663)	0.1117 (0.528)	0.0206 (1.088)						
Log of bidder's financial advisors				-0.0054* (-1.892)	-0.0152 (-0.680)	0.0033 (1.153)			
Bidder industry takeover competition							0.0068 (1.565)	-0.1122*** (-3.092)	-0.0030 (-1.003)
Control variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year, industry, and country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<i>N</i>	1670	1670	1670	1670	1670	1670	1670	1670	1670
<i>R</i> ²	0.2739	0.1989	0.1871	0.2756	0.1989	0.1876	0.2747	0.2021	0.1868

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 9: Propensity Score Matching (PSM)

Panel A shows differences in means between the groups of high and low takeover industry competition. Panel B presents estimated results of our baseline model using the propensity score-matched samples of M&As. Our variable of interest is industry competition, the percentage of listed targets acquired each year, industry, and country. The control variables are the same as in Table 5. Firm-specific variables and CARs are winsorized at the 1st and 99th percentiles. All variables are defined in the Appendix; t-statistics are shown in parenthesis, and standard errors are corrected for heteroscedasticity (White,1980). ***, ** and * show statistical significance level at 1%, 5% and 10% respectively. Each regression controls for year, industry, and country fixed effects, whose coefficients are not shown

Panel A: Difference in Means between High and Low takeover industry competition				
Variables	High Industry Takeover Competition (Mean)	Low Industry Takeover Competition (Mean)	Difference	p-value
Country competition	0.018	0.010	0.008***	0.000
Country governance	0.859	0.811	0.048***	0.000
Log of number of bidders	0.044	0.037	0.007**	0.433
Run-up	0.003	0.006	-0.003	0.303
Cash financed dummy	0.616	0.657	-0.041*	0.087
Cross-border dummy	0.287	0.352	-0.015***	0.005
Same industry dummy	0.629	0.607	0.065*	0.356
Relative deal size	0.180	0.162	0.018	0.216
Bidder leverage	0.168	0.178	-0.010	0.160
Bidder Tobin Q	0.564	0.539	0.025**	0.024
Bidder size	16.354	16.174	0.180	0.149
Target leverage	0.163	0.195	-0.032**	0.002
Target Tobin Q	0.548	0.550	-0.002	0.894
Target size	13.129	12.959	0.170	0.188
GDP growth	2.208	2.510	-0.302***	0.001
GDP per capita	1.120	1.163	-0.043	0.639

for brevity.

Panel B: PSM regression results				
	Logit model		Matched sample	
Dependent variables:	(1) High competition	(2) Bidder CARs (-2, +2)	(3) Target CARs (-2, +2)	(4) Combined CARs (-2, +2)
Industry takeover competition	-	-0.0381** (-1.965)	0.7091*** (2.643)	-0.0008 (-0.053)
Country takeover competition	0.0164*** (8.470)	0.0111 (0.241)	-0.6230 (-0.973)	-0.0776 (-1.245)
Country governance	-0.0707*** (-5.970)	0.0002 (1.120)	-0.0061* (-1.847)	-0.0002 (-0.787)
Log of number of bidders	0.5676 (1.570)	-0.0119 (-1.625)	-0.0866 (-1.339)	-0.0064 (-1.405)
Run-up	0.4167*** (2.670)	-0.1802*** (-4.512)	-0.0037 (-1.638)	-0.0039 (-1.495)
Cash financed dummy	0.8775*** (6.900)	0.0051 (1.607)	0.0769*** (3.323)	0.0020 (0.910)
Cross-border dummy	-0.0724 (-0.510)	0.0021 (0.863)	-0.0244 (-1.041)	0.0016 (0.609)
Same industry dummy	-0.0281 (-0.230)	-0.0004 (-0.157)	-0.0009 (-0.032)	0.0003 (0.153)
Relative deal size	0.7574*** (3.280)	-0.0215*** (-3.695)	-0.0210 (-0.777)	0.0058 (0.876)
Bidder leverage	0.6856*** (3.440)	0.0187 (1.266)	-0.0818 (-0.941)	-0.0067 (-0.645)
Bidder Tobin Q	-0.4619*** (-4.690)	-0.0011 (-0.111)	0.0545 (0.643)	0.0103 (1.622)
Bidder size	-0.0202 (-0.590)	0.0019** (1.979)	0.0138* (1.679)	-0.0034*** (-4.086)
Target leverage	0.6230*** (4.180)	0.0134** (1.986)	0.0063 (0.110)	0.0028 (0.491)
Target Tobin Q	-0.5975*** (-2.860)	-0.0029 (-0.730)	0.0661 (0.833)	-0.0012 (-0.552)
Target size	-0.0953*** (-3.010)	-0.0014* (-1.750)	-0.0119* (-1.785)	0.0035*** (3.180)
GDP growth	0.0242 (0.580)	-0.0011 (-0.880)	-0.0053 (-0.517)	0.0021** (2.034)
GDP per capita	0.0008 (0.030)	0.0001 (0.109)	-0.0066 (-0.996)	0.0007 (1.368)
Constant	7.2971*** (5.900)	-0.0663*** (-2.907)	0.2825 (0.795)	0.0209 (0.720)
Year, industry, and country dummies	Yes	Yes	Yes	Yes
N	1670	1141	1141	1141
Pseudo R ² or R ²	0.1821	0.2522	0.2438	0.2381

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

INTERNET APPENDIX for manuscript

“Target industry takeover competition and the wealth effects of Mergers and Acquisitions: International evidence”

Table IA.1: Sample distribution by bidder country

This table shows sample distribution by the bidder nation including number of deals announced during the sample period, percentage of deals as proportion of the total number of deals, number of domestic (i.e., both bidder and target firms belong to the same country) and cross-border (i.e., merging firms are from different countries) acquisitions.

Bidder Nation	Number of deals (N)	Percentage of deals (%)	Domestic deals (N)	Cross-border deals (N)
Australia	156	9.34	124	32
Austria	12	0.71	9	3
Belgium	7	0.41	2	5
Brazil	13	0.77	10	3
Canada	193	11.55	156	37
Chile	9	0.53	8	1
China	15	0.89	13	2
Colombia	6	0.35	6	0
Denmark	5	0.29	5	0
France	65	3.89	34	31
Germany	30	1.76	18	12
Greece	12	0.71	7	5
India	24	1.43	17	7
Indonesia	5	0.29	2	3
Israel	12	0.71	3	9
Italy	18	1.07	8	10
Japan	387	23.17	295	92
Malaysia	18	1.07	15	3
Mexico	9	0.53	5	4
Norway	8	0.47	6	2
Peru	6	0.35	4	2
Poland	15	0.89	9	6
Singapore	17	1.01	12	5
Spain	10	0.59	7	3
Sri Lanka	7	0.41	6	1
Switzerland	19	1.13	6	13
Thailand	13	0.77	12	1
Turkey	11	0.65	9	2
United Kingdom	135	8.08	92	43
United States	433	25.92	265	168
Total	1670	100.00	1165	505

Table IA.2: Data cleaning steps

The table shows all steps to be followed to get our final sample of mergers and acquisitions.

Steps	Database	Filters	Number of deals excluded	Number of deals available
1	SDC	Completed deals from 2000 to 2019 where both bidder and target are public firms	N/A	19,029
2		Missing company identifier (sedol)	5,865	13,164
3		Excluding acquisitions of company's own shares	748	12,416
4	SDC	Excluding minority stake acquisitions	6,150	6,266
5	SDC	Excluding deals from financials and utilities	605	5,661
6	DataStream	Excluding deals with missing run-up variable	996	4,665
7	DataStream	Available deals with bidder cumulative abnormal returns	905	3,760
8	DataStream	Available deals with target cumulative abnormal returns	1,365	2,395
9	DataStream	Available deals with combined cumulative abnormal returns	407	1,988
10	WorldScope and World Bank	Exclude deals with missing observations on all variables of interests	318	1,670

Table IA.3: Alternative event window: 11-day CARs

This table shows the effect of target industry takeover competition on announcement returns to bidder, target, and combined firms' shareholders. The 11-day cumulative abnormal returns (CARs) for bidders and targets are computed using the market model for the period (-255, -25). The combined CARs are the weighted average of the bidder and the target CARs, where weights are assigned based on equity's market value six days before the acquisition. T-statistics are shown in parenthesis, and Standard errors are corrected for heteroscedasticity (White,1980). ***, ** and * show statistical significance level at 1%, 5% and 10% respectively. Firm-specific variables and CARs are winsorized at the 1st and 99th percentiles. Each regression controls for year, industry, and country fixed effects, whose coefficients are not shown for brevity.

	(1)	(2)	(3)
Dependent variables:	Bidder CARs	Target CARs	Combined CARs
	(-5, +5)	(-5, +5)	(-5, +5)
Industry takeover competition	-0.0581** (-2.359)	0.4474** (2.243)	-0.0322 (-1.473)
Control variables	Yes	Yes	Yes
Year, industry, and country dummies	Yes	Yes	Yes
N	1670	1670	1670
R ²	0.3153	0.1595	0.1854

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table IA.4: Alternative proxies for stock price run-up

This table shows the effect of target industry takeover competition on announcement returns to bidder shareholders. In all models, we use alternative proxies for bidder's stock price run-up. Instead of the 90 to 20 days stock price return before the deal, we use the returns for months 2-3, 4-6, 7-12, and 13-36 prior to the deal month. Models (1) and (2) replicate Models (1) and (2) of Table 9, Panel B, and Model (3) replicates Model (3) of Table 4. Bidder CARs are the 11-day cumulative abnormal returns around the deal announcement. T-statistics are shown in parenthesis, and Standard errors are corrected for heteroscedasticity (White,1980). ***, ** and * show statistical significance level at 1%, 5% and 10% respectively. For brevity, other control variables are omitted. Firm-specific variables and CARs are winsorized at the 1st and 99th percentiles. All variables are defined in the Appendix.

	Logit model	Matched sample	Model 3 of Table 4
	(1)	(2)	(3)
Dependent variable:	High competition	Bidder CARs	Bidder CARs
		(-2, +2)	(-2, +2)
Industry takeover competition	-	-0.0375** (-1.941)	-0.0613** (-2.225)
Run-up (2 to 3 months)	0.3810*** (5.910)	-0.1654*** (-3.987)	-0.1516*** (-3.625)
Run-up (4 to 6 months)	0.6296*** (6.110)	-0.1230*** (-3.578)	-0.1309*** (-4.100)
Run-up (7 to 12 months)	0.3842*** (5.360)	-0.1006*** (-4.102)	-0.1126*** (-3.997)
Run-up (13 to 36 months)	0.5647*** (5.420) (0.103)	-0.1108*** (-3.290) (0.100)	-0.1719*** (-3.441) (-1.762)
Other control variables	Yes	Yes	Yes
Year, industry, and country dummies	Yes	Yes	Yes
N	1670	1141	1670
Pseudo R ² or R ²	0.2000	0.2819	0.2941

Table IA.5: Matched samples: premium, bidder returns, and country governance

The table presents estimated results for the effect of industry takeover competition on takeover premia (Model 1) and the effect of industry competition on bidder returns when bidder is from a country with higher level of governance. Firm-specific variables and CARs are winsorized at the 1st and 99th percentiles. All variables are defined in the Appendix.

Dependent variables:	(1) Premium (4 weeks before)	(2) Bidder CARs (-2, +2)
Industry takeover competition (ITC)	0.3719* (1.675)	-0.0380* (-1.715)
Higher country governance (WGI)		-0.0168** (-2.398)
ITC x WGI		0.0888* (1.925)
Control variables	Yes	Yes
Year, industry, & country dummies	Yes	Yes
<i>N</i>	1141	1141
<i>R</i> ²	0.1312	0.2243

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$