Minority acquisitions and information risk: International and cross-border evidence*

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Abstract

This paper uses international data to analyze why firms do minority acquisitions. We hypothesize and show that minority acquisitions are more common for targets in countries with worse information environments. We show that the effect is stronger in diversifying acquisitions, deals for high-tech targets, and when the bidder has prior acquisition experience of the target country. PE-backed bidders are less likely to do minority bids in general. Minority deals are also more common in cross-border deals, especially if the bidder and target countries are distant, use different languages, or have different legal, governance, political and economic regimes. Minority acquisitions can also be a 'stepping stone' to a controlling acquisition, especially in countries with worse information environments. Our results suggest that bidders use minority acquisitions when they confront informational or integration barriers.

Keywords: mergers, majority acquisitions, minority acquisitions, cross-country, cross-border

JEL Classification: G34

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Abstract

This paper uses international data to analyze why firms do minority acquisitions. We hypothesize and show that minority acquisitions are more common for targets in countries with worse information environments. We show that the effect is stronger in diversifying acquisitions, deals for high-tech targets, and when the bidder has prior acquisition experience of the target country. PE-backed bidders are less likely to do minority bids in general. Minority deals are also more common in cross-border deals, especially if the bidder and target countries are distant, use different languages, or have different legal, governance, political and economic regimes. Minority acquisitions can also be a 'stepping stone' to a controlling acquisition, especially in countries with worse information environments. Our results suggest that bidders use minority acquisitions when they confront informational or integration barriers.

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1 Introduction

Minority acquisitions are an important organizational choice, accounting for around 20% of all acquisitions between 1990 and 2015. However, minority acquisitions do not afford the bidder full control of the company, and raise the risk of principal-principal conflicts. Prior work demonstrates that minority acquisitions might help to relieve targets' financial constraints (i.e., Liao, 2014). Further, they might help firms to enforce incomplete contracts (Allen and Phillips, 2000; Fee et al., 2006). However, this begs the question of what circumstances might make such deals more desirable.

To fill this gap, this paper uses international and cross-border takeovers to assess how country-level informational factors influence minority deal likelihood. We focus on country-level factors that influence the acquisition's information environment, including sovereign governance, protection of minority interests, transparency, legal, political and economic factors. We further analyze deal factors that likely moderate the impact of the country's information environment on minority deal likelihood, including bidder acquisition experience, whether the deal is diversifying or PE-backed, and whether the target is a high-tech firm. We also examine if minority deals are likely to serve as a 'stepping stone' for the bidder to acquire full control in a subsequent acquisition. Lastly, we analyze cross-border deals, which prior research show face greater information barriers (Rossi and Volpin, 2004; Huang, Officer, and Powell, 2016), and examine if measures that moderate a country's information environment (e.g., gravity measures, including geographic distance and language) impact on minority deal likelihood.

Minority acquisitions can help to resolve hold-up problems that arise due to incomplete contracts. Before the contract, informational barriers exist in obtaining complete information on which to base

their contractual interactions. After the contract is made, incomplete contracts can also face issues of enforcement. Grossman and Hart (1986) suggest that firms can mitigate such problems by taking minority stakes in counter-parties, thereby providing greater access to information and greater control over enforcing bargains. Fee et al (2006) and Allen and Phillips (2000) find supportive empirical evidence.

Minority acquisitions can also help to serve as a stepping-stone towards full control. In poor information environments it is often difficult to identify synergistic targets and to determine whether they will integrate successfully with the bidder. The minority stake can give access to greater information and control by, for example, facilitating board representation. Further, the minority stake gives the bidder scope to restructure the target's governance (following Kang and Kim, 2008). This implies that bidders might have informational and governance reasons for undertaking a minority bid, rather than assume full control immediately.

Several factors could exacerbate, or mitigate, these informational concerns. High-tech, diversifying, or and cross-border deals involve added complications due to greater information asymmetry, motivating the use of minority deals to mitigate some of this risk. Country-level factors, such as poor sovereign governance, can drive such informational barriers. Sovereign governance, and shareholder protection can influence the extent to which bidders can rely on information when making a bid. Similarly, differences in language and geographic distance can make firms more difficult to assess as potential targets. This, in turn, might encourage the bidder to purchase a minority stake rather than obtaining fully control from the outset.

Using a sample of 91,787 acquisitions, including 26,625 cross-border and 65,162 domestic deals, we first examine whether poor information environments, captured using sovereign governance and other country-level metrics, influence the propensity to do minority deals. We find that minority deals (as compared with majority deals) are more common in countries with poor information environments and when post-acquisition integration might be more difficult. We also show that larger differences in bidder-target country information environments increase the likelihood of a minority bid, providing additional support that bidders are more reticent to do deals for full control in countries with worse information environments.

To add confidence to our findings that concerns about information quality motivates bidders to use minority deals, we examine several factors that likely moderate the quality of a country's information environment. Factors that reduce information quality (or increase information asymmetry) include if the deal is a high-tech deal (and the bidder is not high-tech) or a diversifying deal. Factors that likely increase information quality include bidder prior M&A experience, and if the deal is PE-backed. We show that the relationship between poor information environments and the use of minority deals increases when deals are high-tech and diversifying. Further, we show that PE-backing reduces the likelihood of minority deals, consistent with PE firms' role in mitigating information asymmetry and deal risk. Interestingly, we show that bidder prior experience in the target country increases the likelihood of doing minority deals. We interpret this finding as suggesting that prior bidder experience increases caution, hence greater use of minority deals.

We next explore if deals involving a target country with a poor information environment are more likely to adopt a 'stepping stone' strategy to attaining full control versus seeking full control in the first bid. We show that stepping-stone acquisitions are significantly more likely to occur in deals with greater information risk for the bidder, specifically, greater governance and political risk, lower disclosure and regulation quality, and in cross-border deals.

The final part of the empirical analysis examines the decision to undertake minority acquisitions in cross-border deals. We hypothesize and show that minority deals are more prevalent in cross-border deals, reflecting the simultaneous desirability of acquiring a stake in order to monitor the target and enforce contracts, and the difficulties of keeping target management equity incentives, accurate synergy evaluation and integrating companies across borders. For our cross-border sample, we further show that the likelihood of minority acquisitions increases with geographic distance between bidder and target countries, but decreases if the bidder and target countries have the same official language or have close political and economic relationships.

Our paper contributes to the literature on the usefulness of minority shareholdings in mitigating different types of risks. For example prior research shows that minority holdings can help reduce counterparty contract enforcement or hold-up problems (Williamson, 1979; Aghion and Tirole, 1994), and mitigate information asymmetry, and agency problems through better monitoring (Wruck, 1989; Allen and Phillips, 2000). We show that minority stakes are also useful in mitigating some of the risks likely to affect takeover deals that involve greater information asymmetry. These deals usually involve greater risk, including overpayment and deal failure. Huang et al., (2016) show that using equity to

finance high-risk deals, can help mitigate some of this risk for bidders. We show that deals involving greater risk, including across country, bidders are more likely to use minority stakes, and that these deals have a greater likelihood relative to bids for full control as the risk for the bidder increases. Our results have implications for how bidding firms should structure deals that involve greater information risk, especially those when the target is domiciled in a different country.

The remainder of the paper proceeds as follows. In section 2, we review the relevant literature on minority and majority acquisitions and develop several hypotheses to predict the choice in acquisition form. In section 3, we discuss sample selection and provide some initial summary statistics. Multivariate regression results and robustness tests are discussed in section 4, and section 5 concludes.

2 Background literature and hypotheses

We draw on the information economics literature to analyze how and why information asymmetry can drive bidders to choose a minority bid over a majority bid in an international context. The information economics literature asserts that information asymmetry shapes corporate decisions. One major decision is how to structure a takeover and whether to acquire a minority (or a majority) stake in another firm.

2.1 Poor information environments and minority deals

We start by looking at how a poor information environment could shape the desire to do a minority deal. Quality information enables bidders to identify synergistic targets and to price them appropriately.

Subsequently, bidders are more likely to instigate a bid for a transparent target than for an opaque one (Cain et al, 2014). Further, acquiring targets with better accounting information creates value for the bidder (McNichols and Stubben, 2015). Martin and Shalev (2017) also show that acquisitions are more synergistic when the bidder has more information about the target, suggesting a better ability to identify ex ante that the target will create value.

Poor information environments could encourage bidders to do minority deals. Poor information environments are typically characterized by worse legal enforcement, government oversight, shareholder protection, and accounting standards. Poor information environments likely encourage two presently relevant types of minority deals: First, a bidder might only ever seek a minority stake. These could include deals to facilitate strategic tie-ups, such as American Airline's proposed purchase of a stake in China Southern,[5] and Delta's purchase of a stake in China Eastern.[6] Such ownership-related tie-ups work by enabling the bidder to demand additional information, and potentially board representation. This allows the block holder to better monitor and enforce contracts vis-à-vis the target. Such contract monitoring is more important when the target is in a poor information environment.

Second, a bidder might consider a purchase of a minority stake as a "stepping stone" towards majority control. Minority acquisitions give the bidder an ownership-block in the target. Block holders typically have greater power to demand financial information and obtain board representation. These benefits mainly accrue to block holders in listed companies because a minority stake is relatively more

[5] This was proposed to be part of a tie up between American Airlines and China Southern: https://www.nytimes.com/2017/03/27/business/dealbook/american-airlines-china-southern-deal.html?_r=0

[6] https://www.nytimes.com/video/multimedia/100000003823345/delta-to-buy-into-china-eastern-airlines.html

important when ownership is widely dispersed, and other owners have relatively smaller percentage holdings. This can give the bidder more information on whether to exercise the option to make a subsequent bid for full control. Additional information is more important when the target is in a poor information environment.

Together, this suggests that there is more incentive to acquire a minority stake in a poor information environment than in a strong information environment. Subsequently, we make the following hypotheses.

Hypothesis 1: Minority acquisitions are more common in poor information environments.

Hypothesis 2: Stepping-stone acquisitions (where the acquirer obtains minority ownership and then obtains majority ownership) are more common in poor information environments.

We expect several factors to moderate the impact of such informational barriers. For example, bidder acquisition experience of the target country could moderate the adverse impact of a poor information environment. Acquisition experience enables the bidder to develop skills and processes to both identify targets and integrate units. Subsequently, acquisition experience can help to improve takeover performance, which can be attributed to corporations (and CEOs) learning through repetitive acquisitions (see e.g., Aktas et al, 2013; Field and Mkrtchyan, 2016). In a cross-border context, acquisition experience enables PE funds to help the firms they back to do international acquisitions, manifesting in higher acquisition returns (Humphery-Jenner et al, 2017).

Nevertheless, acquisition experience has mixed predictions for how it will influence the tendency to do a minority bid. On the one hand acquisition experience reduces the impact of a poor information environment by giving the bidder the skills and capabilities to mitigate the impact of poor information. Alternatively, prior acquisition experience might alert the bidder to the dangers of acquiring targets in a poor information environment. In this case, acquisition experience would increase the likelihood of a minority bid in a poor information environment. We capture this in the following two hypotheses.

Hypothesis 3.1: Acquisition experience mitigates the impact of poor information environments on the tendency to do minority acquisitions.

Hypothesis 3.2: Acquisition experience increases the impact of poor information environments on the tendency to do minority acquisitions.

We also expect poor information environments to affect difficult-to-value targets more. Firm level informational opacity can exacerbate valuation difficulties (Martin, 2012). This can make it more difficult for bidders to appropriately value targets, and to determine whether they will be able to integrate the target after the acquisition. This, in turn, can lead bidders to pay more for targets (McNichols and Stubben, 2015). High-tech targets tend to be harder to value owing to their long-dated cash flows and greater intangible assets (see e.g., Martin, 2012). We expect the valuation-difficulties associated with high-tech targets to be compounded in poor information environments. Thus, we

anticipate that high-tech targets will be more likely to receive a minority bid, especially in a poor information environment.

Hypothesis 3.3: High-tech deals are more likely to involve a minority bid in a poor information environment compared to bidding for non-high-tech targets.

We anticipate that diversifying deals are more likely to attract a minority bid than are "consolidating" ones, especially in poor information environments. Diversifying deals involve the acquirer purchasing a target outside its core business area. This implies that the bidder has less skill and experience identifying, and then managing, firms in that area. This is both in terms of management expertise and in terms of institutional processes and staff knowledge. Thus, we make the following hypothesis.

Hypothesis 3.4: Diversifying deals are more likely to involve a minority bid in a poor information environment compared to bidding in a consolidated deal.

We anticipate that bidders who are backed by a PE fund will be less likely to do a minority deal as compared to a deal for complete control, and that such bidders will be less sensitive to poor information environments. Private equity funds use their knowledge, skills, and experience to facilitate deals. When they support a company, they use such attributes to assist the company when it makes an acquisition. Thus, Humphery-Jenner et al (2017) show that private-equity backers can help their companies to

generate more value when doing cross-border deals in poor information environments. The logic is that the PE backer can help the company to identify synergistic targets, and to guide the bidder through the acquisition process.

This suggests that PE backers might help their companies to overcome the informational barriers that might motivate minority deals because the PE fund could give greater surety to the bidder that the target it identified will create value. Similarly, PE-backed deals would be less sensitive to the target's information environment due to the PE backers' aforementioned abilities to use their skills and experience to navigate such environments.

Hypothesis 3.5: Bidders with PE backing are less likely to do minority deals than are other bidders.

Hypothesis 3.6: Bidders with PE backing are less sensitive to poor information environments than are other bidders.

2.2 Informational barriers in cross-border deals

We expect that cross-border deals will face informational issues over-and-above those merely associated with acquiring a target in a poor information environment. We first predict that minority bids are more likely to occur in cross-border deals than in domestic deals. This arises due to the additional difficulties in executing deals, which include geographic distance and language barriers, but that might be mitigated through a historical relationship between bidder and target countries.

Geographic distance creates information asymmetry, resulting in greater difficulties both in identifying targets and monitoring units after an acquisition (Portes and Rey, 2005; Kang and Kim, 2010). This results in deals for distant targets taking longer to complete (Bick et al, 2017). It can also raise difficulties in pricing the target, potentially leading to higher takeover premiums (Bick et al, 2017). For this reason, targets might rely on signals of quality, such as VC/PE backing, if they seek to be acquired by a distant bidder (Ragozzino and Reuer, 2011). Thus, a bidder might wish to acquire a minority stake in the target in order to obtain better information about the target before launching a bid for full control.

Language barriers can also raise the difficulty (and cost) of obtaining both soft information and interpreting potential targets' disclosures, whereas language similarity can facilitate knowledge transfers (Peltokorpi and Yamao, 2017). Further, Historical linkages between bidder and target countries can mitigate some deal risk and reduce the need for a minority deal. It does this by aligning legal backgrounds, which can help to create cultural connections. Having a 'shared vision' can help to mitigate language and distance barriers (Peltokorpi and Yamao, 2017). This occurs because (inter alia) the shared background creates a set of shared norms (viz., laws and regulations), which reduces monitoring costs in a relationship. Such connections can arise through a historical 'colony' linkage between countries (see e.g., Beck, Demirgüç-Kunt, and AsliLevine 2003). Thus we expect that minority deals are less necessary in situations where the bidder and target country had a historical colony linkage.

Hypothesis 4: There are more minority acquisitions in cross-border M&As because acquirers will face greater information asymmetry, arising from different legal, cultural and economic regimes.

Hypothesis 5: Gravity measures that increase (decrease) information asymmetry increase (decrease) the likelihood of minority deals in cross-border acquisitions. Increasing (decreasing) measures include distance and different languages (prior historical relationship/colony).

3 Sample selection

The sample covers acquisitions announced between 1990 and 2015 involving publicly listed bidders from 61 countries. We include acquisitions of both listed and unlisted targets. We report regressions for the full sample of targets. We ensure the results are robust across the sub-samples of listed and unlisted targets, respectively (see Table A2 in the appendix, and the Online Appendix, Tables OA4 and OA5). We start with an initial sample of 650,376 takeovers over this period from Thomson's SDC Platinum's Mergers and Acquisitions database and match them to WorldScope. Following the literature, we exclude exchange offers, LBOs, privatizations, recapitalizations, spin-offs, self-tender offers, and repurchases. We also exclude deals where the target or bidder is a government agency, belongs to the financial or utilities industry, or if the target and bidder have the same DataStream code. Financial and utilities industries are subject to different government regulations, and might not be apt to a majority acquisition due to government regulations.

We apply the following additional constraints. The target must not have been targeted by more than one bidder on the same day. If the bidder does more than one bid in a month, we retain the largest bid

and deem the initial shareholding to be the minimum initial holding across these bids. We exclude observations for which we cannot obtain the relevant bidder and target control variables (detailed in the appendix). We exclude observations where country-level variables are unavailable (detailed in the appendix).

We define minority and majority deals as follows. Minority deals are where the bidder seeks *and* obtains less than 50% of the target. Majority deals are where the bidder seeks *or* obtains at least 50% of the target. If the bidder seeks more than 50% of the target, but obtains less than 50% of the target, we classify the deal as a 'majority' acquisition because we are interested in the acquirer's motives for the deal (not whether the acquirer subsequently faced problems executing the deal). For a similar reason, we consider both completed and uncompleted deals. We define stepping-stone acquisitions as those majority acquisitions following minority acquisitions. We require at least one month between the majority acquisition and the prior minority acquisition. The final sample comprises of 91,787 deals from 61 countries, of which 26,625 are cross-border and 65,162 domestic. The sample-composition by country is in Table 1.

[Insert Table 1]

3.1 Governance and other country-level variables

We use several proxies of the country-level information environment. We measure each variable at the target country level. In order to capture differences between bidder and target countries, we also calculate the *difference* in the measures between bidder and target countries (B-T).

Weaker shareholder protection creates informational barriers. It is associated with lower quality pre-bid disclosures as managers face little disciplinary action for erroneous or misleading statements. It increases managerial power in the target. It creates difficulties executing the deal (i.e. due to anti-takeover provisions). It hinders integrating the bidder and target (i.e. weak enforcement of law). To ensure that our results are not driven by a particular variable, we capture shareholder protection with two measures: the *Anti-director index* (ADI) due to La Porta et al (1998) and the *Anti-self-dealing index* (ASDI) due to Djankov et al (2008). Both variables measure shareholders' rights with respect to managers and directors.[7] Higher values of ADI and ASDI imply stronger shareholder protection, and fewer barriers and frictions to make majority acquisitions.

The *Transparency index* captures the ease of public access to information, and the quality of disclosure (Kaufman and Bellver, 2005). There are two key reasons why disclosure quality may affect the choice of acquisition form. First, as suggested by Ouimet (2013), the ability to identify the target and estimate the synergy benefits can influence the form of acquisition. Thus, acquirers may not want to control the target when it is difficult to value the gains from integration. Second, better information disclosure is also related to better corporate governance, which helps restrain (monitor) managers by making corporate activity and performance more transparent, and therefore reduces the cost to make majority acquisitions.

The *WGI* is a time-varying aggregate governance index constructed using World Bank governance index data. The World Bank provides country rankings in terms of voice and accountability,

[7] More detailed explanations and justifications on the proxies for sovereign governance in this paper can be found in La Porta et al (1998), Djankov (2008) and Kaufmann and Bellver (2005).

political stability and absence of violence/terrorism, government effectiveness, regulatory quality, rule of law, and control of corruption (see Kaufmann, Kraay, and Mastruzzi (2010) for a detailed explanation of the index construction). We take an equally weighted average of the six World Bank indicators. Each indicator ranges from -2.5 (weak governance) to +2.5 (strong governance). So, *WGI* is bounded between -2.5 and +2.5 and higher values represent better governance.

The *Audit index* measure represents the audit environment and is likely to impact on the quality of enforcement of financial reporting requirements as per Brown et al. (2014). Brown et al. (2014) highlight that even if accounting standards notionally converge across countries, enforcement and reporting veracity can differ. The *Audit* index varies over time, with figures reported in 2002, 2005, and 2008. We interpolate variable values between the reported years carry forward the 2008 value for subsequent years, and use the 2002 value for prior years. Brown et al. (2014) also report an index for the degree of accounting enforcement. For brevity, we only use the *Audit* index. However, we find qualitatively similar (and stronger) results when using their enforcement index.

The *WEF* index is the total of the World Economic Forum measures of enforcement of accounting standards, enforcement of securities laws, minority shareholder rights and judicial independence (World Economic Forum, 2010). This helps to capture the myriad complex factors that can influence a country's information environment. Similar to the Audit index, the WEF index varies over time, with values for 2002, 2005 and 2008, so we apply the same procedure to fill missing years.

We also obtain proxies for the information asymmetry faced in cross-border deals. These include the geographic distance between the acquirer and the target, and an indicator for whether the acquirer-

country and target-country have the same primary language. We also construct an indicator for whether the acquirer country or target country were part of a former 'colony', proxying for the degree of similarity between the countries' legal systems. This data is from CEPII.[8]

The final set of country-level variables captures broader economic development and economic growth. To measure country-level growth and wealth, we include the relative GDP growth rate. We use stock market capitalization divided by GDP as a proxy for a country's financial market development.

3.2 Deal and firm-level variables

We control for several other firm and deal characteristics as is standard in the takeover literature (e.g., Masulis et al., 2007; Harford et al., 2012; Huang, et al., 2016). These include bidder size, relative deal size, bidder leverage, R&D intensity, free cash flow, valuation (Tobin's q), and the interaction between valuation and free cash flow. Larger firms, and firms with greater debt capacity are likely to make bids for full control, mostly because they have the financial means to do so. However, financing larger deals (relative size) could be problematic, suggesting a greater likelihood of minority deals. Relative size, however, may suggest lower information asymmetry as transparency increases with relative size, especially for listed targets, which suggests a greater likelihood of majority deals. Further, if retaining target management equity-based incentives is important for the bidder, Ouimet (2013) predicts greater minority deals of smaller relative size targets to minimize diluting incentives.

[8] The CEPII data is available from: http://www.cepii.fr/CEPII/en/bdd_modele/bdd.asp

Low value (low q) and innovative (high R&D) firms are also expected to face financing constraints (especially in using equity), suggesting more minority deals. High free cash flow bidders, however, are likely to have the financial means to bid for full control. Since the agency costs arising from free cash flow are likely to be more severe for low value firms (Jensen, 1986), we capture this through the interaction of q and free cash flow (Lang, Stulz and Walkling, 1991), and we predict that these bidders are more likely to bid for full control.

Following prior studies, we also include dummies in the full sample regressions to capture the target firm's organizational status (public, private, and subsidiary, but exclude subsidiary to avoid the dummy variable trap). Unlisted targets (private and subsidiary) are usually smaller, so present lower financing challenges, suggesting a greater likelihood of bids for majority control. Nevertheless, unlisted deals (especially private) also present the greatest challenges with respect to greater information asymmetry and deal risk, suggesting that it might be optimal for bidders to take minority stakes. We also include several control variables, which we also use as moderators as discussed in hypotheses 3.1 to 3.6. These include a measure to capture bidder prior knowledge of the target country (experience), and dummy variables to capture across industry (diversifying) deals, high-tech deals, and PE-backed deals. Detailed definitions of all variables are reported in Table A1 in the Appendix.

4 Descriptive statistics

We start by looking at the total value of minority acquisitions for both publicly listed targets and unlisted targets. We report the results in Figure 1. Panel A looks at all deals, and Panels B and C look at

acquisitions for public and unlisted targets, respectively. We also split the results by whether the deal is domestic or cross-border. Aggregate deal values have increased over time. In 2015, minority acquisitions accounted for nearly USD 75 billion, spread across domestic and cross-border deals (see Panel A). The figure also suggests the presence of takeover waves. For example, the waves in 2000 and 2007 are similar to those reported in prior studies (viz. Harford, 2005; Moeller, Schlingemann and Stulz, 2005). These waves affect listed and unlisted targets similarly.

[Insert Figure 1]

We next look at the frequency of minority acquisitions. Figure 2 reports the frequency of minority acquisitions over time for domestic and cross-border deals. Panel A looks at all deals, and Panels B and C look at acquisitions of listed and unlisted targets, respectively.

The frequency of minority deals fluctuates over time, reflecting changes in capital markets and access to capital. This suggests that firms might do minority deals when full acquisitions are more difficult to finance. For example, minority deals became slightly more frequent after 2008. Before 2005, minority acquisitions were more common for cross-border deals than for domestic ones. However, domestic and cross-border deals converged in minority-deal likelihood after 2005. This could reflect decreasing barriers to cross-border deals over time and improved regulatory environments in emerging markets.

Minority acquisitions are more likely to be the favored acquisition form when targeting listed compared to unlisted firms. In 2015, for listed targets, minority acquisitions accounted for around 50% of all domestic acquisitions and 35% of all cross-border acquisitions. By contrast, for unlisted targets,

minority deals accounted for nearly 20% of all domestic deals and nearly 15% of all cross-border deals. This could reflect the increased difficulty financing acquisitions of listed firms because they are larger. It might also reflect the increased risk of expropriation faced by minority holders in unlisted firms as compared to listed firms.

[Insert Figure 2]

To compare the frequency of minority acquisitions in different countries, we list the ratio of minority acquisitions in cross-border and domestic deals separately for each country in our sample, reported in Table A2 in the appendix. The statistics presented show that there are large fluctuations in the prevalence of minority acquisitions around the world. For example, for domestic deals in the UK and the US, the ratios of minority to major acquisitions are as low as 4.0% and 5.3%, respectively. However, minority acquisitions are much more popular in other countries. For example, minority acquisitions occur in a significant number of cases in Korea and Thailand, representing about 50% of all acquisitions.

The table also shows that minority acquisitions are less frequent in developed than developing countries. In results (untabulated), we sort the countries into developing and developed countries based on the median of GDP per capita and find that 13% of all deals are minority acquisitions in developed countries, while this number is 39% in developing countries. Since more developed countries are associated with stronger sovereign governance and equity market development, this provides some preliminary support for our first hypothesis that minority acquisitions are more likely in countries with worse information environments and greater information asymmetry.

Summary statistics for the variables are in Table 2. Deals involving listed targets are marginally larger in relative size than unlisted, and bidders are also larger. Further, a larger proportion of bidders targeting listed firms have lower q and higher free cash flows relative to those targeting unlisted targets, suggesting possible agency concerns (Harford et al., 2012). The country variables used in this study are generally in line with those in other prior multi-country M&A studies (Rossi and Volpin, 2004; Ferreira et al., 2010; Erel et al, 2012).

[Insert Table 2]

5 Multivariate Regressions

5.1 Minority acquisitions and information environments

We start by analyzing how target country-level information quality factors influence the likelihood of a minority acquisition. The linear probability regression results are reported in Table 3.[9] Panel A focuses on target country variables, and Panel B looks at the difference between bidder and target countries (B-T). We control for firm and deal characteristics, year, industry, and country dummies[10], and use robust clustered standard errors at the bidder level. In the appendix (Table A2), we also ensure that we get consistent results whether looking at listed and unlisted targets.

[9] We find similar results using probit regressions, but tabulate the estimates from linear probability regressions as they are easier to interpret, and the models are more efficient to estimate. The probability of minority deals are also not extreme (i.e., close to 0 or 1), which also makes the linear model more appealing (Hellevik, 2007).

[10] Table OA3 in the online appendix reports models with country dummies for regression specifications that include time-varying measures of country-level information quality (i.e., WGI, WEF and Audit index). We exclude regression models that include time invariant country level information measures as country fixed effect subsume their variance, rendering them insignificant. Table OA1 and OA2 also report models using alternative country-level measures of governance (see Table A1 for definitions of these measures).

The results in Table 3 are consistent with expectations. In Panel A, stronger target country-level information environments reduces the likelihood of minority acquisitions. The coefficient estimates on all country-level metrics are negative and statistically significant, supporting hypothesis 1. The economic magnitude is also significant. For example, a one standard deviation increase in *WGI* results in an 8.5 percentage point decrease in the likelihood of a minority deal,[11] with similar impacts across the other country-level variables.[12]

Panel B looks at whether bidders from stronger information environment countries prefer minority deals when acquiring targets in weaker information environment countries. A positive sign on the difference (B-T) variable implies that bidders are more likely to do a minority deal when the bidder's home information environment is stronger than is the target's.

[Insert Table 3 about here]

The results are consistent with expectations. All country-level information metrics are statistically significant, and have the expected sign in both panel A (country levels) and panel B (differences, B-T). This confirms expectations that when the target country information environment is poor, and of lower quality than the bidder's country, minority deals are more likely. We also find similar results for both listed and unlisted targets (Table A2), although the economic magnitude appears to be much larger for deals involving listed targets.

[11] We calculate this by multiply the coefficient on *WGI* in Table 3 (Panel A) of -0.105 with its standard deviation of 0.81.
[12] Specifically, the impacts for *ADI*, *ASDI*, *Transparency*, *WEF* and *Audit* are reductions in minority deal likelihood of 5.4, 1.2, 11.7, 8.6, and 6.6 percentage points, respectively.

The coefficients on the other firm and deal characteristics are largely consistent with expectations, and are generally consistent with Ouimet (2013). *Relative size* is negatively related to the likelihood of a minority acquisition, and this appears to be stronger for listed relative to unlisted targets (Table A2). Put differently, for listed targets, the larger the target is compared with the acquirer, the more likely is a majority acquisition. Notwithstanding greater financing needs to fund a larger deal, this is expected as listed targets suffer less from the information asymmetry problems that might otherwise motivate a minority acquisition. Furthermore, consistent with Ouimet (2013), bidders may want to retain target management equity incentives, which is more likely to occur in smaller relative size minority deals. However, alternatively, the finding is also consistent with the likely presence of rules in many markets that require a bidder to launch a full acquisition bid if it acquires more than a particular threshold of shares in listed firms, and which prohibit the acquirer from placing a cap on the number of shares to be acquired in such transactions.[13]

We also find that low-q acquirers (who would be less able to finance a full acquisition due to low equity values) are more likely to do a minority acquisition, which is largely driven by unlisted deals (Table A2). This is consistent with the idea that stock is often a method of payment in majority acquisitions; and thus, firms with relatively lower market valuations will be less able to undertake those acquisitions (this contrasts with the finding that firms with relatively higher market valuations tend to use those valuations to undertake acquisitions (Dong et al., 2006; Harford et al., 2012; Fu et al., 2013).

[13] For example: In Australia, a firm cannot acquire more than 20% of a firm's shares unless an exception applies (*Corporations Act 2001* (Cth) Section 611). The chief exception is that it is conducting a takeover offer. Bidders can include bid-conditions (i.e. minimum acceptance conditions) only if they use an off-market bid. Further, a bidder is prohibited from imposing a 'ceiling' on the number of shares it will accept (*Corporations Act 2001* (Cth) Section 626).

More importantly, the interaction of low q and high FCF is negative for all models, suggesting that acquirers with agency issues are more likely to make full control bids. Not surprisingly, financial constraints in terms of deb capacity (leverage) increase the likelihood of minority deals, while larger bidders are more likely to do majority deals consistent with lower financial constraints.

Factors measuring greater uncertainty about target firms also appear to influence the propensity to do a minority bid. Specifically, we find that intra-industry (diversifying) and high-tech deals are more likely to be minority bids as predicted. This is because by acquiring a minority stake in the target firm, acquirers can get better access to the target's information and have the option of making majority acquisitions later (Higgins and Rodriquez, 2006), and such benefits are enhanced when the target is from a different industry, or is high-tech, which is more uncertain to the acquirer. PE-backed deals, on average, are less likely to be minority deals consistent with the view that PE firms help mitigate deal risk. Bidder prior experience of the target country appears to have a positive impact in the decision to do a minority deal, but the results are relatively weak. Lastly, we show (as predicted in hypothesis 4) that cross-border deals are more likely to involve minority, likely due to less transparency and greater information asymmetry relative to domestic deals (Rossi and Volpin, 2001; Huang et al., 2016).

5.2 Minority acquisitions as stepping-stone acquisitions

We next examine the role of minority acquisitions as a stepping-stone to full control (hypothesis 2). We focus on a subsample of minority acquisitions by creating an indicator that equals one if the acquirer undertakes a minority acquisition that is then (as another distinct deal) followed by majority control of

the target. The indicator equals zero if the acquirer does a majority acquisition initially (i.e. does not do a minority acquisition first). In these tests, we exclude from the sample any situation in which the acquirer obtains a minority acquisition at the outset and does not follow-up with another acquisition (because we are interested in the decision between doing a stepping-stone acquisition and an outright majority acquisition). The models include the same variables as in Table 3.

[Insert Table 4 about here]

The regression results are reported in Table 4 using country information quality measures (panel A), and differences between bidder and target country measures (panel B). The main finding is that stepping-stone acquisitions (as compared with an outright majority acquisition) are significantly less likely in countries with stronger information environments. This implies that stepping-stone acquisitions are most useful for acquisitions in countries where there are larger costs associated with due diligence and where the minority acquisition can help to alleviate issues of information asymmetry. The signs and significance of the control variables are mostly similar to those reported for the full cross-country sample in Table 3.

5.3 Factors that moderate the impact of the country's information environment

We next explore the factors that moderate the impact of the target's information environment. The results are in Table 5. We construct a poor information environment indicator that equals one if the

target's country's measure is below the median value for the sample-year. We interact this measure with our hypothesized moderators.

[Insert Table 5 about here]

The results are largely consistent with expectations, providing support for hypotheses 3.3 and 3.4. As before, bidders are more likely to do a minority acquisition if the target is in a worse information environment. This effect increases if the target is 'high tech' or if the deal is 'diversifying', by 10.1, and 12.1 percentage points, respectively (when using the WGI governance measure). This is consistent with expectations. High tech targets are relatively more difficult to value. Poor information environments likely exacerbate these informational problems. Similarly, diversifying deals are more difficult for the bidder to evaluate owing to the bidder's relative lack of experience doing those deals.

The results suggest that experienced bidders are *more* likely to do minority deals when acquiring targets in poor information environments. This holds across five of six governance measures, and suggests that experienced bidders become more cognizant of the risks associated with acquiring targets in such environments, and opt to undertake relatively less risky minority deals.

PE backing does not significantly moderate the impact of poor information environments. However, PE-backed bidders are less likely to do minority deals in general; seeming to prefer majority deals. This is consistent with the idea that PE-backers impart their skills and expertise to their portfolio companies (following Humphery-Jenner et al, Forthcoming). In turn, this enables bidders to better evaluate targets and forgo the need for a minority bid. The other control variables have similar signs and significance as reported in Table 3.

5.4 Minority acquisitions in cross-border M&As

We next focus on a sample consisting only of cross-border deals. We analyze which cross-border deals are more likely to involve minority acquisitions. The regressions reported in Table 6 show that the coefficients on *geographic distance*, *same language* and *colony* are generally significantly positive, negative and negative, respectively. Distance appears to be more important in the choice to do a minority acquisition when the deal involves a public target, which is opposite to expectations as public deals are more transparent, so likely of lower risk. Nevertheless, the findings generally support the view that minority acquisitions are useful as a method to alleviate issues of information asymmetry that can arise in cross-border deals, and provides support for our fifth hypothesis.

The results also show that within the sample of cross-border deals, those with deal characteristics that likely increase deal risk for the bidder, specifically high-tech and diversifying, are more likely to involve a minority transaction.

[Insert Table 6 about Here]

5.5 Additional robustness tests

We undertake additional robustness tests to ensure that econometric issues do not drive the results. These help to mitigate issues related to sample selection and variable definition. We tabulate the results of some of these tests in the online appendix, and any untabulated results are available from the authors on request.

US bidders: one concern is that the deals by US-based bidders account for almost half the sample and could drive the results. We ensure this is not a concern by checking that the results hold if we cut the US from the sample and reestimate the models. We also ensure that the results hold if we drop any individual country from the sample. These results are unreported for brevity.

Deals for Chinese companies: One potential issue is that the sample includes deals for Chinese companies and it is often difficult-to-impossible to gain full ownership of Chinese companies, potentially biasing the results. The existing models implicitly mitigate this. This is because we do analyze "stepping stone" acquisitions, in which the bidder must eventually gain full control of the target, either by getting full control from the outset or by acquiring it after a minority bid. This implicitly restricts the sample to the situations where the bidder could get complete control. Nonetheless, we also check that the results hold if we exclude Chinese targets from the sample.

Completed and failed deals: In the reported results, we include all deals whether they are completed or failed. One concern is that deals can fail for endogenous reasons and/or could be distinguishable from successful deals. We mitigate this by ensuring that the results hold if we cut failed deals from the sample and only look at successful deals.

Small bids: Presently, we include all minority bids, even if they are for small percentage holdings. One concern is that the sample might include minor takeovers that are more akin to a portfolio investment

than to a corporate takeover. We address this by checking that the results hold when we exclude small bids that are for less than 5% of the target's shares outstanding.

Deals involving airlines and other 'strategic' industries: The reported models exclude banks and utilities. However, the reported sample does include deals involving airlines. It is often difficult-to-impossible for an overseas bidder to acquire majority control of an airline. We include these deals in the sample because the sample includes domestic deals. Nevertheless, the results are qualitatively unchanged if we cut airlines, which represent about 344 deals, from the sample. We also exclude other 'strategic' type industries (e.g., military, natural resources, agriculture) that governments may protect from takeover due to national interests. While these industries account for 17,333 deals in our sample, our findings remain robust to their exclusion.

Cutting unlisted targets: One possibility is that acquiring a minority stake in an unlisted target has different implications from acquiring one in a listed target. This is because whereas a minority stake in a firm with dispersed ownership might be meaningful, it might be less meaningful if another party has majority control. For example, a minority stake in a firm with dispersed ownership might afford greater information rights and the ability to demand a board position; these rights might not accrue in an unlisted firm. Thus, we check, and confirm, that our results hold if we cut acquisitions of unlisted firms from the sample (see Online Appendix Tables OA4 and OA5).

Controlling for method of payment: The reported regressions do not control for the method of payment. This is because whether a firm does a minority or majority acquisition is likely to influence whether the firm pays with cash or stock (rather than the other way around). However, the method of payment can influence takeover performance (see e.g., Chang, 1998; Fuller et al, 2002). Thus, we confirm that we find qualitatively similar results if we also control for the method of payment.

6. Conclusion

We assess whether bidders are more likely to do minority deals when the target is in a poor information environment. We do this in an international context and analyze cross-border deals. We use several proxies for the target's information environment. The underlying logic is that such deals could both help the bidder to enforce incomplete contracts and to gather more information before launching a bid for full control. We find that bidders are more likely to do minority bids for targets poor information environments as compared to targets in stronger information environments. In poor information environments, they are also more likely to use minority bids as a 'stepping stone' to obtaining full control, as opposed to obtaining full control from the outset.

We further explore the factors that moderate the tendency to do minority deals. We find that the impact of the target's country-level information environment, increases when there are greater informational barriers in a given deal: For example, poor information environments have a greater impact if the target is high-tech (so difficult to value) or is in a different industry from the bidder's main operations. Prior acquisition experience also influences minority bid likelihood, but it appears that

experienced acquirers become more cognizant of the dangers of poor information environments, and are more likely to do minority bids in such contexts.

We also examine factors that additional influence the tendency to do minority bids in cross-border deals. We find that minority deals are less likely if the bidder and target share the same language, have legal/cultural similarities, or are geographically close. This suggests that minority deals are less necessary when information asymmetry is lower.

These results contribute to the literature by analyzing the drivers of an important, but under-explored, choice to do minority bids. This is especially meaningful as most literature focuses on bids for majority, or total control. However, our results suggest that there can be some sample-selection into the decision to acquire full control. This, in turn, suggests that cross-validation of key results in minority bids could yield interesting future research avenues.

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Appendix

Table A1: Variable Definitions

Variables	*Definition*
Dependent variables	
Minority acquisition	Dummy variable equals 1 if less than 50% of the target share is sought and less than 50% of the target share is owned after the deal, and equals 0 otherwise. (Thomson's SDC Platinum)
Majority acquisition	Dummy variable equals 1 if greater than or equal to 50% of the target share is sought or more than or equal to 50% of the target share is owned after the deal, and equals 0 otherwise. (Thomson's SDC Platinum)
Stepping-stone acquisition	Dummy variable that equals 1 if a majority acquisition follows a minority acquisition within a month, and equals 0 otherwise. (Thomson's SDC Platinum)
Country variables	
Cross-border	Dummy variable that equals 1 if bidder ultimate parent and target country differ, and equals 0 otherwise. (Thomson's SDC Platinum)
Anti-director index (ADI)	A measure for shareholder protection. (LLSV 1998)
Anti-self-dealing index (ASDI)	A survey-based measure of legal protection of minority shareholders against expropriation by corporate insiders. (Djankov et al. 2008)
Transparency index	An aggregation of economic/institutional transparency, and political transparency. A high value of the index indicates easy public access to relevant and reliable information of markets, and legal and political systems. (Kaufmann and Bellver 2005)
WGI index	An equally weighted index of the world bank governance variables capturing voice and accountability, political stability and absence of violence/terrorism, government effectiveness, regulatory quality, rule of law and control of corruption. Each indicator ranges from -2.5 (weak governance) to +2.5 (strong governance). A higher score represents better governance. This variable is bounded between -2.5 and +2.5. (World Bank: http://info.worldbank.org/governance/wgi/#home)
WEF	Total of proxies: enforcement of accounting standards, enforcement of securities laws, minority shareholder rights and judicial independence (World Economic Forum, 2010)
Audit	The audit environment that are likely to impact on the quality of enforcement of financial reporting requirements. Brown et al. (2014)
Accounting standards	A measure for business disclosure quality. (LLSV 1998)
Regulation quality	Regulatory quality captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. Sub-category of WGI index.
Enforcement	The level of activity of independent enforcement bodies. Brown et al. (2014)
Kauf	Rule of law captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Sub-category of WGI index.
LAP	Total of public and private enforcement indices, La Porta et al. (2006)
HOPE	Enforcement index derived from a factor analysis of measures of audit spending, audit firm type, stock exchange listing, insider trading, judicial efficiency, rule of law and anti-director rights, the last three being from La Porta et al. (1998) (Hope, 2003)
Capitalization/GDP	Also known as market value, is the sum of share price times the number of shares outstanding for listed domestic companies excluding investment companies, mutual funds, or other collective investment vehicles, divided by gross domestic product in the year. Natural log is applied to this variable. (World Bank)
GDP per capita	The natural log of the gross domestic product divided by midyear population in current US$. (World Bank)
Geographic distance	The natural log of the weighted average distance within and between countries. (CEPII)

Same official language	There is no language barrier in business communication. It equals 1 if the official language between two countries is the same or the deal is not a cross-border deal, and equals 0 otherwise. (CEPII)
Colony	Dummy variable that equals 1 if there exists colony relationship between the bidder and target country (in the history), and equals 0 otherwise. (CEPII)
Firm and deal variables	
Relative size	Deal value divided by bidder the sum of total assets and deal value. (Thomson's SDC Platinum and WorldScope)
Bidder size	The natural log of bidder total assets in USD. (WorldScope)
Bidder leverage	The sum of total debt and deal value divided by the sum of total asset plus deal value in the year before M&A announcement, in US$ (Thomson's SDC Platinum and WorldScope).
Bidder R&D	The ratio of R&D expenditure divided by total assets. (WorldScope)
Bidder low q	Dummy variable that equals 1 if bidder market-to-book ratio is lower than median of the country, and equals 0 otherwise (WorldScope)
Bidder high cash	Dummy variable that equals 1 if bidder free cash flow is higher than the median value for the country, and 0 otherwise. (WorldScope)
High-tech target	Dummy variable that equals 1 if the target's primary business is high-tech, and equals 0 otherwise. (Thomson's SDC Platinum)
Diversifying	Dummy variable that equals 1 if the bidder and target are in different industries as measured by 2-digit SIC, and equals 0 otherwise. (Thomson's SDC Platinum)
Experience	The natural log of the number of deals that has been completed 3 years before the announcement. (Thomson's SDC Platinum)
PE-backed	Dummy variable that equals 1 if the deal is involved by a financial sponsor, and equals 0 otherwise. (Thomson's SDC Platinum)
Public/listed target	Dummy variable that equals 1 if the target is a public company, and equals 0 otherwise. (Thomson's SDC Platinum)
Private/unlisted target	Dummy variable that equals 1 if the target is a private company, and equals 0 otherwise. (Thomson's SDC Platinum)
Subsidiary/unlisted target	Dummy variable that equals 1 if the target is a subsidiary company, and equals 0 otherwise. (Thomson's SDC Platinum)

Table A2: Sovereign governance and minority acquisitions - listed and unlisted targets

This table presents the estimations from linear probability models for listed (columns 1-6) and unlisted (columns 7-12) targets, respectively. Panel A reports models that measure the 6 information quality variables at the country level, and panel B reports models that measure information quality as the difference between bidder and target country (denoted as B-T). The dependent variable is a dummy variable that equals one if the deal is a minority acquisition, and zero otherwise. All models include industry and year dummies. Standard errors are corrected for heteroskedasticity and clustering at the bidder firm level. P-values are reported in parentheses. ***, **, * denotes statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Country-level information quality measures

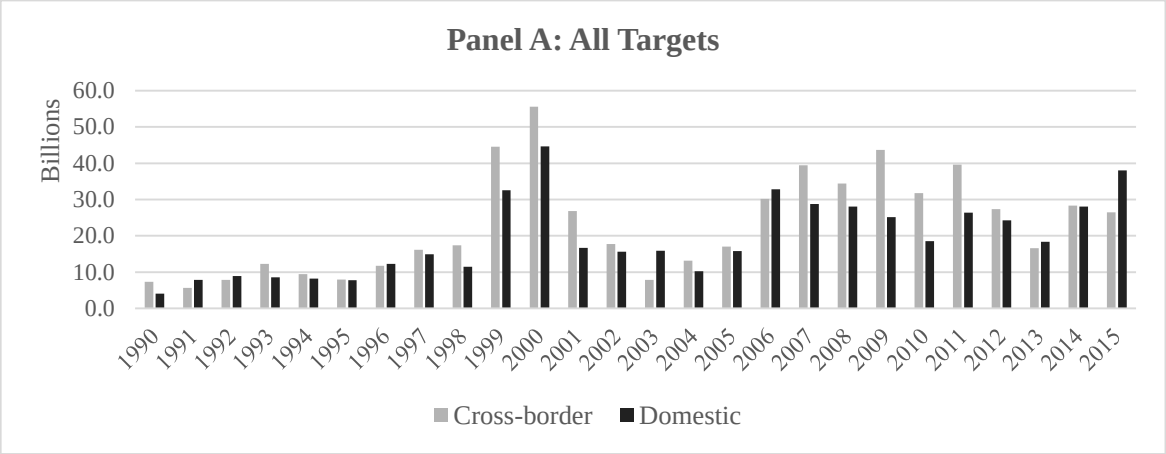
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Variables	ADI	ASDI	Transparency	WGI	WEF	Audit	ADI	ASDI	Transparency	WGI	WEF	Audit
Information	-0.099***	-0.295***	-0.239***	-0.151***	-0.034***	-0.025***	-0.034***	-0.027***	-0.118***	-0.101***	-0.018***	-0.010***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)	(0.000)	(0.000)	(0.000)	(0.000)
Target high-tech	0.031**	0.023*	0.050***	0.018	0.026**	0.043***	0.035***	0.030***	0.037***	0.027***	0.032***	0.034***
	(0.012)	(0.058)	(0.000)	(0.170)	(0.038)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Diversifying	0.082***	0.092***	0.085***	0.095***	0.094***	0.081***	0.046***	0.049***	0.039***	0.048***	0.047***	0.044***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Experience	0.023***	0.022***	0.022***	0.022***	0.021***	0.026***	-0.003	-0.004*	-0.000	-0.000	-0.002	-0.002
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.206)	(0.073)	(0.836)	(0.957)	(0.235)	(0.336)
PE-backed	-0.019	-0.022	-0.010	-0.023	-0.022	-0.011	-0.029***	-0.042***	-0.023***	-0.031***	-0.036***	-0.034***
	(0.249)	(0.189)	(0.523)	(0.162)	(0.177)	(0.488)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Private target							-0.001	-0.017***	-0.011***	-0.020***	-0.014***	-0.016***
							(0.801)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Cross-border	0.061***	0.092***	0.055***	0.074***	0.100***	0.072***	0.000	0.029***	0.002	0.007**	0.026***	0.006*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.896)	(0.000)	(0.646)	(0.033)	(0.000)	(0.096)
Relative size	-0.800***	-0.832***	-0.766***	-0.803***	-0.847***	-0.775***	-0.144***	-0.190***	-0.182***	-0.207***	-0.204***	-0.185***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bidder size	-0.034***	-0.041***	-0.035***	-0.043***	-0.042***	-0.038***	0.004***	0.002	0.001	-0.004***	-0.001	0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)	(0.215)	(0.463)	(0.000)	(0.524)	(0.249)
Bidder leverage	0.072***	0.072***	0.073***	0.061***	0.068***	0.075***	0.025***	0.027***	0.030***	0.019***	0.024***	0.028***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bidder R&D	-0.125**	-0.227***	-0.113*	-0.264***	-0.233***	-0.139**	-0.063***	-0.081***	-0.022	-0.074***	-0.073***	-0.057***
	(0.037)	(0.000)	(0.065)	(0.000)	(0.000)	(0.024)	(0.000)	(0.000)	(0.103)	(0.000)	(0.000)	(0.000)
a: Bidder low q	0.062***	0.074***	0.049***	0.071***	0.075***	0.054***	0.064***	0.061***	0.056***	0.065***	0.065***	0.051***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
b: Bidder high FCF	0.068***	0.066***	0.059***	0.063***	0.060***	0.065***	0.015***	0.014***	0.007*	0.006	0.007	0.014***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.087)	(0.132)	(0.113)	(0.001)
a*b	-0.047**	-0.047*	-0.037	-0.047*	-0.050**	-0.041*	-0.034***	-0.036***	-0.031***	-0.046***	-0.032***	-0.032***
	(0.044)	(0.051)	(0.107)	(0.061)	(0.036)	(0.076)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.001)
Market cap./GDP	-0.025**	-0.045***	-0.065***	-0.076***	-0.056***	-0.049***	-0.040***	-0.053***	-0.048***	-0.048***	-0.037***	-0.046***
	(0.023)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP per capita	-0.043***	-0.064***	0.027***	0.003	-0.040***	0.017**	-0.050***	-0.072***	-0.001	-0.019***	-0.042***	-0.041***
	(0.000)	(0.000)	(0.000)	(0.753)	(0.000)	(0.033)	(0.000)	(0.000)	(0.796)	(0.000)	(0.000)	(0.000)
Constant	1.696***	1.837***	1.031***	1.333***	2.178***	1.155***	0.915***	1.060***	0.530***	0.721***	1.129***	0.862***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	14,197	14,519	14,597	12,611	14,260	14,393	68,816	76,795	77,190	68,740	75,537	76,184
R-squared	0.282	0.253	0.290	0.260	0.262	0.290	0.081	0.097	0.132	0.120	0.113	0.113

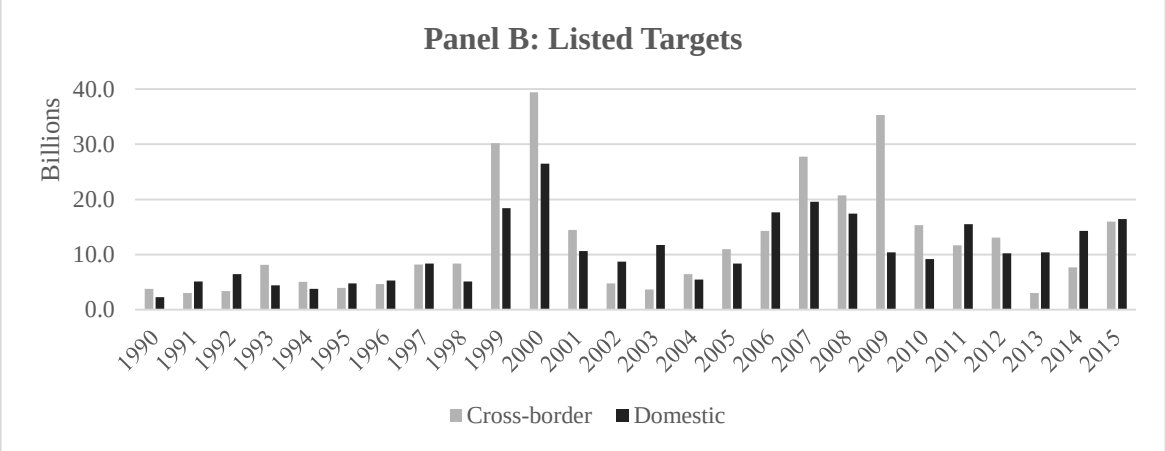
Panel B: Bidder-target country information quality differences

Variables	(1) ADI	(2) ASDI	(3) Transparency	(4) WGI	(5) WEF	(6) Audit	(7) ADI	(8) ASDI	(9) Transparency	(10) WGI	(11) WEF	(12) Audit
Information (B-T)	0.073***	0.270***	0.156***	0.132***	0.028***	0.017***	0.017***	-0.005	0.073***	0.090***	0.014***	0.006***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.610)	(0.000)	(0.000)	(0.000)	(0.000)
Information (T)	-0.130***	-0.321***	-0.369***	-0.253***	-0.043***	-0.035***	-0.067***	-0.065***	-0.179***	-0.144***	-0.023***	-0.015***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Target high-tech	0.029**	0.023*	0.047***	0.014	0.021*	0.038***	0.033***	0.029***	0.038***	0.026***	0.031***	0.032***
	(0.016)	(0.058)	(0.000)	(0.284)	(0.085)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Diversifying	0.078***	0.092***	0.072***	0.091***	0.093***	0.073***	0.042***	0.049***	0.035***	0.048***	0.047***	0.041***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Experience	0.021***	0.022***	0.023***	0.024***	0.021***	0.028***	-0.003	-0.004*	0.001	0.000	-0.003	-0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.140)	(0.060)	(0.754)	(0.819)	(0.214)	(0.583)
PE-backed	-0.014	-0.020	-0.001	-0.023	-0.018	0.001	-0.027***	-0.043***	-0.020***	-0.031***	-0.036***	-0.033***
	(0.391)	(0.229)	(0.959)	(0.163)	(0.290)	(0.946)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Private target							0.000	-0.017***	-0.010***	-0.021***	-0.014***	-0.017***
							(0.954)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
Cross-border	0.042***	0.092***	0.041***	0.078***	0.097***	0.068***	0.003	0.031***	0.009***	0.015***	0.033***	0.009**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.408)	(0.000)	(0.010)	(0.000)	(0.000)	(0.010)
Relative size	-0.812***	-0.834***	-0.766***	-0.814***	-0.858***	-0.771***	-0.158***	-0.195***	-0.185***	-0.213***	-0.212***	-0.186***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bidder size	-0.032***	-0.041***	-0.034***	-0.046***	-0.042***	-0.037***	0.005***	0.001	0.001	-0.006***	-0.001	0.001
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.311)	(0.386)	(0.000)	(0.276)	(0.298)
Bidder leverage	0.073***	0.072***	0.075***	0.054***	0.063***	0.070***	0.029***	0.027***	0.033***	0.017***	0.023***	0.029***
	(0.000)	(0.000)	(0.000)	(0.004)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bidder R&D	-0.075	-0.228***	-0.025	-0.268***	-0.225***	-0.087	-0.033**	-0.083***	0.008	-0.075***	-0.071***	-0.038***
	(0.217)	(0.000)	(0.681)	(0.000)	(0.001)	(0.153)	(0.018)	(0.000)	(0.575)	(0.000)	(0.000)	(0.007)
a: Bidder low q	0.054***	0.071***	0.028**	0.067***	0.073***	0.040***	0.058***	0.059***	0.052***	0.067***	0.067***	0.042***
	(0.000)	(0.000)	(0.026)	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
b: Bidder high FCF	0.068***	0.065***	0.056***	0.058***	0.058***	0.064***	0.017***	0.014***	0.005	0.004	0.005	0.015***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.246)	(0.324)	(0.267)	(0.000)
a*b	-0.047**	-0.045*	-0.030	-0.043*	-0.050**	-0.037	-0.035***	-0.035***	-0.029***	-0.045***	-0.032***	-0.030***
	(0.045)	(0.059)	(0.190)	(0.086)	(0.038)	(0.112)	(0.001)	(0.000)	(0.002)	(0.000)	(0.001)	(0.001)
Market cap./GDP	0.021*	-0.040***	-0.049***	-0.059***	-0.044***	-0.022**	0.010	-0.043***	-0.036***	-0.038***	-0.026***	-0.035***
	(0.080)	(0.001)	(0.000)	(0.000)	(0.000)	(0.040)	(0.105)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP per capita	-0.037***	-0.065***	0.103***	0.057***	-0.030***	0.073***	-0.042***	-0.075***	0.044***	0.007	-0.034***	-0.017***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.188)	(0.000)	(0.000)
Constant	1.591***	1.842***	0.425***	0.849***	2.239***	0.652***	0.779***	1.081***	0.135**	0.472***	1.119***	0.669***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.017)	(0.000)	(0.000)	(0.000)
Observations	14,071	14,494	14,583	12,608	14,040	14,204	68,345	76,695	77,128	68,730	74,890	75,696
R-squared	0.289	0.253	0.305	0.263	0.265	0.300	0.092	0.098	0.140	0.121	0.115	0.118

Figure 1 Aggregate valuation of minority acquisitions

This figure presents the over-time aggregate valuation of domestic and cross-border minority acquisitions obtained from Thomson's Securities Data Corporation (SDC). Panel A, B and C include all targets, listed (public) targets and unlisted (private and subsidiary) targets, respectively. The sample covers all minority acquisitions whose bidders are from 61 countries over the world. Aggregate valuation is the sum of transaction value from all deals in a year.





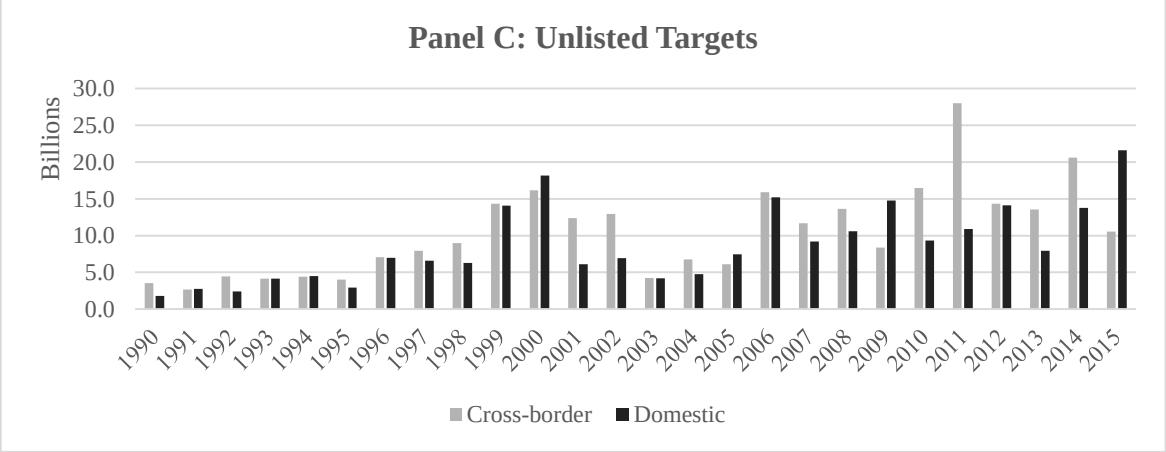
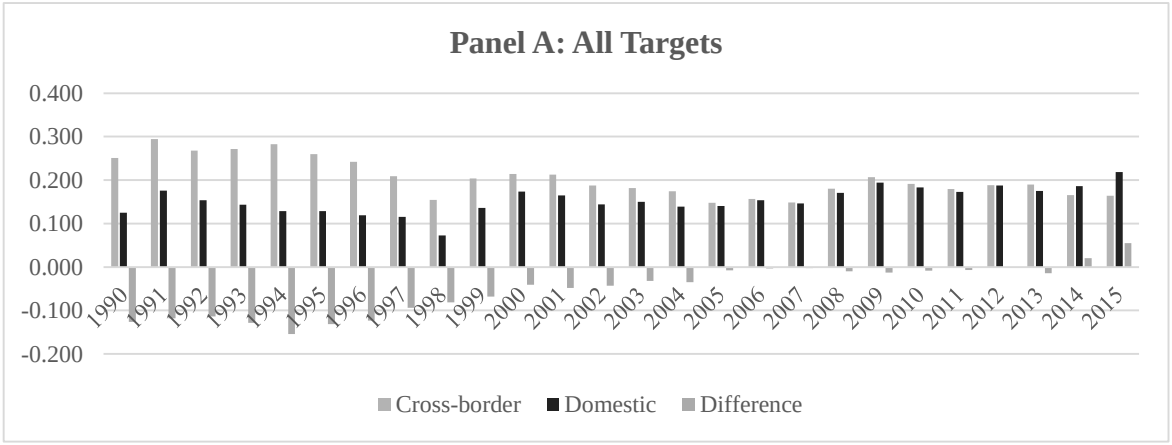
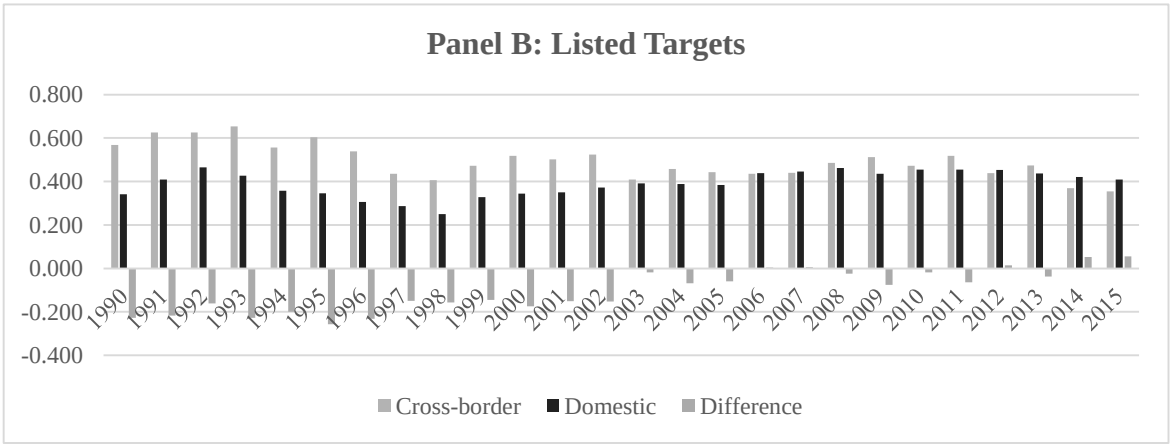


Figure 2 Frequency of minority acquisitions

This figure presents the over-time frequency/likelihood of domestic, cross-border minority acquisitions obtained from Thomson's Securities Data Corporation (SDC), and their difference. Panel A, B and C include all targets, listed (public) targets and unlisted (private and subsidiary) targets, respectively. The sample covers all minority and majority acquisitions whose bidders are from 61 countries over the world. Frequency/likelihood is the percentage of minority acquisitions over all acquisitions in a year.





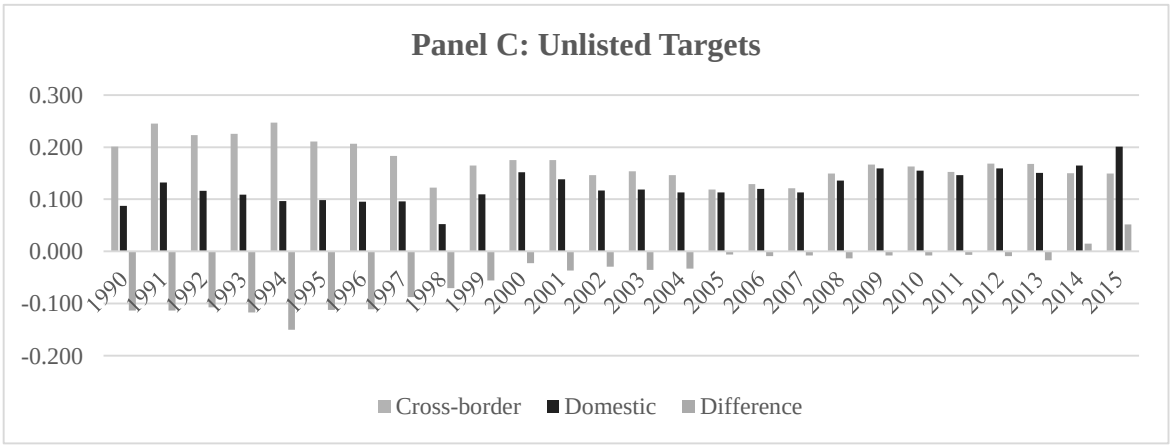


Table 1: Minority acquisitions around the world

This table reports the frequency/likelihood of domestic and cross-border minority acquisitions at bidder country level. The sample covers listed minority and majority acquisitions whose bidders are from 61 countries across the world. Cross-border ratio is the ratio of all cross-border deals to the sum of cross-border and domestic deals. Minority ratio (MA) is the percentage of minority acquisitions over the sum of minority and majority deals. N stands for the number of cross-border or domestic deals in an bidder country.

Country	Cross-border deals		Domestic deals		Transparency
	N	MA ratio	N	MA ratio	
Argentina	56	0.36	25	0.24	0.74
Australia	1496	0.17	4518	0.14	1.62
Austria	96	0.19	22	0.32	1.24
Belgium	272	0.19	58	0.19	1.35
Bermuda	70	0.09	6	0.00	1.43
Brazil	117	0.27	330	0.16	0.81
Canada	3249	0.10	5668	0.11	1.71
Chile	72	0.29	66	0.26	1.20
China	468	0.37	5755	0.38	-0.50
Colombia	23	0.17	17	0.35	0.80
Croatia	3	0.33	2	0.50	0.26
Cyprus	11	0.45	17	0.29	0.28
Czech	4	0.25	2	0.50	0.85
Denmark	135	0.20	73	0.14	1.49
Egypt	20	0.55	23	0.35	-0.25
Finland	191	0.17	161	0.19	1.51
France	952	0.22	669	0.25	1.39
Germany	708	0.25	314	0.20	1.38
Greece	62	0.26	118	0.27	0.60
Hong Kong	631	0.32	393	0.38	0.48
Hungary	21	0.24	9	0.11	0.83
India	384	0.13	518	0.25	0.85
Indonesia	72	0.24	159	0.26	0.10
Ireland	392	0.08	79	0.04	1.60
Israel	264	0.11	162	0.42	1.45
Italy	371	0.21	381	0.23	1.09
Japan	1702	0.51	6559	0.36	1.24
Jordan	2	0.00	7	0.43	-0.24
Korea	449	0.47	2729	0.49	0.94
Kuwait	3	0.00	2	0.50	0.26
Luxembourg	88	0.38	3	0.67	1.26
Malaysia	349	0.39	1120	0.31	0.03
Mauritius	1	1.00	3	0.33	0.67
Mexico	125	0.28	99	0.25	1.09
Morocco	1	1.00	2	0.50	0.18
Netherlands	505	0.14	162	0.14	1.44
New Zealand	141	0.24	122	0.14	1.61
Nigeria	2	0.50	7	0.57	-0.10
Norway	356	0.11	342	0.19	1.47
Oman	3	0.67	9	0.44	-0.64
Peru	21	0.10	44	0.18	0.76
Philippines	61	0.25	136	0.25	0.94
Poland	93	0.22	355	0.26	1.02

Portugal	46	0.46	69	0.35	1.20
Qatar	3	0.33	1	0.00	-0.16
Russia	23	0.39	101	0.37	-0.24
Saudi Arabia	22	0.45	36	0.47	-0.49
Singapore	788	0.40	680	0.35	0.52
Slovenia	6	0.33	5	0.40	0.88
South Africa	241	0.31	543	0.20	0.85
Spain	297	0.30	264	0.24	1.12
Sri Lanka	10	0.20	29	0.34	0.14
Sweden	351	0.17	195	0.13	1.54
Switzerland	453	0.19	71	0.17	1.49
Thailand	124	0.44	558	0.54	0.47
Turkey	30	0.20	151	0.41	0.34
Ukraine	1	0.00	6	0.00	-0.09
United Arab Emirates	13	0.15	9	0.44	-0.28
United Kingdom	4048	0.12	6791	0.04	1.65
United States	6125	0.13	24307	0.06	1.90
Vietnam	2	0.50	100	0.72	-0.99
Total	26625	0.20	65162	0.17	

Table 2: Summary statistics

This table reports the descriptive statistics for the full regression sample of minority, majority and stepping-stone acquisitions across 61 countries. N stands for the number of deals with available information for the corresponding variable.

	Minority deals				Majority deals				Stepping-stone deals			
Variables	**Mean**	**Median**	**Std Dev**	**N**	**Mean**	**Median**	**Std Dev**	**N**	**Mean**	**Median**	**Std Dev**	**N**
High-tech target	0.36	0.00	0.48	16651	0.35	0.00	0.48	75136	0.31	0.00	0.46	1245
Diversifying deal	0.52	1.00	0.50	16651	0.42	0.00	0.49	75136	0.44	0.00	0.50	1245
Experience	3.35	3.04	2.08	16651	3.32	3.18	1.84	75136	4.32	4.17	1.79	1245
PE-backed	0.05	0.00	0.22	16651	0.06	0.00	0.25	75136	0.04	0.00	0.19	1245
Public target	0.33	0.00	0.47	16651	0.12	0.00	0.33	75136	0.53	1.00	0.50	1245
Private target	0.35	0.00	0.48	16651	0.52	1.00	0.50	75136	0.22	0.00	0.41	1245
Subsidiary target	0.31	0.00	0.46	16651	0.36	0.00	0.48	75136	0.25	0.00	0.43	1245
Cross-border deal	0.32	0.00	0.47	16651	0.28	0.00	0.45	75136	0.32	0.00	0.47	1245
Relative size	0.08	0.02	0.18	16651	0.20	0.08	0.25	75136	0.09	0.02	0.19	1245
Bidder size	12.91	12.80	2.70	16651	11.92	12.06	2.71	75136	13.48	13.69	2.79	1245
Bidder leverage	0.24	0.21	0.27	16651	0.23	0.17	0.36	75136	0.26	0.23	0.27	1245
Bidder R&D	0.01	0.00	0.05	16651	0.03	0.00	0.08	75136	0.02	0.00	0.05	1245
Bidder low Q	0.30	0.00	0.46	16651	0.18	0.00	0.39	75136	0.32	0.00	0.47	1245
Bidder high cash	0.26	0.00	0.44	16651	0.30	0.00	0.46	75136	0.19	0.00	0.39	1245
Capitalization/GDP	4.41	4.42	0.61	16651	4.61	4.73	0.49	75136	4.39	4.46	0.59	1245
GDP per capita	9.84	10.18	0.96	16651	10.23	10.43	0.74	75136	10.06	10.29	0.77	1245
ADI	3.77	4.00	1.22	13414	4.35	5.00	1.11	69599	3.81	4.00	1.15	1128
ASDI	0.63	0.65	0.19	16449	0.66	0.65	0.18	74865	0.59	0.50	0.20	1235
Transparency	0.92	1.20	0.90	16651	1.50	1.74	0.73	75136	1.17	1.28	0.70	1245
WGI composite	0.71	0.99	0.81	14844	1.15	1.39	0.65	66507	0.95	1.17	0.70	1079
WEF	20.66	21.59	3.47	16141	22.19	22.41	2.68	73656	21.42	21.78	2.87	1191
Audit	18.44	18.00	7.13	16317	21.14	18.00	7.39	74260	17.80	18.00	7.11	1214
Accounting standards	67.64	69.00	7.26	13176	70.63	71.00	6.21	68901	67.72	65.00	7.13	1123
Regulation quality	0.84	0.99	0.76	14844	1.29	1.58	0.63	66507	1.02	1.14	0.66	1079
Enforcement	13.54	15.00	6.55	16317	17.20	21.00	6.23	74260	12.49	10.00	7.10	1214
Kauf	0.87	1.21	0.80	16317	1.29	1.51	0.64	74260	1.08	1.24	0.69	1214
LAP	0.64	0.65	0.23	13293	0.76	0.88	0.22	69036	0.61	0.58	0.23	1111
HOPE	0.06	0.16	1.29	8205	0.56	1.21	1.18	55384	-0.07	0.16	1.33	766
Distance	8.26	8.70	1.15	5232	8.21	8.78	1.11	21292	8.21	8.70	1.16	400
Same language dummy	0.33	0.00	0.47	5232	0.45	0.00	0.50	21292	0.31	0.00	0.46	400
Colony dummy	0.12	0.00	0.33	5232	0.21	0.00	0.41	21292	0.15	0.00	0.36	400

Table 3: Information quality and minority acquisitions

This table presents the estimations from linear probability models for the full sample. Panel A reports models that measure the 6 information quality variables at the country level, and panel B reports models that measure information quality as the difference between bidder and target country (denoted as B-T). The dependent variable is a dummy variable that equals one if the deal is a minority acquisition, and zero otherwise. All models include industry and year dummies. Standard errors are corrected for heteroskedasticity and clustering at the bidder firm level. P-values are reported in parentheses. ***, **, * denotes statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Country-level information quality measures

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	ADI	ASDI	Transparency	WGI	WEF	Audit
Information quality	-0.044***	-0.065***	-0.130***	-0.105***	-0.019***	-0.012***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Target high-tech	0.035***	0.029***	0.038***	0.025***	0.031***	0.034***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Diversifying	0.057***	0.060***	0.051***	0.060***	0.059***	0.054***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Experience	0.002	0.001	0.004*	0.004*	0.002	0.003
	(0.285)	(0.665)	(0.052)	(0.091)	(0.357)	(0.168)
PE-backed	-0.022***	-0.035***	-0.015***	-0.025***	-0.028***	-0.025***
	(0.000)	(0.000)	(0.004)	(0.000)	(0.000)	(0.000)
Public target	0.256***	0.245***	0.257***	0.256***	0.258***	0.245***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Private target	-0.001	-0.017***	-0.011***	-0.020***	-0.014***	-0.015***
	(0.749)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Cross-border	0.011***	0.041***	0.015***	0.021***	0.042***	0.018***
	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Relative size	-0.291***	-0.321***	-0.307***	-0.325***	-0.336***	-0.310***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bidder size	-0.005***	-0.007***	-0.007***	-0.012***	-0.009***	-0.006***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bidder leverage	0.038***	0.038***	0.041***	0.029***	0.036***	0.040***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bidder R&D	-0.063***	-0.093***	-0.028*	-0.090***	-0.085***	-0.062***
	(0.000)	(0.000)	(0.072)	(0.000)	(0.000)	(0.000)
a: Bidder low q	0.069***	0.068***	0.062***	0.071***	0.073***	0.056***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
b: Bidder high FCF	0.024***	0.022***	0.013***	0.014***	0.014***	0.021***
	(0.000)	(0.000)	(0.002)	(0.003)	(0.002)	(0.000)
a*b	-0.037***	-0.038***	-0.031***	-0.045***	-0.034***	-0.033***
	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)	(0.001)
Market cap./GDP	-0.040***	-0.054***	-0.052***	-0.054***	-0.042***	-0.049***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP per capita	-0.050***	-0.073***	0.003	-0.017***	-0.043***	-0.034***
	(0.000)	(0.000)	(0.344)	(0.000)	(0.000)	(0.000)
Constant	1.055***	1.194***	0.606***	0.820***	1.254***	0.926***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	83,013	91,314	91,787	81,351	89,797	90,577
R-squared	0.167	0.156	0.188	0.172	0.168	0.174

Panel B: Bidder-target country information quality differences						
	(1)	(2)	(3)	(4)	(5)	(6)
Variables	ADI	ASDI	Transparency	WGI	WEF	Audit
Information (B-T)	0.024***	0.026**	0.077***	0.091***	0.014***	0.007***
	(0.000)	(0.011)	(0.000)	(0.000)	(0.000)	(0.000)
Information (T)	-0.081***	-0.111***	-0.200***	-0.160***	-0.025***	-0.019***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Target high-tech	0.033***	0.028***	0.039***	0.024***	0.030***	0.032***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Diversifying	0.053***	0.060***	0.045***	0.059***	0.059***	0.051***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Experience	0.002	0.001	0.005**	0.005**	0.002	0.004*
	(0.457)	(0.738)	(0.011)	(0.043)	(0.385)	(0.064)
PE-backed	-0.020***	-0.036***	-0.012**	-0.026***	-0.029***	-0.024***
	(0.000)	(0.000)	(0.028)	(0.000)	(0.000)	(0.000)
Public target	0.248***	0.243***	0.255***	0.258***	0.257***	0.235***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Private target	0.000	-0.017***	-0.009***	-0.020***	-0.013***	-0.017***
	(0.974)	(0.000)	(0.002)	(0.000)	(0.000)	(0.000)
Cross-border	0.010***	0.042***	0.021***	0.030***	0.048***	0.020***
	(0.005)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Relative size	-0.304***	-0.326***	-0.310***	-0.333***	-0.343***	-0.309***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bidder size	-0.004***	-0.007***	-0.007***	-0.013***	-0.009***	-0.006***
	(0.002)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bidder leverage	0.042***	0.038***	0.044***	0.026***	0.034***	0.040***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bidder R&D	-0.027*	-0.096***	0.008	-0.091***	-0.082***	-0.038**
	(0.094)	(0.000)	(0.585)	(0.000)	(0.000)	(0.019)
a: Bidder low q	0.062***	0.065***	0.056***	0.073***	0.074***	0.045***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
b: Bidder high FCF	0.026***	0.021***	0.011**	0.011**	0.011**	0.022***
	(0.000)	(0.000)	(0.013)	(0.018)	(0.011)	(0.000)
a*b	-0.037***	-0.037***	-0.029***	-0.043***	-0.034***	-0.031***
	(0.000)	(0.000)	(0.002)	(0.000)	(0.000)	(0.001)
Market cap./GDP	0.014**	-0.043***	-0.039***	-0.042***	-0.031***	-0.035***
	(0.023)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP per capita	-0.042***	-0.076***	0.054***	0.016***	-0.033***	-0.003
	(0.000)	(0.000)	(0.000)	(0.002)	(0.000)	(0.377)
Constant	0.910***	1.216***	0.162***	0.507***	1.247***	0.677***
	(0.000)	(0.000)	(0.003)	(0.000)	(0.000)	(0.000)
Observations	82,416	91,189	91,711	81,338	88,930	89,900
R-squared	0.178	0.156	0.197	0.173	0.170	0.180

Table 4: Stepping-stone acquisitions

This table presents the estimations from linear probability models using the full sample. The dependent variable is a dummy variable that equals one if the deal is a stepping stone acquisition (minority followed by a majority), and zero if a majority acquisition. Panel A reports models that measure the information quality variables at the country level, and panel B reports models that measure information quality as the difference between bidder and target country. All models include industry and year dummies. Standard errors are corrected for heteroskedasticity and clustering at the bidder firm level. P-values are reported in parentheses. ***, **, * denotes statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Country-level information quality measures

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	ADI	ASDI	Transparency	WGI	WEF	Audit
Information quality	-0.007***	-0.026***	-0.019***	-0.012***	-0.002***	-0.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Target high-tech	-0.000	-0.001	0.001	-0.001	-0.000	0.000
	(0.868)	(0.602)	(0.597)	(0.462)	(0.767)	(0.971)
Diversifying	0.002*	0.003**	0.002	0.003**	0.003**	0.002*
	(0.088)	(0.021)	(0.218)	(0.045)	(0.025)	(0.069)
Experience	0.004***	0.004***	0.005***	0.005***	0.004***	0.005***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
PE-backed	-0.004**	-0.005***	-0.002	-0.004**	-0.004**	-0.003
	(0.047)	(0.008)	(0.235)	(0.032)	(0.039)	(0.114)
Public target	0.076***	0.077***	0.079***	0.079***	0.077***	0.078***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Private target	-0.001	-0.002**	-0.002	-0.002*	-0.002*	-0.002*
	(0.196)	(0.047)	(0.128)	(0.078)	(0.087)	(0.090)
Cross-border	-0.003**	0.001	-0.001	0.000	0.002*	-0.002
	(0.038)	(0.296)	(0.540)	(0.931)	(0.075)	(0.217)
Relative size	-0.044***	-0.044***	-0.043***	-0.043***	-0.045***	-0.043***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bidder size	-0.002***	-0.002***	-0.002***	-0.003***	-0.002***	-0.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bidder leverage	0.007***	0.005***	0.006***	0.005***	0.005***	0.006***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bidder R&D	0.006	-0.001	0.008**	0.001	-0.001	0.002
	(0.171)	(0.892)	(0.046)	(0.738)	(0.774)	(0.549)
a: Bidder low q	0.014***	0.015***	0.015***	0.016***	0.016***	0.014***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
b: Bidder high FCF	0.003**	0.002*	0.001	0.001	0.001	0.002*
	(0.016)	(0.090)	(0.312)	(0.454)	(0.313)	(0.100)
a*b	-0.012***	-0.012***	-0.011***	-0.011***	-0.011***	-0.011***
	(0.001)	(0.001)	(0.002)	(0.003)	(0.002)	(0.002)
Market cap./GDP	-0.015***	-0.013***	-0.015***	-0.016***	-0.014***	-0.014***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP per capita	-0.004***	-0.005***	0.007***	0.002*	-0.000	0.003**
	(0.001)	(0.000)	(0.000)	(0.064)	(0.758)	(0.020)
Constant	0.158***	0.144***	0.049***	0.091***	0.134***	0.086***
	(0.000)	(0.000)	(0.004)	(0.000)	(0.000)	(0.000)
Observations	67,288	72,283	72,537	64,001	71,115	71,694
R-squared	0.054	0.052	0.056	0.053	0.051	0.055

Panel B: Bidder-target country information quality differences

Variables	(1) ADI	(2) ASDI	(3) Transparency	(4) WGI	(5) WEF	(6) Audit
Information (B-T)	0.005***	0.017***	0.012***	0.012***	0.002***	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Information (T)	-0.013***	-0.038***	-0.028***	-0.013***	-0.002***	-0.003***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Target high-tech	-0.000	-0.001	0.001	-0.001	-0.000	-0.000
	(0.827)	(0.514)	(0.530)	(0.456)	(0.764)	(0.967)
Diversifying	0.002	0.003**	0.001	0.003**	0.003**	0.002
	(0.141)	(0.017)	(0.389)	(0.045)	(0.018)	(0.113)
Experience	0.004***	0.004***	0.005***	0.005***	0.004***	0.005***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
PE-backed	-0.004*	-0.005***	-0.002	-0.004**	-0.004**	-0.003
	(0.060)	(0.005)	(0.358)	(0.032)	(0.046)	(0.165)
Public target	0.075***	0.077***	0.079***	0.079***	0.075***	0.077***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Private target	-0.001	-0.002*	-0.001	-0.002*	-0.002*	-0.002
	(0.371)	(0.067)	(0.202)	(0.078)	(0.084)	(0.110)
Cross border	-0.003**	0.002	-0.000	0.000	0.002	-0.002
	(0.035)	(0.158)	(0.931)	(0.866)	(0.181)	(0.279)
Relative size	-0.047***	-0.045***	-0.044***	-0.043***	-0.044***	-0.044***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bidder size	-0.001***	-0.002***	-0.002***	-0.003***	-0.002***	-0.002***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bidder leverage	0.008***	0.005***	0.007***	0.005***	0.005***	0.006***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bidder R&D	0.010**	-0.001	0.012***	0.001	-0.001	0.005
	(0.019)	(0.773)	(0.004)	(0.743)	(0.796)	(0.165)
a: Bidder low q	0.013***	0.014***	0.014***	0.016***	0.016***	0.012***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
b: Bidder high FCF	0.003**	0.002	0.001	0.001	0.001	0.002*
	(0.010)	(0.119)	(0.442)	(0.472)	(0.330)	(0.091)
a*b	-0.012***	-0.011***	-0.011***	-0.011***	-0.012***	-0.011***
	(0.001)	(0.001)	(0.002)	(0.003)	(0.001)	(0.002)
Market cap./GDP	-0.007**	-0.010***	-0.013***	-0.016***	-0.014***	-0.011***
	(0.012)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP per capita	-0.003***	-0.005***	0.014***	0.003	-0.000	0.009***
	(0.010)	(0.000)	(0.000)	(0.211)	(0.713)	(0.000)
Constant	0.140***	0.149***	-0.012	0.087***	0.128***	0.038**
	(0.000)	(0.000)	(0.573)	(0.000)	(0.000)	(0.044)
Observations	66,884	72,183	72,466	63,997	70,460	71,174
R-squared	0.056	0.052	0.057	0.053	0.050	0.056

Table 5: Moderating effects

This table presents the estimations from linear probability models for the full sample. An information quality measure equals one if it is below sample median, and equals zero otherwise. The dependent variable is a dummy variable that equals one if the deal is a minority acquisition, and zero otherwise. All models include industry and year dummies. Standard errors are corrected for heteroskedasticity and clustering at the bidder firm level. P-values are reported in parentheses. ***, **, * denotes statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	ADI	ASDI	Transparency	WGI	WEF	Audit
Target high-tech	0.030***	0.016***	0.028***	0.019***	0.022***	0.026***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Diversifying	0.039***	0.044***	0.034***	0.050***	0.042***	0.055***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Experience	-0.002	-0.004**	-0.002	0.003	0.000	-0.001
	(0.298)	(0.021)	(0.381)	(0.107)	(0.832)	(0.532)
PE-backed	-0.014***	-0.038***	-0.018***	-0.001	-0.017***	-0.029***
	(0.005)	(0.000)	(0.000)	(0.884)	(0.001)	(0.000)
Information (=1 if <median)	0.086***	-0.008	0.117***	0.100***	0.148***	0.077***
	(0.000)	(0.144)	(0.000)	(0.000)	(0.000)	(0.000)
* Target high-tech	0.027***	0.049***	0.020***	0.007	0.055***	0.029***
	(0.000)	(0.000)	(0.001)	(0.248)	(0.000)	(0.000)
* Diversifying	0.030***	0.039***	0.032***	0.021***	0.027***	0.007
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.308)
* Experience	0.020***	0.025***	0.015***	-0.002	0.018***	0.015***
	(0.000)	(0.000)	(0.000)	(0.335)	(0.000)	(0.000)
* PE-backed	-0.007	0.015	-0.013	-0.055***	-0.017	-0.012
	(0.546)	(0.176)	(0.180)	(0.000)	(0.196)	(0.482)
Public target	0.246***	0.234***	0.237***	0.246***	0.240***	0.240***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Private target	0.003	-0.016***	-0.010***	-0.021***	-0.012***	-0.016***
	(0.324)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
Cross-border	0.030***	0.050***	0.022***	0.032***	0.049***	0.027***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bidder size	-0.266***	-0.308***	-0.296***	-0.323***	-0.300***	-0.311***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Relative size	-0.003***	-0.005***	-0.004***	-0.011***	-0.007***	-0.005***
	(0.004)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bidder leverage	0.039***	0.039***	0.043***	0.027***	0.037***	0.039***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bidder R&D	-0.031**	-0.071***	-0.010	-0.091***	-0.027*	-0.065***
	(0.048)	(0.000)	(0.503)	(0.000)	(0.083)	(0.000)
a: Bidder low q	0.056***	0.057***	0.046***	0.062***	0.041***	0.058***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
b: Bidder high FCF	0.020***	0.023***	0.018***	0.017***	0.013***	0.024***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.000)
a*b	-0.030***	-0.032***	-0.030***	-0.043***	-0.022**	-0.035***
	(0.001)	(0.001)	(0.001)	(0.000)	(0.014)	(0.000)
Market cap./GDP	-0.026***	-0.043***	-0.031***	-0.051***	-0.020***	-0.047***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP per capita	-0.050***	-0.074***	-0.045***	-0.053***	-0.032***	-0.059***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	0.753***	1.114***	0.720***	1.014***	0.601***	0.933***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	83,013	91,314	91,787	81,351	89,797	90,577
R-squared	0.181	0.165	0.186	0.167	0.194	0.167

Table 6: Determinants of minority acquisitions in cross-border deals

This table presents the estimations from linear probability models for cross-border deals using (1) full sample, (2) listed targets, and (3) unlisted targets. The dependent variable is a dummy variable that equals one if the deal is a minority acquisition, and zero otherwise. All models include industry and year dummies. Standard errors are corrected for heteroskedasticity and clustering at the bidder firm level. P-values are reported in parentheses. ***, **, * denotes statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)
Variables	All	Listed	Unlisted
Distance	0.010***	0.025***	0.006**
	(0.000)	(0.000)	(0.019)
Same language	-0.057***	-0.135***	-0.043***
	(0.000)	(0.000)	(0.000)
Colony	-0.052***	-0.042**	-0.053***
	(0.000)	(0.038)	(0.000)
Target high-tech	0.031***	0.026	0.034***
	(0.000)	(0.260)	(0.000)
Diversifying	0.042***	0.021	0.040***
	(0.000)	(0.214)	(0.000)
Experience	0.004	0.025***	-0.000
	(0.208)	(0.000)	(0.931)
PE-backed	-0.052***	-0.054*	-0.062***
	(0.000)	(0.081)	(0.000)
Public target	0.284***		
	(0.000)		
Private target	-0.016***		-0.013**
	(0.003)		(0.016)
Relative size	-0.288***	-0.877***	-0.146***
	(0.000)	(0.000)	(0.000)
Bidder size	-0.008***	-0.054***	0.003
	(0.000)	(0.000)	(0.154)
Bidder leverage	0.047***	0.135***	0.034***
	(0.000)	(0.001)	(0.000)
Bidder R&D	-0.086***	-0.066	-0.091***
	(0.004)	(0.667)	(0.000)
a: Bidder low q	0.108***	0.098***	0.103***
	(0.000)	(0.000)	(0.000)
b: Bidder high FCF	0.012	0.058***	0.003
	(0.123)	(0.009)	(0.680)
a*b	-0.056***	-0.051	-0.056***
	(0.004)	(0.268)	(0.005)
Market cap./GDP	-0.001	0.014	-0.003
	(0.866)	(0.313)	(0.622)
GDP per capita	-0.036***	-0.035***	-0.033***
	(0.000)	(0.002)	(0.000)
Constant	0.584***	1.424***	0.450***
	(0.000)	(0.000)	(0.000)
Observations	26,524	4,208	22,316
R-squared	0.159	0.243	0.078