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# The effects of discriminatory protections on cross-border mergers and acquisitions

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## ABSTRACT

Institutionalized discrimination between foreign and domestic investors exists in many countries. We examine the differential effects of foreign investor protection (FIP) and domestic investor protection (DIP) on cross-border mergers and acquisitions (M&As). To guide our empirical analysis, we first present a model in which, when faced with differentiated FIP and DIP, a firm chooses between investing domestically and investing in a foreign country via M&A. The model predicts that cross-border M&As are more likely to occur when in the target country FIP becomes stronger or DIP becomes weaker. The effects are more pronounced in contract-intensive industries. We then construct a data set of worldwide cross-border M&A deals over the period of 1988–2014 and empirically test the model predictions. Our empirical findings support the theoretical predictions. In addition, we find that the effects are stronger (a) for M&As with larger acquired shares, (b) in target countries farther away from the home countries, and (c) in target countries with better financial development.

## 1. Introduction

The last three decades have witnessed a dramatic increase in cross-border mergers and acquisitions (M&As), with the total value increasing from \$187 billion to \$1.46 trillion between 1988 and 2014.<sup>1</sup> Given the prevalence of cross-border M&As, a nascent strand of literature investigates why firms stretch their boundaries to international market and where specifically they choose to expand. In general, cross-border M&As allow multinationals to exploit their comparative advantages, such as technology (Markusen, 2002). Another strand of literature emphasizes the importance of institutional quality in determining comparative advantages. For example, Nunn (2007) finds that better contract enforcement shifts a country's comparative advantage toward sectors that are more intensive in relationship-specific investments. In this study, we explore the link between the above two strands of literatures but focus on how a host country's institutional quality affects cross-border M&As.

Application of discriminatory clauses and biased enforcement happen now and then around the world. For example, some countries

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are inclined to discriminate against foreign investors, whereas others are not.<sup>2</sup> Two types of institutions exist in general, one providing more protection to domestic investors and the other providing more protection to foreign investors. According to our database, some countries (e.g., Brunei and the Middle East) endeavor to attract FDI but have incompatible attitudes toward domestic investors, whereas some transitional economies (e.g., Ukraine and Belarus) do little to protect foreign multinationals but provide good business environments for domestic firms. For example, Saudi Arabia ranks 39th in foreign investor protection (FIP) but 126th in domestic investor protection (DIP). By contrast, Belarus ranks 11th in DIP but only 120th in FIP.

Although the literature largely ignores variations between these two types of institutions across countries, our paper aims to examine how the variations affect cross-border M&As differently. We first present a simple theoretical model to examine the differential effects of FIP and DIP on cross-border M&As. Our model is similar to that of [Levchenko \(2007\)](#) in that contract enforcement matters more for industries with high contract intensity. [Levchenko \(2007\)](#) shows that countries with better investor protection have comparative advantages in industries with high contract intensity. Different from [Levchenko \(2007\)](#), we examine two types of investor protection, namely, FIP and DIP. Our model predicts that multinationals are more (less) likely to conduct cross-border M&As when the target countries have better FIP (DIP), and the results are stronger for firms requiring substantial relationship-specific investments. The reason is that better FIP enhances the comparative advantage of the (foreign) acquiring firms and thus raises the M&A incentives, whereas better DIP declines the profit of the merged units and hence crowds out the cross-border M&As.

We then test our predictions on a large sample of 81,147 cross-border M&As involving 206 countries and 29 manufacturing industries over the period of 1988–2014. Specifically, we first regress the intensity of cross-border M&As on FIP and DIP at the country level, controlling for a host of country-level determinants of cross-border M&As and a set of fixed effects. We then regress the intensity of cross-border M&As on the interaction between FIP and contract intensity and that between DIP and contract intensity. We find that the estimate of FIP is significantly positive; the estimate of DIP is significantly negative; the interaction term between FIP and contract intensity is significantly positive; and the interaction term between DIP and contract intensity is significantly negative. These findings, consistent with the predictions of the model, indicate that firms, especially in contract-intensive industries, are more likely to be acquired by foreign firms when FIP is stronger. But this is less likely to be the case when DIP is stronger. The economic magnitudes of these effects are substantial. On average, a one-standard-deviation increase in FIP raises cross-border M&As by 32.52% in an industry with the average score of contract intensity, whereas a one-standard-deviation increase in DIP reduces cross-border M&As by 5.54%. In industries of high contract intensity (75th percentile score of contract intensity), a one-standard-deviation increase in FIP raises cross-border M&As by 45.11%, whereas a one-standard-deviation increase in DIP reduces cross-border M&As by 8%. Our results hold with the inclusion of more stringent acquirer-country-year fixed effect, target-country-year fixed effect, and industry-year fixed effect, thereby ruling out explanations based on time-variant differences across acquirer countries, target countries, and industries. Our results also persist when we consider the Poisson Pseudo-Maximum-Likelihood (PPML) model, alternative measures of acquisition intensity, the extent of domestic competition, a set of additional controls, and an alternative sample with only deals in which acquirers buy more than 50% of the target shares.

Our empirical strategy focuses on identifying the heterogeneous effects of investor protection on cross-border M&As in industries with different levels of contract intensity, so our analysis is not vulnerable to potential endogeneity bias (e.g., [Rajan and Zingales, 1998](#)). However, reverse causality may still be a concern, because countries hosting many cross-border M&As in contract-intensive industries may have a strong incentive to develop a good institutional environment for foreign investors and pay less attention to domestic investments. We address this concern by employing an instrumental variable (IV) regression approach. We adopt four instruments, that is, the ethnolinguistic fractionalization (ELF) index of year 1985 ([Roeder, 2001](#)), a dummy indicating more than one official languages, a dummy indicating more than one colonizer, and the average genetic distance. We obtain consistent results.

We also explore how our basic results perform under various environments. We find that the effects of FIP on promoting cross-border M&As and the effects of DIP on reducing cross-border M&As are more pronounced in each of the following cases: (a) when we focus on cross-border M&As with larger foreign shares, (b) when exporting is more costly, as proxied by the costs of international shipping,<sup>3</sup> and (c) when the target countries' financial markets are better developed.

Our work belongs to the growing literature on the economic role of institutions. The seminal paper by [Acemoglu and Johnson \(2005\)](#) emphasizes the respective importance of “property rights institutions” and “contracting institutions” for economic growth. [Nunn \(2007\)](#) and [Levchenko \(2007\)](#) show, theoretically and empirically, that the quality of contract enforcement shapes the patterns of international trade. Existing studies also show that various types of institutions, such as investor protection, intellectual property rights protection, corporate transparency, environmental protection, and anti-corruption, are crucial factors in determining FDI flows ([Glass and Saggi, 2002](#); [Kelley and Woldtke, 2006](#); [Razin and Sadka, 2007](#); [Dean et al., 2009](#); [Lucke and Eichler, 2016](#)). The present study contributes to this literature by investigating how institutionalized discrimination of foreign and domestic investors affects cross-border M&As. The distinguishing feature of our study is our attention to the differential effects of FIP and DIP in contract-intensive industries. Although [Fan and Gao \(2017\)](#) also disentangle two types of creditor rights protection, they focus on the differentiated impacts of FIP and DIP on external private debts in developing countries.

The findings of our study offer new insights into the literature documenting the determinants of cross-border M&A activity. Regarding country-level factors, researchers have studied the links between cross-border M&As and valuation ([Erel et al., 2012](#)),

<sup>2</sup> [Geng and Saggi \(2015\)](#) show that smaller markets have stronger incentives to discriminate against foreign nationals. [Mai and Stoyanov \(2019\)](#) capture an anti-foreign bias that foreign firms have a lower probability of protecting their intellectual property rights in the courts.

<sup>3</sup> [Frésard et al. \(2017\)](#) point out that cross-border M&As are stronger when exporting is relatively more costly. [Nocke and Yeaple \(2007\)](#) show that firms intend to invest across boundaries when export costs are substantial.

culture (Siegel et al., 2011; Ahern et al., 2015), regulation policies (Karolyi and Taboada, 2015), financing (di Giovanni, 2005), and institutions (Rossi and Volpin, 2004; Bris and Cabolis, 2008). Several studies analyze the effects of firm characteristics, such as institutional ownership, and director experience, on the probability and outcomes of cross-border M&As (Ferreira et al., 2010; Field and Mkrtychyan, 2017). Our study is about institutional quality at the country level and thus is more related to Rossi and Volpin (2004) and Bris and Cabolis (2008). Rossi and Volpin (2004) find that target countries with strong investor protection, proxied by accounting standards and shareholder protection, could attract more cross-border M&A inflows. Bris and Cabolis (2008) show that better investor protection in the acquirer’s country is associated with a higher merger premium. We separately examine the discriminatory protections of foreign and domestic investors in the target countries. Our study also emphasizes the importance of contract intensity at the industry level, a topic that is related to recent studies on the role of industry features in cross-border M&As (e.g., Frésard et al., 2017).

The remainder of this paper is organized as follows. Section 2 presents a simple model to demonstrate the underlying mechanisms through which FIP and DIP affect cross-border M&As. Section 3 introduces our empirical strategy and data. Section 4 reports our empirical results. Section 5 contains concluding remarks.

## 2. A simple model

In this section, we present a partial equilibrium model that features monopolistic competition, contracting, and investor protections. The theoretical framework helps us understand the issues and decisions related to cross-border M&As and the results will guide our empirical analysis. We relegate the detailed analysis and proofs of the propositions to the Appendix.

The world consists of two countries: Home and Foreign. Producers in each country produce differentiated varieties in an industry characterized by monopolistic competition. We are interested in how institutions in Home affect cross-border M&As, and, thus, we focus on the Home market. Consumers in Home derive the following constant elasticity of substitution (CES) utility from the consumption of a set of goods  $\Omega$ :

$$U = \left[ \int_{\omega \in \Omega} x(\omega)^{\frac{\sigma-1}{\sigma}} d\omega \right]^{\frac{\sigma}{\sigma-1}},$$

where  $\omega$  indexes varieties in the product set  $\Omega$ ,  $x(\omega)$  is the quantity of variety  $\omega$  consumed, and  $\sigma > 1$  is the elasticity of substitution between varieties. Consumer optimization yields the optimal demand for variety  $\omega$ :

$$x(\omega) = \frac{(p(\omega))^{-\sigma}}{P^{1-\sigma}} Y,$$

where  $p(\omega)$  is the price of variety  $\omega$ ,  $P = \left[ \int_{\omega \in \Omega} p(\omega)^{1-\sigma} d\omega \right]^{\frac{1}{1-\sigma}}$  is the aggregate price index, and  $Y$  represents the total expenditure of the consumers.

There is a set of firms in Foreign. To sharpen our analysis, we assume away the possibility of export and thus, if a Foreign firm wants to serve the Home market, it must do so via FDI, i.e., making investment in Home to produce its variety for that market. Moreover, as we are interested in the impacts of the host country’s institutions on cross-border M&As, we assume that the Foreign firm makes cross-border M&As rather than greenfield investment. The firm needs to pay a fixed acquisition cost,  $b$ , in order to own an equity equal to  $\alpha\%$  of the acquired unit (i.e., the target) in Home.

Production in Home requires labor, capital, and intermediate inputs, with the following production function:

$$Y = \varepsilon \left( \frac{L}{\mu_L} \right)^{\mu_L} \left( \frac{K}{\mu_K} \right)^{\mu_K} \left( \frac{M}{\mu_M} \right)^{\mu_M},$$

where parameters  $\mu_L$ ,  $\mu_K$ , and  $\mu_M$  are positive and  $\mu_L + \mu_K + \mu_M = 1$ ;  $Y$ ,  $L$ ,  $K$ , and  $M$  denote the quantity of output, labor, capital, and intermediate inputs, respectively; and  $\varepsilon$  is a stochastic shock (such as managerial ability) to the firm, which is drawn, after paying the fixed acquisition cost, from the distribution with a mean of one and cumulative distribution  $H(\varepsilon)$ . Intermediate inputs are produced with a bundle of relationship-specific components,  $G$ , and another bundle of components without a specific relationship,  $Z$ , according to the following CES function:

$$M = \left( G^{\frac{\zeta-1}{\zeta}} + Z^{\frac{\zeta-1}{\zeta}} \right)^{\frac{\zeta}{\zeta-1}},$$

where  $\zeta > 1$  is the elasticity of substitution. The two sets of components are produced by respective sets of inputs as

$$G = \left( \int_{\Omega_g} g(l)^{\frac{\theta-1}{\theta}} dl \right)^{\frac{\theta}{\theta-1}} \text{ and } Z = \left( \int_{\Omega_z} z(h)^{\frac{\theta-1}{\theta}} dh \right)^{\frac{\theta}{\theta-1}},$$

where  $\theta > 1$  is the elasticity of substitution;  $\Omega_g$  denotes the set of inputs  $g$ , which is relationship specific; and  $\Omega_z$  denotes the set of

inputs  $z$ , which is not relationship specific. One unit of  $g$  or  $z$  requires  $x$  units of  $L$  and  $y$  units of  $K$ .  $r$  denotes the rental rate for capital, and  $w$  denotes wage payment for unit labor. The rental rate and wage payment are exogenously determined.

Following [Levchenko \(2007\)](#), we assume that when a firm invests an amount of  $K$  to produce the relationship-specific input ( $g$ ), the investment can only recover a fraction,  $\rho$ , of the return. The parameter  $\rho$  captures the quality of contract enforcement in Home: better institutions correspond to a higher value of  $\rho$ . Suppose that when a firm makes capital investment, it is compensated with a share of the surplus (from the production and sales of  $g$ ), which is given by the revenue minus the *ex-post* costs of the factors:  $p_g - wx - r\rho y$ , where  $p_g$  is the price of  $g$ . We assume that *ex post* the owners of  $g$ -good and  $K$  reach a Nash bargaining solution, and each receives one half of the surplus. Then a firm will make the capital investment ( $K$ ) if the following individual rationality constraint holds:  $\frac{1}{2}(p_g - wx - r\rho y) \geq r(1 - \rho)y$ . This implies that the price of  $g$  satisfies  $p_g = wx + r(2 - \rho)y$ .

By contrast, input  $z$  is not relationship specific and thus, a firm that makes investment  $K$  to produce  $z$  is able to recover the whole investment. Hence, the price is  $p_z = wx + ry$ .

### 2.1. Cross-border M&A decision

We now turn to the Foreign firm’s decision. Given the wage rate ( $w$ ), the rental rate ( $r$ ), and the prices of inputs ( $p_g$  and  $p_z$ ), the firm chooses labor  $L$ , capital  $K$ , and the amounts of  $g$  and  $z$  to maximize its profit. The chosen bundles of  $g(l)$  and  $z(h)$  determine  $G$  and  $Z$ , which in turn determine the intermediate input,  $M$ . Based on the above production functions and analysis, we obtain the marginal cost of producing the final variety as

$$c = \frac{1}{\varepsilon} r^{\mu_K} w^{\mu_L} P_M^{\mu_M}, \tag{1}$$

$P_M = (P_G^{1-\varepsilon} + P_Z^{1-\varepsilon})^{\frac{1}{1-\varepsilon}}$  is the price index for the intermediate input,  $M$ , where  $P_G = \left( \int_{\Omega_g} p_g(l)^{1-\theta} dl \right)^{\frac{1}{1-\theta}}$  is the price index for the bundle of relationship-specific inputs, and  $P_Z = \left( \int_{\Omega_z} p_z(l)^{1-\theta} dl \right)^{\frac{1}{1-\theta}}$  is the price index for the bundle of non-relationship-specific inputs.

The above analysis gives the merged unit’s profit as

$$\pi_M = (p - c)x(p) = \frac{1}{\sigma} \left( \frac{\sigma}{\sigma - 1} \frac{1}{\varepsilon} r^{\mu_K} w^{\mu_L} P_M^{\mu_M} \right)^{1-\sigma} \frac{Y}{P^{1-\sigma}}. \tag{2}$$

Thus, the Foreign firm’s profit from cross-border M&As is given by

$$\pi_F = \alpha\pi_M - b = \alpha \frac{1}{\sigma} \left( \frac{\sigma}{\sigma - 1} \frac{1}{\varepsilon} r^{\mu_K} w^{\mu_L} P_M^{\mu_M} \right)^{1-\sigma} \frac{Y}{P^{1-\sigma}} - b. \tag{3}$$

The Foreign firm chooses cross-border M&A if and only if the following condition is met:  $\pi_F > 0$ .

### 2.2. Foreign and domestic investor protections

Assume that differential treatments toward domestic and foreign investors exist in Home. The merged entity is regarded as foreign investment. If foreign investment receives imperfect protection (FIP), the firms working with the merged firm can only obtain a share of the protected revenue through bargaining, which is  $\frac{1}{2}\beta_f(p_g - wx - r\rho y)$ .  $\beta_f \leq 1$  reflects the degree of foreign investor protection. When FIP improves (i.e.,  $\beta_f$  increases), the production cost for the merged firms decreases. If domestic investors also receive imperfect protection (DIP), the protection for firms working with domestic firms is represented by a fraction  $\beta_d \leq 1$ . The input cost for domestic firms decreases if DIP improves (i.e.,  $\beta_d$  increases).<sup>4</sup> The following proposition shows how the two policies affect cross-border M&As, respectively:

**Proposition 1.** *Cross-border M&As are more (less) likely to occur when the target country has better foreign (domestic) investor protection.*

The intuition is clear. Better FIP directly lowers the multinational firm’s cost and thus makes cross-border M&As more profitable. Better DIP lowers the domestic firm’s costs and reduces the aggregate price  $P$ . Strengthening DIP decreases the price of the domestic firm and hence declines the profit of the merged units. As a result, the incentive for cross-border M&As reduces.

Existing studies in the literature (e.g., [Berkowitz et al., 2006](#)) show that good institutions promote relationship-specific investments. However, strong DIP may create a comparative advantage for domestic investors in contract-intensive industries, an advantage that declines the profit of the foreign investors and hence crowds out cross-border M&As.

Next, we examine how the effects of FIP and DIP on cross-border M&As vary across industries. Following [Numm \(2007\)](#), we classify industries by the degree of contract intensity. We specifically define an industry’s contract intensity by

<sup>4</sup> The cost of input,  $g$ , for the merged firm is  $p_{gf} = wx + \frac{2r}{\beta_f}(1 - \rho)y + ry$ ; the cost of input,  $g$ , for the merged firm is  $p_{gd} = wx + \frac{2r}{\beta_d}(1 - \rho)y + ry$ .

**Table 1**  
Summary statistics.

Panel A: Correlation matrix						
	Investment profile	Repudiation expropriation	Enforcement costs		Enforcement procedure	
<i>Investment Profile</i>	1.0000					
<i>Repudiation Expropriation</i>	0.8670	1.0000				
<i>Enforcement Cost</i>	0.5061	0.5409	1.0000			
<i>Enforcement Procedure</i>	0.5292	0.5922	0.8545	1.0000		
Panel B: Summary statistics of key variables						
	Mean	Std. Dev.	P25	P50	P75	#obs
Measures of foreign investor protection (FIP), adjusted to a range of 0–10						
<i>Investment Profile</i>	7.401	0.966	7.190	7.736	8.110	44,637
<i>Repudiation Expropriation</i>	8.858	1.178	7.890	9.505	9.615	43,659
Measures of domestic investor protection (DIP), adjusted to a range of 0–10						
<i>Enforcement Cost</i>	4.999	0.896	4.652	5.132	5.480	44,509
<i>Enforcement Procedure</i>	7.144	2.449	5.790	7.601	8.913	44,509
<i>Contract intensity</i>	0.533	0.198	0.377	0.490	0.740	44,637
<i>MAnumber</i>	1.731	2.476	1	1	2	44,637
<i>ln (MAnumber)</i>	0.297	0.558	0	0	0.693	44,637

Note: Panel A of the table presents the correlation coefficients among the measures of foreign investor protection and domestic investor protection. All coefficients are statistically significant at the 1% level. Panel B reports the summary statistics of each investor protection measure and other key variables.

$$CI = \left( \frac{P_G^{1-\zeta}}{P_G^{1-\zeta} + P_Z^{1-\zeta}} \right). \quad (4)$$

A larger *CI* represents a higher degree of contract intensity. We establish the following proposition.

**Proposition 2.** *When the target country has better FIP, cross-border M&As in industries with a higher degree of contract intensity are more likely to occur than in industries with a lower degree of contract intensity. When the target country has better DIP, the result is reversed.*

Propositions 1 and 2 offer clear hypotheses for our empirical investigations.

### 3. Data and empirical strategy

#### 3.1. Data

##### 3.1.1. Initial M&A sample

Our main source of cross-border M&A data is the Securities Data Company (SDC) Platinum database. We extract all completed cross-border M&A deals occurring between January 1988 and December 2014. For each deal, we collect information about acquirer and target names, acquirer and target nations, announcement and effective dates, transaction value, primary industry of the target, and deal status (i.e., whether or not completed). In line with the literature, we exclude spin-offs, recapitalization, privatization, self-tender offers, and repurchases. We also exclude deals with unknown acquirers or unknown target countries. These procedures yield an initial sample of 191,916 deals, covering 226 target countries.<sup>5</sup>

##### 3.1.2. Proxy for protections for foreign and domestic investors

We construct two indices to measure FIP. The first is the *Investment Profile* index. In the Political Risk Rating category of the International Country Risk Guide (ICRG) data set, the investment profile is a component measuring the government's attitude toward foreign inward investments, and the component also evaluates factors affecting risks associated with foreign investments (Erel et al., 2012; Fan and Gao, 2017). The investment profile component comprises three subcomponents: contract visibility or expropriation, profits repatriation, and payment delays, each of which is valued at a maximum of 4 and a minimum of 0. We construct our *Investment Profile* index by the sum of the values of the three subcomponents and normalize it to a range of [0, 10], with a higher value representing better protection. Data of the three subcomponents are available from 1984 onward. We first calculate the index for each year and then calculate the average over the entire sample period of 1988–2014. We use the average as the value of the *Investment Profile* of a country within this period.

Our second index to measure FIP is called *Repudiation Expropriation* index. In the IRIS data set, constructed by Steve Knack and Philip Keefer in 1993, an index called contract repudiation evaluates the possibility that “a country will modify or repudiate a contract with a foreign business in the form of a repudiation, postponement, or scaling down,” and an index called expropriation risk measures

<sup>5</sup> We only keep deals with a “completed” status.

the risk of “outright confiscation and forced nationalization of foreign property.”<sup>6</sup> Each index has a value from 0 to 10, with higher values corresponding to lower risks. The IRIS data set provides the indices only up to 1997 (starting from 1988). Our *Repudiation Expropriation* index is the average of these two indices and takes a value from 0 to 10. We calculate the *Repudiation Expropriation* for each country in each year and use the time average of the period 1988–1997 to represent the value of *Repudiation Expropriation* for our sample period.

The above two indices of FIP, namely, *Investment Profile* and *Repudiation Expropriation*, are highly correlated, with a correlation 0.8670 across countries, as shown in Panel A of Table 1.

We now introduce our measures of DIP. The World Bank Doing Business database (WBDB) contains information about each country’s regulatory environment applying to small and medium-sized domestic firms. The World Bank gathers data from questionnaire responses to specially designed case scenarios involving wholly domestic-owned parties. One element of the regulatory environment is *Enforcement Costs*, which include attorney fees, court costs, and other enforcement costs that plaintiffs must advance to enforce the judgment. The enforcement costs are recorded as the percentage of the claim value.<sup>7</sup> Another element of the regulatory environment is *Enforcement Procedure*, which measures the average number of procedures required to enforce a contract. These two enforcement indices are widely used in the literature to measure the quality of the home country’s judicial and contractual environment. These indices assess the strength of private contract enforcement (e.g., Nunn, 2007; Acemoglu et al., 2009; Houston et al., 2012; Frésard et al., 2017, among others), and we use them to represent the degree of DIP. Data are available from 2004 to 2011. In line with our FIP measures, we also scale each of the two measures into a range of [0, 10] and take the time average to represent the entire sample period. A higher value corresponds to better protection. Table 1 shows that these two measures of DIP are strongly correlated across countries, with a coefficient of 0.8545.

Firms in developing countries often face an extremely time-consuming and costly process to enforce contracts; however, their governments might have low willingness to implement the relevant rules and accordingly, several firms can exploit their resources to sidestep *de jure* regulation. Because of this, the WBDB database receives criticisms for its inability to reflect *de facto* regulatory conditions (e.g., Hallward-Driemeier and Pritchett, 2015).<sup>8</sup> We recognize that some entities, like large, politically connected, or state-owned firms that have sufficient resources, can develop alternative ways to alleviate the adverse effect of poor contracting institutions (Acemoglu and Johnson, 2005), but the firms covered in the WBDB are not those types of entities. The enforcement contract indices are constructed based on the estimates of experts, like accountants or lawyers, on time and costs for a “hypothetical firm”, that is, a firm that is domestically owned, has 10–50 employees, and is operated in the largest (or second largest) city. Hence, the experts’ estimates are not applicable to either multinational firms or even large and state-owned domestic firms. Accordingly, we believe foreign investors are not directly exposed to our DIP measures. The measures portray the regulatory environment faced by domestic small- and middle-size investors, which representing the majority of domestic firms and are the key driver of economic growth in developing countries.<sup>9</sup>

One motivation of this study comes from the observation that a country with strong FIP may not have strong DIP, and vice versa. This observation is confirmed by the aforementioned protection indices. Table 1 shows that the correlation coefficients between variables of FIP and DIP display a relatively low value (approximately 0.5). For example, Cyprus has very strong FIP, ranking 17th in terms of *Investment Profile* index, but very low DIP, ranking 118th in terms of *Enforcement Costs*. By contrast, Belarus ranks 11th and 120th in DIP and FIP, respectively. Panel B of Table 1 presents summary statistics for the indices.

### 3.1.3. Measure of industrial contract intensity

In constructing contract intensity, Nunn (2007) follows Rauch (1999) to classify industries into three categories: (1) products sold on organized exchange (e.g., oil), (2) products sold on reference price (e.g., fertilizer), and (3) products sold on neither (e.g., motor vehicle). If goods are sold on an organized exchange, the existence of many sellers and buyers limits the scope of holdup problems. If goods have reference prices, there is no room for bargaining. In category 3, however, goods have a high level of relationship specificity and contract enforcement is crucial for transactions. Based on this categorization, Nunn (2007) calculates the measure of contract intensity, *Contract*, to capture the relationship specificity for each final good, *i*, as follows:

<sup>6</sup> The two definitions are taken from the “IRIS-3 File of International Country Risk Guide (ICRG) Data.”

<sup>7</sup> In line with the FIP, we normalize the two indices of DIP to a range of [0, 10], with higher values representing better protection. For each country, we use the following formula for scaling:  $\frac{V_{max} - original\ value}{V_{max} - V_{min}} \times 10$ .  $V_{max}$  and  $V_{min}$  correspond to the values at 1.5 standard deviations above and below the full sample averages, respectively. Countries with original DIP values outside the range of  $[V_{min}, V_{max}]$  are assigned values of 0 or 10 accordingly.

<sup>8</sup> We thank an anonymous reviewer for raising the concern.

<sup>9</sup> Hallward-Driemeier and Pritchett (2015) propose the use of another database, the World Bank Enterprise Survey, to measure the *de facto* regulation. This database collects the firm survey data using either questionnaire or face-to-face interview. However, the Enterprise Survey does not well suit our study. On the one hand, the survey includes both domestic firm and foreign firms, so it does not allow us to disentangle DIP from FIP. On the other hand, the variations in firms’ response to surveyed questions are very large in the Enterprise Survey, that is, more noise exists, whereas the estimates from different experts in WBDB are relatively close. Thus, the WBDB indicators are more likely to reflect the extent of regulatory environment faced by a “standard” domestic firm. In addition, as the concern that WBDB indicators cannot characterize the *de facto* regulatory requirements is mainly due to variations in the effectiveness and willingness of the governments to enforce rules across countries, we perform an additional robustness check in the Appendix Table B1 by incorporating the “government effectiveness” indicator from World Governance Indicator (WGI) and its interaction with industrial contract intensity into our baseline model. We find that an effective government will induce more cross-border M&A flows and more importantly, the effects of FIP and DIP remain robust to the inclusion of government effectiveness.

**Table 2**  
Simple comparisons.

	(1)	(2)	(3)
<b>Panel A: Investment profile</b>			
	Strong protection	Weak protection	Difference
High intensity	0.4352	0.2520	0.1832***
Low intensity	0.2592	0.1650	0.0942***
Difference	0.1760***	0.0870***	
<b>Panel B: Repudiation Expropriation</b>			
	Strong protection	Weak protection	Difference
High intensity	0.4345	0.2455	0.1890***
Low intensity	0.2502	0.1723	0.0779***
Difference	0.1843***	0.0731***	
<b>Panel C: Enforcement Cost</b>			
	Strong protection	Weak protection	Difference
High intensity	0.3301	0.3609	-0.0308***
Low intensity	0.1985	0.2122	-0.0137***
Difference	0.1316***	0.1486***	
<b>Panel D: Enforcement Procedure</b>			
	Strong protection	Weak protection	Difference
High intensity	0.3300	0.3610	-0.0311***
Low intensity	0.1984	0.2124	-0.0140***
Difference	0.1316***	0.1486***	

Note: Each number in the table is the mean value of  $\ln(MA_{number}_{sijt})$  in each category during the whole sample period. High (low) contract intensity represents target industries with contract intensity above (below) the median of the full sample. Strong (weak) protection represents countries which have protection level of the corresponding measure higher (lower) than the median value of all countries in the sample. Column (3) shows the difference between columns (1) and (2), and row (3) in each panel shows the difference between rows (1) and (2), with \*\*\*, \*\*, and \* denoting statistical significance at the 1%, 5%, and 10% levels, respectively.

$$Contract = \sum_k \delta_{ki} R_k^{neither}$$

where  $\delta_{ki}$  is the ratio of the value of input  $k$  used in industry  $i$  to the total value of all inputs used in industry  $i$ , and  $R_k^{neither}$  represents the proportion of input  $k$  in category 3, that is, neither sold on an organized exchange nor sold at a reference price. This measure of *Contract* is in line with the definition of contract intensity,  $CI = \frac{P_G^{1-\epsilon}}{P_G^{1-\epsilon} + P_Z^{1-\epsilon}}$ , in our theoretical model. A higher value corresponds to a higher degree of dependence on contract enforcement.

Based on the above definition, Nunn (2007) provides the data of contract intensity according to some categories of industry classifications, including 1997 6-digit NAICS classification, 3-digit ISIC Rev. 2 classification, and 1963 4-digit SIC classification.<sup>10</sup> In our study, we choose the 3-digit ISIC Rev. 2 classification, which includes 29 industries, to avoid many missing values in our country-industry-year M&A data set. We obtain two concordance tables from the United Nations’ website to convert the 4-digit SIC code provided by the SDC database into an ISIC classification.<sup>11</sup>

Consequently, the size of the original sample is reduced to 81,147 acquisitions. We aggregate these deals into a data set of 47,849 observations, each at the level of the acquirer country, the target country, the target industry, and year. We obtain the count and total transaction value on the country-industry-year basis.

### 3.2. Empirical specifications

To empirically disentangle the effect of foreign and domestic investor protections on the acquisition choice of target countries and industries, we test the prediction of Proposition 1 by estimating the following empirical model:

$$\ln(MA_{number}_{sijt}) = \alpha + \beta_1 FIP_j + \beta_2 DIP_j + \gamma X_{ijt} + \delta_i + \rho_s + \sigma_t + \epsilon_{sijt}. \tag{5}$$

To investigate the differential effects of investor protection for different types of industries, we test Proposition 2 by estimating the following specification:

$$\ln(MA_{number}_{sijt}) = \alpha + \beta_3 (FIP_j \times Contract_s) + \beta_4 (DIP_j \times Contract_s) + \gamma X_{ijt} + \delta_i + \theta_j + \rho_s + \sigma_t + \epsilon_{sijt}. \tag{6}$$

<sup>10</sup> See Nunn’s personal website: <https://scholar.harvard.edu/nunn/pages/data-0>.

<sup>11</sup> We exclude M&A deals for which we do not have contract intensity information in the target industries.

**Table 3**  
Effects of investor protections.

		(1)	(2)	(3)	(4)
FIP	<i>Investment Profile</i>	0.0484*** (0.0134)	0.0442*** (0.0128)		
	<i>Repudiation Expropriation</i>			0.0600** (0.0272)	0.0581** (0.0274)
DIP	<i>Enforcement Cost</i>	-0.0281*** (0.0052)		-0.0332*** (0.0066)	
	<i>Enforcement Procedure</i>		-0.0057*** (0.0017)		-0.0087*** (0.0022)
	<i>gdp_pp_s</i>	-0.4275 (0.5971)	-0.4306 (0.5971)	-0.3319 (0.6023)	-0.3342 (0.6015)
	<i>gdp_pp_d</i>	1.2341*** (0.3191)	1.1395*** (0.3102)	0.2047 (0.8662)	0.1196 (0.8701)
	<i>export_ratio</i>	0.8955** (0.3463)	0.8902** (0.3463)	0.9495** (0.3736)	0.9341** (0.3712)
	<i>import_ratio</i>	0.4915 (0.3050)	0.4993 (0.3059)	0.4146 (0.3229)	0.4337 (0.3225)
	Acquirer country FE	Yes	Yes	Yes	Yes
	Industry FE	Yes	Yes	Yes	Yes
	Year FE	Yes	Yes	Yes	Yes
	Observations	43,808	43,808	42,843	42,843
adj. R-sq	0.205	0.204	0.209	0.208	

Note: The dependent variable is  $\ln(MANumber_{sijt})$ , which is calculated as the logarithm of total number of cross-border acquisitions in target industry  $s$  from acquirer country  $i$  to target country  $j$  in year  $t$ . FIP is foreign investor protection, measured by *Investment Profile* in columns (1) and (2), and by *Repudiation Expropriation* in columns (3) and (4), respectively. DIP is domestic investor protection, measured by *Enforcement Cost* in columns (1) and (3) and by the number of *Enforcement Procedure* in columns (2) and (4), respectively. *gdp\_pp\_s* and *gdp\_pp\_d* are GDP per capita of acquirer country and target country, respectively. Import (export) ratio is calculated as the import (export) by the acquirer country from (to) target country scaled by total import (export) of the acquirer country. All regressions include acquirer country, industry, and year fixed effects. Standard errors reported in parentheses are clustered at the acquirer country level. \*\*\* and \*\* denote statistical significance at the 1% and 5% levels, respectively.

In the above two models, the dependent variable is the log value of  $MANumber_{sijt}$ , which is total number of cross-border M&As in target industry  $s$  from acquirer country  $i$  to target country  $j$  in year  $t$ ; <sup>12</sup>  $FIP_j$  is the measure of foreign investor protection in target country  $j$ ;  $DIP_j$  is the measure of domestic investor protection in target country  $j$ ;  $Contract_s$  is the contract intensity of the target industry  $s$ ; and  $X_{ijt}$  is a set of country controls, including gross domestic product (GDP) per capita of acquirer and target countries, bilateral import ratio, and bilateral export ratio. <sup>13</sup> We include an acquirer country fixed effect,  $\delta_i$ , target country fixed effect,  $\theta_j$ , industry fixed effect,  $\rho_s$ , and time fixed effect,  $\sigma_t$ , to control for unobserved macro factors, industry features, and global common economic trend, respectively, that might affect cross-border M&A decisions.

The coefficients of our key interest are  $\beta_1$ ,  $\beta_2$ ,  $\beta_3$ , and  $\beta_4$ . Proposition 1 indicates that  $\beta_1$ , which captures the effect of FIP on cross-border M&As, is positive, and  $\beta_2$ , which captures the effect of DIP on cross-border M&As, is negative.  $\beta_3$  and  $\beta_4$  capture the interaction effect of FIP and contract intensity and that of DIP and contract intensity, respectively, so Propositions 1 and 2 together indicate that  $\beta_3$  is positive and  $\beta_4$  is negative.

Following Erel et al. (2012), we can also run regressions 5 and 6 by replacing the dependent variable by another measure of cross-border M&As, denoted as  $MARatio_{sijt}$ . This new variable is defined as the total number of cross-border M&As from acquirer country  $i$  in target country  $j$  in target industry  $s$  in year  $t$  over the total number of acquisitions from acquirer country  $i$  in year  $t$ .

## 4. Empirical results

### 4.1. Some suggestive evidence

We disaggregate our country-industry-year sample into four subsamples based on contract intensity and investor protection. We define an industry as having high (low) contract intensity if the value of the target industry's contract intensity is above (below) the median value of the full sample. We define a country as having strong (weak) protection in a given type of protection measure if the corresponding protection level is above (below) the median value of the full sample. Table 2 presents the mean value of  $\ln(MANumber_{sijt})$  in each category. Panels A and B handle FIP, and Panels C and D handle DIP.

Panels A and B indicate that (a) firms acquire significantly more firms in countries with strong protection for foreign investors (cf.

<sup>12</sup> Our sample is an unbalanced panel data. If an industry in the specified target country does not receive any M&A investments, then we do not include this industry-year observation into our sample, and, thus,  $MANumber_{sijt}$  is always positive.

<sup>13</sup> We measure bilateral trade using bilateral import ratio and export ratio between a given country pair, where the bilateral import (export) ratio is calculated as the ratio of import (export) by the acquirer country from (to) the target country over the total import (export) of the acquirer country.

**Table 4**  
Benchmark results.

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>FIP × Contract</i>	<i>Investment Profile</i>	0.1623*** (0.0310)	0.1568*** (0.0284)	0.1877*** (0.0319)	0.1804*** (0.0293)				
	<i>Repudiation Expropriation</i>					0.1659*** (0.0369)	0.1652*** (0.0346)	0.1849*** (0.0368)	0.1831*** (0.0344)
<i>DIP × Contract</i>	<i>Enforcement Cost</i>	-0.0330** (0.0155)		-0.0345* (0.0193)		-0.0583*** (0.0166)		-0.0577*** (0.0188)	
	<i>Enforcement Procedure</i>		-0.0068 (0.0059)		-0.0062 (0.0074)		-0.0181*** (0.0046)		-0.0170*** (0.0058)
	<i>gdp_pp_s</i>			-0.5969 (0.6171)	-0.5923 (0.6170)			-0.6030 (0.6174)	-0.5955 (0.6176)
	<i>gdp_pp_d</i>			0.1675 (0.5007)	0.1674 (0.4993)			0.1865 (0.4896)	0.1913 (0.4880)
	<i>export_ratio</i>			0.4116 (0.2504)	0.4109 (0.2503)			0.4074 (0.2507)	0.4069 (0.2506)
	<i>import_ratio</i>			0.5572** (0.2440)	0.5578** (0.2440)			0.5690** (0.2451)	0.5694** (0.2451)
	Acquirer country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Target country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	47,074	47,074	43,806	43,806	45,959	45,959	42,841	42,841	
adj. R-sq	0.217	0.217	0.244	0.244	0.220	0.220	0.248	0.248	

Note: This table reports our benchmark results. The dependent variable is  $\ln(MA_{number}_{sijt})$ , which is calculated as the logarithm of total number of cross-border acquisitions in target industry  $s$  from acquirer country  $i$  to target country  $j$  at year  $t$ . *FIP × Contract* is an interaction term between contract intensity ( $zI$  in Nunn (2007)) and foreign investor protection, measured by *Investment Profile* in columns (1)–(4), and by *Repudiation Expropriation* in columns (5)–(8). *DIP × Contract* is an interaction between contract intensity and domestic investor protection, measured by *Enforcement Cost* in odd columns and by the number of *Enforcement Procedure* in even columns, respectively. All indices are scaled to a range of 0 to 10, with higher values indicating better protection. *gdp\_pp\_s* and *gdp\_pp\_d* are GDP per capita of acquirer country and target country, respectively. Import (export) ratio is calculated as the import (export) by the acquirer country from (to) target country scaled by total import (export) of the acquirer country. All regressions include acquirer country, target country, industry, and year fixed effects. Standard errors reported in parentheses are clustered at the acquirer country level. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

column 1 with column 2), in each type of industry (i.e., high or low contract intensity), and (b) given the level of investor protection, there are more cross-border M&As in industries with high contract intensity than in industries with low contract intensity (by comparing the first row to the second row of each panel). The result from this simple comparison is consistent with our hypothesis that stronger FIP attracts more cross-border M&As, especially in contract-intensive industries.

Panels C and D are based on the two indices of DIP. By comparing columns 1 and 2 in each panel, we find that strong DIP discourages cross-border M&As, as there are more deals in weak protection countries than in strong protection countries, in each type of industries. This observation is in line with the prediction of our model, lending support to increased competition and crowding-out effect. The adverse effect is even stronger in contract-intensive industries and can be observed in the more negative differential in column 3 when high contract intensity industries (row 1) compared with low contract intensity industries (row 2). Next, we turn to rigorous econometric analysis to confirm the above observations.

#### 4.2. Main results

We first run an ordinary least squares (OLS) regression based on model 5. We report the estimation results in Table 3. In the table, *Investment Profile* measures FIP in columns 1 and 2, and *Repudiation Expropriation* represents FIP in columns 3 and 4. The quality of DIP is represented by the measure of *Enforcement Costs* in columns 1 and 3 and by *Enforcement Procedure* in columns 2 and 4. Consistent with the comparison results in Table 2, the results of the multivariate analysis confirm Proposition 1: multinational firms are more likely to make cross-border M&A investments in countries with stronger protection for foreign investors or weaker protection for domestic investors.

Quantitatively, the results in column 1 indicate that a one-standard-deviation increase in *Investment Profile* will raise the log value of acquisitions by 15.72%, but a one-standard-deviation increase in *Enforcement Costs* will decrease acquisitions by 8.47%.<sup>14</sup> The results in column 2 indicate that, a one-standard-deviation increase in *Investment Profile* will raise acquisitions by 14.36%, but a one-standard-deviation increase in *Enforcement Procedure* will decrease acquisitions by 4.70%. The results in column 3 indicate that, a one-standard-deviation increase in *Repudiation Expropriation* will raise acquisitions by 23.76%, but a one-standard-deviation increase in *Enforcement*

<sup>14</sup> Taking 15.72%, for example, the magnitude is calculated by  $\frac{\text{the standard deviation of } Investment\ Profile \times \text{coefficients}}{\text{the mean value of } \ln(MA_{number})}$ , that is,  $\frac{0.9659 \times 0.0484}{0.2974} = 15.72\%$ .

Costs will decrease acquisitions by 10%. The results in column 4 indicate that, a one-standard-deviation increase in *Repudiation Expropriation* will raise acquisitions by 23%, but a one-standard-deviation increase in *Enforcement Procedure* will decrease acquisitions by 7.16%.

Next, we run the regression based on model 6, and Table 4 reports the results.<sup>15</sup> In this table, *Investment Profile* measures FIP in columns 1–4, and *Repudiation Expropriation* represents FIP in columns 5–8. The quality of DIP is represented by the measure of *Enforcement Costs* in odd-numbered columns and by *Enforcement Procedure* in even-numbered columns. The interaction terms of contract intensity with investor protection have strong explanatory power in our estimations. Columns 1–2 and 5–6 do not include control variables but contain acquirer country, industry, and year fixed effects. Columns 3–4 and 7–8 include controls such as the economic development measure of the acquirer and target countries and bilateral trades.

The results support Propositions 1 and 2. In all specifications, the estimated coefficients of the interaction between FIP and contract intensity have positive signs and are statistically different from zero at the 1% level, suggesting that strong protection for foreign investors promotes firms to pursue targets operated in industries with increased reliance on contract enforcement. In contrast, strong protections for domestic investors impede foreign firms from acquiring firms in contract-intensive industries, as revealed by the negative coefficients of the interaction between DIP and contract intensity.<sup>16</sup>

The economic magnitude of the effect of those interactions on cross-border M&As is substantial. Take column 3, for example: when the potential target industry produces the final good with an average contract intensity score (0.5334 is the mean value in our sample), a one-standard-deviation increase in *Investment Profile* of a target country is associated with a 0.0967 increase in the logarithm of the M&A number from a typical acquirer country to the target country in that industry. This effect is economically important ( $0.0967/0.2974 = 32.52\%$ ), because the sample mean of the dependent variable,  $\ln(MA_{number}_{ijt})$ , is 0.2974. Similarly, a one-standard-deviation increase in *Enforcement Costs* of a target country would decrease cross-border M&As from a typical acquiring country by 5.54% in an industry with an average contract intensity score. The results for the control variables are in line with the previous literature (e.g., Erel et al., 2012; Ahern et al., 2015). More developed countries, as measured by GDP per capita, are more likely to attract cross-border M&As; a country-pair with more imports and exports displays more cross-border M&As.

Prior studies have shown that the institutional quality of destination countries can be a source of comparative advantage to attract M&A investments. For example, Davis et al. (2018) adopt a composite measure based on World Governance Indicator (WGI) and find that M&A is more likely to flow into contract-intensive sectors of destination countries with good institutions.<sup>17</sup> Contributing to this literature, our paper disentangles FIP from DIP. Since the indicators provided by most databases, like WGI or the World Bank Enterprise Survey, and the focus of institutional factors in many studies refer to the protection for both domestic and foreign investors,<sup>18</sup> the corresponding results reflect a composite effect combining DIP and FIP. By contrast, we explicitly investigate, theoretically and empirically, the differentiated effects of protection specific to foreign or domestic investors.

### 4.3. Robustness

In this subsection, we conduct several sensitivity tests to ensure the robustness of the benchmark results. Our central focus is on the protection effects in contract-intensive industries, so we next perform our robustness checks based on model 6.

#### 4.3.1. Alternative specifications

OLS estimator receives much criticism in the gravity model, as the presence of many zeros for the dependent variable, that is, zero trade flows, results in biased econometric estimates. J.M.C. Santos Silva and Teneyro (2006) proposes the Poisson Pseudo-Maximum-Likelihood (PPML) model to correct the bias problem from OLS estimator for count data. To ensure the robustness of our findings, we employ the PPML approach and take the number of acquisition deals as the dependent variable in Table 5. All the estimates of PPML are qualitatively similar to those obtained from linear regressions. We again find that strong protection for foreign

<sup>15</sup> We would have liked to simultaneously include the measure of contract intensity and the indices of investor protection, as well as their interaction terms, in our estimation, but then the country and industry fixed effects would have absorbed the single terms.

<sup>16</sup> Standard errors are clustered at the acquirer country level in all estimations. In this way, we posit that the shock to a specific acquirer country will affect all merger activities associated with the acquirer country and the standard errors of all country-pairs involving the specific acquirer country are correlated. If we cluster the standard errors at the country-pair level or at the levels of both acquirer and target countries, the results are basically similar to those clustering the acquirer country level. To save space, we do not tabulate the results which can be provided upon request.

<sup>17</sup> Davis et al. (2018) point out that greenfield investments are less reliant on destination countries' institutions. We also collect the greenfield FDI data from *fDi Markets* database to empirically investigate whether and how DIP and FID affect this mode of FDI. The initial sample encompasses 147,233 greenfield projects over the period of 2003–2014. We then aggregate the data at the source country, destination country, industry, and year level, and run analogous regressions of model 6 by replacing the dependent variable with the number of greenfield investment projects. The unreported results suggest that the effect of DIP and FIP are relatively weak in greenfield sample; for example, two coefficients on DIP interactions have positive signs but others have negative signs, and three out of four coefficients are not statistically significant. The check on greenfield FDI reinforces the argument of Davis et al. (2018) that M&A is more dependent on institutions of host countries than greenfield.

<sup>18</sup> For example, the indicator of “rule of law” in WGI is constructed based on 9 representative sources, among which WMO database provides three indicators: “expropriation”, “state contract alteration”, and “contract enforcement”; the manual book explicitly introduces that, expropriation refers to “the risk that the state or other sovereign political authority will deprive, expropriate, nationalise, or confiscate the assets of private businesses, whether domestic or foreign”; contract enforcement refers to “the risk that the judicial system will not enforce contractual agreements between private-sector entities, whether domestic or foreign”. See details on <http://info.worldbank.org/governance/wgi/Home/Documents>.

**Table 5**  
PPML.

		(1)	(2)	(3)	(4)
<i>FIP</i> × <i>Contract</i>	<i>Investment profile</i>	0.4738*** (0.0973)	0.4588*** (0.0913)		
	<i>Repudiation Expropriation</i>			0.4513*** (0.1085)	0.4461*** (0.1019)
<i>DIP</i> × <i>Contract</i>	<i>Enforcement costs</i>	-0.1194** (0.0533)		-0.1653*** (0.0526)	
	<i>Enforcement procedures</i>		-0.0269 (0.0209)		-0.0478*** (0.0157)
	Controls	Yes	Yes	Yes	Yes
	Acquirer country FE	Yes	Yes	Yes	Yes
	Target country FE	Yes	Yes	Yes	Yes
	Industry FE	Yes	Yes	Yes	Yes
	Year FE	Yes	Yes	Yes	Yes
	Observations	43,806	43,806	42,841	42,841

Note: We adopt Poisson Pseudo-Maximum-Likelihood (PPML) model proposed by E. Santos Silva and Tenreyro (2006) in this table. The dependent variable is total number of cross-border acquisitions in target industry  $s$  from acquirer country  $i$  to target country  $j$  at year  $t$ . *FIP* × *Contract* is an interaction term between contract intensity and foreign investor protection, measured by *Investment Profile* in columns (1) and (2), and by *Repudiation Expropriation* in columns (3) and (4). *DIP* × *Contract* is an interaction between contract intensity and domestic investor protection, measured by *Enforcement Cost* in columns (1) and (3) and by the number of *Enforcement Procedure* in columns (2) and (4), respectively. Standard errors reported in parentheses are clustered at the acquirer country level. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

**Table 6**  
Stringent fixed effects.

		(1)	(2)	(3)	(4)
<i>FIP</i> × <i>Contract</i>	<i>Investment Profile</i>	0.2129*** (0.0390)	0.2032*** (0.0353)		
	<i>Repudiation Expropriation</i>			0.2099*** (0.0448)	0.2058*** (0.0415)
<i>DIP</i> × <i>Contract</i>	<i>Enforcement Cost</i>	-0.0469** (0.0225)		-0.0686*** (0.0226)	
	<i>Enforcement Procedure</i>		-0.0085 (0.0079)		-0.0187*** (0.0060)
	Controls	Yes	Yes	Yes	Yes
	Acquirer country – Year FE	Yes	Yes	Yes	Yes
	Target country – Year FE	Yes	Yes	Yes	Yes
	Industry – Year FE	Yes	Yes	Yes	Yes
	Observations	43,085	43,085	42,136	42,136
	adj. R-sq	0.239	0.238	0.243	0.243

Note: This table report the estimation results by including acquirer-country-year, target-country-year, and industry-year fixed effects. The dependent variable is  $\ln(MA_{sijt})$ , which is calculated as the logarithm of total number of cross-border acquisitions in target industry  $s$  from acquirer country  $i$  to target country  $j$  at year  $t$ . *FIP* × *Contract* is an interaction term between contract intensity and foreign investor protection, measured by *Investment Profile* in columns (1) and (2), and by *Repudiation Expropriation* in columns (3) and (4). *DIP* × *Contract* is an interaction between contract intensity and domestic investor protection, measured by *Enforcement Cost* in columns (1) and (3) and by the number of *Enforcement Procedure* in columns (2) and (4), respectively. Standard errors reported in parentheses are clustered at the acquirer country level. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

investors promotes firms to pursue targets in contract-intensive industries but strong protection for domestic investors impedes them.<sup>19</sup>

We further control for more stringent fixed effects: an acquirer-country-year fixed effect, a target-country-year fixed effect, and an industry-year fixed effect in Table 6. These fixed effects help control for the potential heterogeneous effects of time-varying characteristics of acquirer and target countries, as well as some omitted time-varying factors across industries. We find that the main results hold with the inclusion of these additional fixed effects: the estimated coefficients of the interaction between *FIP* (*DIP*) and contract intensity remain statistically and significantly positive (negative), and the magnitudes are even larger.

<sup>19</sup> We also adopt PPML to estimate model 5 of investigating the effects of *FIP* and *DIP* on the frequency of M&As, and the results in Table B2 show that multinational firms are more likely to make cross-border M&A investments in countries with stronger protection for foreign investors or weaker protection for domestic investors, consistent with those reported in Table 2.

**Table 7**  
Alternative measure of M&A intensity.

		(1)	(2)	(3)	(4)
<i>FIP</i> × <i>Contract</i>	<i>Investment Profile</i>	0.0054** (0.0022)	0.0053** (0.0021)	0.0041* (0.0021)	0.0041* (0.0022)
	<i>Repudiation Expropriation</i>				
<i>DIP</i> × <i>Contract</i>	<i>Enforcement Cost</i>	-0.0042** (0.0017)		-0.0040* (0.0020)	
	<i>Enforcement Procedure</i>		-0.0013* (0.0007)		-0.0013 (0.0009)
	Controls	Yes	Yes	Yes	Yes
	Acquirer country FE	Yes	Yes	Yes	Yes
	Target country FE	Yes	Yes	Yes	Yes
	Industry FE	Yes	Yes	Yes	Yes
	Year FE	Yes	Yes	Yes	Yes
	Observations	43,806	43,806	42,841	42,841
	adj. R-sq	0.676	0.676	0.674	0.674

Note: This table summarizes the estimation results of Eq. (6) by replacing the dependent variable with M&A number ratio, which is calculated as total number of cross-border acquisitions in target industry  $s$  from acquirer country  $i$  to target country  $j$  at year  $t$ , scaled by total number of acquisitions from acquirer country  $i$  at year  $t$ . *FIP* × *Contract* is an interaction term between contract intensity and foreign investor protection, measured by *Investment Profile* in columns (1) and (2), and by *Repudiation Expropriation* in columns (3) and (4). *DIP* × *Contract* is an interaction between contract intensity and domestic investor protection, measured by *Enforcement Cost* in columns (1) and (3) and by the number of *Enforcement Procedure* in columns (2) and (4), respectively. Control variables include GDP per capital of acquirer and target countries, import ratio and export ratio. All regressions include acquirer country, target country, industry, and year fixed effects. Standard errors reported in parentheses are clustered at the acquirer country level. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

#### 4.3.2. Alternative measures of merger activities

The second set of analysis ensures that our results are robust to alternative measures of cross-border M&As. Many studies employ the number of acquisitions to measure country-pair acquisitions (e.g., Hijzen et al., 2008; Frésard et al., 2017), but several other studies use ratio variables to measure acquisition intensity (e.g., Erel et al., 2012; Karolyi and Taboada, 2015). Following the latter group of studies, we replace the dependent variable in model 6 with  $MARatio_{sijt}$ , which is defined in Section 3. Table 7 presents the regression results. Our estimates of *FIP* × *Contract* have significantly positive signs, and those of *DIP* × *Contract* display a negative sign and are statistically significant (except for column 4). Take column 1, for example: for a potential target industry with the average contract intensity, a one-standard-deviation increase in the *Investment Profile* of a target country would increase the ratio of M&A from a typical acquirer country to the target country in that industry by 7.93% on average, whereas a one-standard-deviation increase in *Enforcement Costs* decreases the corresponding M&A ratio by 5.69%. The results are qualitatively consistent with those obtained using the number of cross-border M&As to measure M&A activities.<sup>20</sup>

It is well understood in the literature that direct investment (and thus M&As) differs from portfolio investment in terms of motivations. Cross-border M&As normally have a long-term perspective, so it is conceivable that the quality of investor protection is more important for firms undertaking M&As than those making portfolio investments. Following this logic, we posit that the effects of investor protection come from the M&A deals in which foreign firms acquire a larger share of a domestic firm in the target country. To test this, we re-run regression 6 based on M&A deals in which acquirers buy more than 50% of the target's share. These acquisitions result in foreign-ownership-dominant post-acquisitions. This exercise also allows us to confirm that our results are not driven by small-acquisition-share deals.<sup>21</sup> We report the estimation results in Table 8. The main results still hold. All the estimated coefficients of the interaction terms between *FIP* and *Contract* display significantly positive signs, whereas those for *DIP* and *Contract* show negative signs and significance (with one exception in column 2).

For comparison, we also run regression 6 based on the subsample that consists of all M&A deals with the acquirers purchasing no more than 50% of the target's shares or deals without information about the acquired shares. Not all interactions between *FIP* and *Contract* are statistically significant.<sup>22</sup>

#### 4.3.3. Domestic competition and other controls

Our *DIP* measures might be strongly correlated with the extent of domestic competition.<sup>23</sup> A market with different degrees of

<sup>20</sup> Some studies use the transaction value to measure the cross-border M&A flows (e.g., di Giovanni, 2005). However, the information on the deal value is missing for a substantial number of acquisitions in SDC database; our sample encompasses 81,147 cross-border deals, in which 46,540 deals have no data on transaction value (approximately a proportion of 57%). Therefore, aggregating the value of cross-border acquisitions to obtain an M&A variable might result in measurement errors. Nevertheless, we take the total dollar value of deals as the dependent variable to perform an additional check. The patterns are consistent with those obtained using the number-related measures.

<sup>21</sup> This focus reduces the size of our M&A sample to 56,216 deals.

<sup>22</sup> To save on space, we have not provided a table of the detailed results here. We are happy to provide the details on request.

<sup>23</sup> Thank an anonymous reviewer for the valuable thoughts.

**Table 8**  
Deals with large acquired shares.

		(1)	(2)	(3)	(4)
<i>FIP</i> × <i>Contract</i>	<i>Investment Profile</i>	0.2212*** (0.0345)	0.2128*** (0.0307)		
	<i>Repudiation Expropriation</i>			0.2074*** (0.0402)	0.2033*** (0.0367)
<i>DIP</i> × <i>Contract</i>	<i>Enforcement Cost</i>	-0.0325** (0.0154)		-0.0565*** (0.0170)	
	<i>Enforcement Procedure</i>		-0.0041 (0.0063)		-0.0143*** (0.0044)
	Controls	Yes	Yes	Yes	Yes
	Acquirer country FE	Yes	Yes	Yes	Yes
	Target country FE	Yes	Yes	Yes	Yes
	Industry FE	Yes	Yes	Yes	Yes
	Year FE	Yes	Yes	Yes	Yes
	Observations	33,230	33,230	32,649	32,649
	adj. R-sq	0.268	0.268	0.270	0.270

Note: This table reports the estimation results by calculating  $\ln(MA_{number}_{sijt})$  in the sample of deals that acquirers buy more than 50% of target shares. *FIP* × *Contract* is an interaction term between contract intensity and foreign investor protection, measured by *Investment Profile* in columns (1) and (2), and by *Repudiation Expropriation* in columns (3) and (4). *DIP* × *Contract* is an interaction between contract intensity and domestic investor protection, measured by *Enforcement Cost* in columns (1) and (3) and by the number of *Enforcement Procedure* in columns (2) and (4), respectively. Control variables include GDP per capital of acquirer and target countries, import ratio and export ratio. All regressions include acquirer country, target country, industry, and year fixed effects. Standard errors reported in parentheses are clustered at the acquirer country level. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

**Table 9**  
Domestic competition.

		(1)	(2)	(3)	(4)
<i>FIP</i> × <i>Contract</i>	<i>Investment profile</i>	0.2034*** (0.0383)	0.1971*** (0.0363)		
	<i>Repudiation Expropriation</i>			0.1840*** (0.0388)	0.1804*** (0.0366)
<i>DIP</i> × <i>Contract</i>	<i>Enforcement costs</i>	-0.0523** (0.0232)		-0.0515** (0.0218)	
	<i>Enforcement procedures</i>		-0.0128 (0.0083)		-0.0139** (0.0062)
<i>HHI</i> × <i>Contract</i>		-0.3756*** (0.0705)	-0.3786*** (0.0709)	-0.3609*** (0.0697)	-0.3635*** (0.0701)
	Controls	Yes	Yes	Yes	Yes
	Acquirer country FE	Yes	Yes	Yes	Yes
	Target country FE	Yes	Yes	Yes	Yes
	Industry FE	Yes	Yes	Yes	Yes
	Year FE	Yes	Yes	Yes	Yes
	Observations	32,749	32,749	32,482	32,482
	adj. R-sq	0.274	0.274	0.276	0.276

Note: This table report the estimation results by additionally including an interaction between domestic HHI and contract intensity. The country-level HHI is calculated as a weighted average of industry HHI, where the weight is the ratio of an industry's sales to total sales in a country. See the methodology of calculating HHI in Section 4.3.3. The dependent variable is  $\ln(MA_{number}_{sijt})$ , which is calculated as the logarithm of total number of cross-border acquisitions in target industry *s* from acquirer country *i* to target country *j* at year *t*. *FIP* × *Contract* is an interaction term between contract intensity and foreign investor protection, measured by *Investment Profile* in columns (1) and (2), and by *Repudiation Expropriation* in columns (3) and (4). *DIP* × *Contract* is an interaction between contract intensity and domestic investor protection, measured by *Enforcement Cost* in columns (1) and (3) and by the number of *Enforcement Procedure* in columns (2) and (4), respectively. All regressions include acquirer country, target country, industry, and year fixed effects. Standard errors reported in parentheses are clustered at the acquirer country level. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

competition could be subject to different industrial policies and government support. Meanwhile, domestic competition is expected to impose an impact on cross-border inflows though the direction is ambiguous. On one hand, a more monopolistic market is associated with fewer potential targets for acquisitions, and hence decreases the probability of M&A; as suggested in Bobonis and Shatz (2007) and Desbordes and Wei (2017), a large number of existing domestic firms in an industry might have an agglomeration effect on the location choice of multinational firms. On the other hand, more competitors within an industry decrease the markup and optimal price, and thus reduce the profits of foreign investors after acquisitions.

**Table 10**  
More additional controls.

		(1)	(2)	(3)	(4)
<i>FIP</i> × <i>Contract</i>	<i>Investment profile</i>	0.0661* (0.0355)	0.0599* (0.0346)		
	<i>Repudiation Expropriation</i>			0.0134 (0.0343)	0.0066 (0.0342)
<i>DIP</i> × <i>Contract</i>	<i>Enforcement costs</i>	-0.0888*** (0.0319)		-0.0852*** (0.0313)	
	<i>Enforcement procedures</i>		-0.0338*** (0.0089)		-0.0333*** (0.0090)
<i>capital intensity</i> × <i>capital endowment</i>		-0.0042 (0.0146)	-0.0040 (0.0146)	-0.0073 (0.0140)	-0.0071 (0.0141)
<i>value added</i> × <i>ln per capita GDP</i>		0.0303 (0.0569)	0.0286 (0.0561)	0.0310 (0.0574)	0.0301 (0.0567)
<i>TFP</i> × <i>ln per capita GDP</i>		-1.0958 (0.6997)	-1.1106 (0.6970)	-1.0946 (0.6925)	-1.1090 (0.6906)
<i>capital endowment</i> × <i>Contract</i>		-0.1836*** (0.0673)	-0.1812*** (0.0671)	-0.1951*** (0.0693)	-0.1918*** (0.0690)
<i>ln per capita GDP</i> × <i>Contract</i>		0.1776** (0.0668)	0.1877*** (0.0653)	0.2350*** (0.0859)	0.2450*** (0.0830)
<i>ln private bank credit/GDP ratio</i> × <i>Contract</i>		0.0478 (0.0550)	0.0777 (0.0570)	0.0597 (0.0647)	0.0931 (0.0664)
<i>Industry HHI</i>		-0.0060 (0.0102)	-0.0072 (0.0102)	-0.0055 (0.0103)	-0.0067 (0.0103)
	Baseline Controls	Yes	Yes	Yes	Yes
	Acquirer country FE	Yes	Yes	Yes	Yes
	Target country FE	Yes	Yes	Yes	Yes
	Industry FE	Yes	Yes	Yes	Yes
	Year FE	Yes	Yes	Yes	Yes
	Observations	8057	8057	8057	8057
	adj. R-sq	0.051	0.051	0.051	0.051

Note: We add a set of additional controls in this table, including the interaction between industrial capital intensity and capital endowment, the interaction between the logarithm of GDP per capita and the share of value added, the interaction between the logarithm of GDP per capita and industry TFP growth, interactions of contract intensity with capital endowment, logarithm of GDP per capita, and private bank credit, and country-industry HHI. The dependent variable is  $\ln(MA_{number}_{sijt})$ . *FIP* × *Contract* is an interaction term between contract intensity and foreign investor protection, measured by *Investment Profile* in columns (1) and (2), and by *Repudiation Expropriation* in columns (3) and (4). *DIP* × *Contract* is an interaction between contract intensity and domestic investor protection, measured by *Enforcement Cost* in columns (1) and (3) and by the number of *Enforcement Procedure* in columns (2) and (4), respectively. All regressions include acquirer country, target country, industry, and year fixed effects. Standard errors reported in parentheses are clustered at the acquirer country level. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

To alleviate the potential estimated bias generated by the omission of domestic competition, we construct the Herfindahl-Hirschman Index (HHI) to measure domestic competition at the country-industry and country levels, respectively. Specifically, we collect the financial statement information of listed firms (due to data availability), including sales, total assets, and employment, in all countries in our empirical analysis from the Compustat database. We then calculate the proportion of each firm's sales, assets, and employment in its industry in a specific year, and calculate the industry HHI as follows:  $HHI_{sijt}^m = \sum_{f=1}^F \left( \frac{m_{fsjt}}{\sum_{f=1}^F m_{fsjt}} \right)^2$ ,  $m = sales, assets, employment$ ;  $f = 1, 2, \dots, F$ ;  $F$  is the number of listed firms in industry  $s$  of country  $j$  in year  $t$ . To relate the country-level DIP with domestic competition more compatibly, we calculate a weighted country HHI, denoted as *country HHI* $_{jt}^m$ , where the weight is the ratio of an industry's sales (or total assets, employment) to total sales in a country.

The correlation matrix between the DIP measures and country HHI shows that these two are significantly and negatively correlated, implying that a monopolistic economy is associated with a poor protection for domestic firms. We then augment model 6 by incorporating the interaction between country HHI and contract intensity to conduct sensitivity analysis and report the estimates in Table 9. The results show that multinational firms are less likely to invest in contract-intensive sectors when the target countries have a higher degree of market concentration. More importantly, we find that the effects of FIP and DIP remain strongly robust.<sup>24</sup> In Appendix Table B3, we add a country-industry HHI variable in the estimation, instead of the interaction between country HHI and contract intensity, and the results show that all the estimated coefficients on FIP and DIP are statistically significant at 1% level.

Next, we control for other determinants of cross-border M&As that may be correlated with the DIP measures. Several studies have documented that factor endowment can be a source of comparative advantage (e.g., Romalis, 2004), and hence we control for the

<sup>24</sup> We calculate the HHI variable based on the sales of listed firms in Tables 9, 10 and A3. The results remain unchanged if we adopt the assets-based or employment-based HHI.

**Table 11**  
Endogeneity.

Panel A Second-stage results: dependent variable is $\ln(MA_{number})$		(1)	(2)	(3)	(4)
<i>FIP</i> × <i>Contract</i>	<i>Investment profile</i>	0.4699*** (0.0914)	0.4042*** (0.0676)		
	<i>Repudiation Expropriation</i>			0.4034*** (0.0858)	0.3154*** (0.0579)
<i>DIP</i> × <i>contract</i>	<i>Enforcement costs</i>	-0.3238** (0.1510)		-0.4453** (0.1806)	
	<i>Enforcement procedures</i>		-0.0711* (0.0372)		-0.0947** (0.0401)
	Controls	Yes	Yes	Yes	Yes
	Acquirer country FE	Yes	Yes	Yes	Yes
	Target country FE	Yes	Yes	Yes	Yes
	Industry FE	Yes	Yes	Yes	Yes
	Year FE	Yes	Yes	Yes	Yes
	Observations	43,127	43,127	42,162	42,162
	F statistics	35.45	29.99	25.99	21.89
	<i>p</i> value of over-identification test	0.33	0.21	0.01	0.14
Panel B First-stage results					
	<i>Investment Profile</i> × <i>Contract</i>	<i>Repudiation Expropriation</i> × <i>Contract</i>	<i>Enforcement Cost</i> × <i>Contract</i>	<i>Enforcement Procedure</i> × <i>Contract</i>	
	(1)	(2)	(3)	(4)	
<i>ELF85</i> × <i>Contract</i>	-1.1571*** (0.0660)	-1.5123*** (0.0726)	-1.2976*** (0.1702)	-2.4491*** (0.2393)	
<i>Several languages</i> × <i>Contract</i>	0.3207*** (0.0550)	0.3794*** (0.0448)	0.2727*** (0.1025)	-0.1716 (0.1654)	
<i>Several colonizers</i> × <i>Contract</i>	1.0157*** (0.0383)	0.7326*** (0.0372)	0.3098*** (0.0565)	0.6406*** (0.0867)	
<i>Gene distance</i> × <i>Contract</i>	-15.1457*** (0.8504)	-23.4180*** (0.4162)	-6.3051*** (0.5560)	-15.1511*** (1.4688)	
Controls and FE	Yes	Yes	Yes	Yes	
Observations	43,219	42,254	43,127	43,127	
adj. R-sq	0.991	0.992	0.949	0.982	

Note: This table reports the estimation results of two-stage least square (2SLS) regressions. Panel A reports the second-stage results, where the dependent variable is  $\ln(MA_{number}_{ijt})$ . In Panel B, the dependent variable of the first stage, is the interaction between investor protection and contract intensity, where the measures of investor protection in columns (1) – (4) are the index of *Investment Profile*, *Repudiation Expropriation*, *Enforcement Cost*, and the number of *Enforcement Procedure*, respectively. *ELF85* is ethnolinguistic fractionalization (ELF) Index of year 1985 from Roeder (2001); *Several languages* is a dummy, which is equal to one if the country has more than official language and zero otherwise; *Several colonizer* is a dummy indicating whether the target country has more than one colonizer; *Gene distance* is the average genetic distance of the target country toward other countries worldwide. Control variables include GDP per capital of acquirer and target countries, import ratio and export ratio. Acquirer country, target country, industry, and year fixed effects are included when carrying out IV estimations. Standard errors reported in parentheses are clustered at the acquirer country level. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

interaction between capital endowment and industrial capital intensity to ensure that our FIP and DIP can explain the M&A patterns. High-income economies are likely to attract M&A investments in certain specific industries; accordingly, we follow Nunn (2007) to control for two interactions between country-level economic development and industry characteristics (the share of value added and TFP growth). We further control for a set of interactions between country characteristics, including capital endowment, GDP per capita, and private bank credit, and industrial contract intensity to check whether other factors, rather than FIP and DIP, affect M&A flows into contract-intensive sectors. The results are reported in Table 10. The inclusion of the additional controls does not alter our main findings. The DIP interactions remain negative and statistically significant in all columns.

#### 4.4. Endogeneity

Our regression results are consistent with our theoretical predictions that strong protections for foreign investors promote cross-border M&A flow, but strong protections for domestic investors impede it, and the effects are stronger for contract-intensive industries. However, a potential concern of endogeneity exists. An alternative interpretation of our results is that countries receiving or to receive more cross-border M&As may be incentivized to develop a good institutional environment for foreign investors and to reduce protections for domestic investors.

We adopt the instrumental variable approach to address the above endogeneity issue. Four instruments are chosen. The first is the ethnolinguistic fractionalization (ELF) index of year 1985, computed by Roeder (2001). This index measures the ethnic diversity of

each individual country. Large ethnic diversity indicates that two randomly selected people are less likely to share a common belief or culture, and, thus, a higher value of ELF represents a more fragmented country. Mauro (1995) employs the ELF index as an instrument to demonstrate that ethnic diversity is harmful to a country’s political stability and is associated with more corruption. Thus, we expect that the ELF index is negatively correlated with the extent of DIP, because ethnic diversity leads to more conflicts among different ethnolinguistic groups (Montalvo and Reynal-Querol, 2005). The second instrument is a dummy indicating whether the target country has more than one official language, denoted as *Several languages*.<sup>25</sup> More languages spoken by residents imply that entities are more capable of communicating with foreigners and willing to embrace foreign investments. The third instrument is a dummy indicating whether the target country has more than one colonizer, denoted as *Several colonizers*. Developed countries and colonizers, which are the main players in globalization, typically experience certain privileges in their former colonies; we thus expect the dummy to be positively correlate with the extent of protection for foreign investors. The fourth instrument is the average genetic distance of the target country toward all other countries worldwide, denoted as *Gene distance*. The data of country pairwise genetic distance are collected from E. Spolaore and Wacziarg (2009). The difference in the distribution of allelic frequencies across populations represents an inherent cultural divergence, and we expect that a great genetic distance is negatively correlated with the extent of protection for foreign investors.

Table 11 summarizes the results of the two-stage least squares (2SLS) estimation. The second-stage estimates, which are reported in Panel A, clearly support our findings obtained from the benchmark model. We continue to find that better protections for foreign investors generate a promotion effect, whereas DIP generates a crowding-out effect on the intensity of cross-border M&As. Panel B presents the signs of the estimated coefficients of the four IVs; they are consistent with our expectations. High ELF is associated with a harsh environment for domestic investors, whereas countries with more languages, more colonizers, or less genetic distance toward the world provide better protection for foreign investors. In addition, the F statistics are all above 20, rejecting the hypothesis of weak instruments. The *p* values of the over-identification test are above 0.1 in three out of four columns, implying that the null hypothesis that all instruments are exogenous to the disturbance term cannot be rejected.

To further test the over-identification restrictions, we draw three IVs from our IV pool to carry out the 2SLS estimation in which the remaining IV is taken as the regressor (e.g., Murray, 2006; Bai and Jia, 2016). The results are summarized in Appendix Table B4. Column (1) reports the second-stage estimates by taking the *ELF85* as the explanator and using other three as the IVs; columns (2)–(4) in turn take *Several languages*, *Several colonizers*, and *Gene distance* as the regressor when carrying out the IV estimation. When included among the regressors, the IVs exhibit insignificant coefficients in the second stage results. Moreover, we find that all the coefficients on FIP and most of the coefficients on DIP remain significant. This strategy can be interpreted as one form of over-identification test to support the validity of these variables as the IVs. Stepping further, to ensure that the four IVs do not affect the cross-border merger activities through channels other than the institutional environment, we conduct a set of tests on exclusion restrictions and check whether the four IVs are correlated with several economic factors that might affect mergers. In Table B5, we find no significant association between the IVs and GDP per capita, domestic competition, or financial development. Admittedly, we cannot rule out all possible channels, but the evidence provides further support that our IVs are reasonable. In addition, we add acquirer-country-year, target-country-year, and industry-year fixed effects to control for more unobservable variables when carrying out the IV estimations. The results reported in Table B6 corroborate our arguments that strong FIP promotes multinational firms to pursue targets in contract-intensive industries but strong DIP has an opposite effect.

Overall, the IV approach provides further evidence that protections for both foreign investors and domestic investors, interacted with the contract intensity of the target industry, are important determinants for firms to choose the locations and industries for cross-border M&As.

#### 4.5. Heterogeneous effects

In this subsection, we explore the heterogeneous effects of country-level investor protection and industry-level contract intensity on cross-border M&As for various features of M&As and country characteristics. To this end, we modify our benchmark model 6 as follows:

$$\ln(MA_{number_{sijt}}) = \alpha + \beta_1(FIP_j \times Contract_s \times Feature_{sijt}) + \beta_2(DIP_j \times Contract_s \times Feature_{sijt}) + \gamma_1(FIP_j \times Contract_s) + \gamma_2(DIP_j \times Contract_s) + \gamma_3(FIP_j \times Feature_{sijt}) + \gamma_4(DIP_j \times Feature_{sijt}) + \tau X_{ijt} + \delta_i + \theta_j + \rho_s + \sigma_t + \varepsilon_{sijt}, \tag{7}$$

where *Feature<sub>sijt</sub>* represents a certain type of M&As or country characteristics.

From Table 8, we observe that our primary results mainly hold for the large-acquisition-shares subsample, because the results based on the small-acquisition-shares subsample are not statistically significant. We now further investigate this issue by examining the continuous case. In particular, we choose *Feature<sub>sijt</sub>* to be the mean of acquired shares in all M&A deals (from country *i* to country *j* in industry *s* at time *t*) in model 7. For brevity, Table 12 only reports the results of the triple interaction terms.<sup>26</sup> We find that the

<sup>25</sup> If we adopt a dummy indicating whether two or more languages are spoken by more than 20% of population, the results introduced later remain unchanged.

<sup>26</sup> Other results are available on request. Consistent with the benchmark results, the estimated coefficients of the interactions between foreign (domestic) investor protection and contract intensity are positive (negative).

**Table 12**  
Heterogeneity: Triple interactions with acquired shares.

		(1)	(2)	(3)	(4)
<i>FIP</i> × <i>Contract</i> × <i>Share</i>	<i>Investment Profile</i>	0.0755*** (0.0211)	0.0675*** (0.0188)		
	<i>Repudiation Expropriation</i>			0.0761*** (0.0194)	0.0720*** (0.0171)
<i>DIP</i> × <i>Contract</i> × <i>Share</i>	<i>Enforcement Cost</i>	-0.0357** (0.0139)		-0.0480*** (0.0111)	
	<i>Enforcement Procedure</i>		-0.0064 (0.0062)		-0.0121** (0.0050)
	All double interaction terms	Yes	Yes	Yes	Yes
	Controls	Yes	Yes	Yes	Yes
	Acquirer country FE	Yes	Yes	Yes	Yes
	Target country FE	Yes	Yes	Yes	Yes
	Industry FE	Yes	Yes	Yes	Yes
	Year FE	Yes	Yes	Yes	Yes
	Observations	40,810	40,810	39,977	39,977
	adj. R-sq	0.246	0.245	0.248	0.248

Note: This table reports the estimation results of model 7, where  $Feature_{sijt}$  is *Share*, the mean of acquired shares for deals in target industry  $s$  from acquirer country  $i$  to target country  $j$  in year  $t$ . *FIP* is foreign investor protection, measured by the index of *Investment Profile* in columns (1) and (2), and by *Repudiation Expropriation* in columns (3) and (4); *DIP* is domestic investor protection, measured by *Enforcement Cost* in columns (1) and (3) and by the number of *Enforcement Procedure* in columns (2) and (4), respectively. Control variables include GDP per capital of acquirer and target countries, import ratio and export ratio. All regressions include acquirer country, target country, industry, and year fixed effects. Standard errors reported in parentheses are clustered at the acquirer country level. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

**Table 13**  
Heterogeneity: Triple interactions with geography distance.

		(1)	(2)	(3)	(4)
<i>FIP</i> × <i>Contract</i> × <i>Dist</i>	<i>Investment Profile</i>	0.0826 (0.0710)	0.0759 (0.0815)		
	<i>Repudiation Expropriation</i>			0.1448*** (0.0330)	0.1426*** (0.0285)
<i>DIP</i> × <i>Contract</i> × <i>Dist</i>	<i>Enforcement Cost</i>	-0.0064 (0.1072)		-0.0402 (0.0753)	
	<i>Enforcement Procedure</i>		-0.0006 (0.0437)		-0.0126 (0.0330)
	All double interaction terms	Yes	Yes	Yes	Yes
	Controls	Yes	Yes	Yes	Yes
	Acquirer country FE	Yes	Yes	Yes	Yes
	Target country FE	Yes	Yes	Yes	Yes
	Industry FE	Yes	Yes	Yes	Yes
	Year FE	Yes	Yes	Yes	Yes
	Observations	43,806	43,806	42,841	42,841
	adj. R-sq	0.249	0.249	0.253	0.253

Note: This table reports the estimation results of model 7, where  $Feature_{sijt}$  is *Dist*, a dummy equal to one if the geography distance between the acquirer country and target country is above the sample median and zero otherwise. *FIP* is foreign investor protection, measured by the index of *Investment Profile* in columns (1) and (2), and by *Repudiation Expropriation* in columns (3) and (4); *DIP* is domestic investor protection, measured by *Enforcement Cost* in columns (1) and (3) and by the number of *Enforcement Procedure* in columns (2) and (4), respectively. Control variables include GDP per capital of acquirer and target countries, import ratio and export ratio. All regressions include acquirer country, target country, industry, and year fixed effects. Standard errors reported in parentheses are clustered at the acquirer country level. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

estimated coefficient of the triple interaction terms involving *FIP* (i.e.,  $\beta_1$ ) is significantly positive and that involving *DIP* (i.e.,  $\beta_2$ ) is negative and significant, except in one case. Thus, the effects of investor protections on cross-border M&As are stronger when the M&A deals have a larger acquired share.

Cross-border M&As, which are the most important form of foreign direct investments, are an alternative to producing at home and then exporting to foreign markets. Previous literature has documented that firms have a stronger motive of investing abroad when costs associated with exports are large (Nocke and Yeaple, 2007; Krugman et al., 2011). Accordingly, we propose that the influence of *FIP* and *DIP* on the flows of cross-border M&As is more prominent when trade costs are high.

Following Frésard et al. (2017), we employ the geographic distance for a country-pair as the measure of trade costs and take it as our variable  $Feature_{sijt}$ , which, of course, is invariant to  $s$  and  $t$ . We define  $Feature_{sijt}$  as a dummy variable equal to one if the geographic

**Table 14**  
Heterogeneity: Triple interactions with financial development of target country.

		(1)	(2)	(3)	(4)
<i>FIP</i> × <i>Contract</i> × <i>HighFID</i>	<i>Investment Profile</i>	0.5283*** (0.1084)	0.5297*** (0.1072)		
	<i>Repudiation Expropriation</i>			0.2437*** (0.0385)	0.2553*** (0.0395)
<i>DIP</i> × <i>Contract</i> × <i>HighFID</i>	<i>Enforcement Cost</i>	-0.1345*** (0.0511)		-0.1276** (0.0558)	
	<i>Enforcement Procedure</i>		-0.0284 (0.0179)		-0.0428** (0.0202)
	All double interaction terms	Yes	Yes	Yes	Yes
	Controls	Yes	Yes	Yes	Yes
	Acquirer country FE	Yes	Yes	Yes	Yes
	Target country FE	Yes	Yes	Yes	Yes
	Industry FE	Yes	Yes	Yes	Yes
	Year FE	Yes	Yes	Yes	Yes
	Observations	43,806	43,806	42,841	42,841
	adj. R-sq	0.248	0.248	0.250	0.250

Note: This table reports the estimation results of model 7 where  $Feature_{sijt}$  is *HighFID*, a dummy indicating whether the index of financial development of target country is above/below the sample median. The “financial institutions depth” index (FID) is collected from the updated financial structure dataset described in Beck et al. (2010). *FIP* is foreign investor protection, measured by the index of *Investment Profile* in columns (1) and (2), and by *Repudiation Expropriation* in columns (3) and (4); *DIP* is domestic investor protection, measured by *Enforcement Cost* in columns (1) and (3) and by the number of *Enforcement Procedure* in columns (2) and (4), respectively. Control variables include GDP per capital of acquirer and target countries, import ratio and export ratio. All regressions include acquirer country, target country, industry, and year fixed effects. Standard errors reported in parentheses are clustered at the acquirer country level. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

**Table B1**  
Controlling for government effectiveness.

		(1)	(2)	(3)	(4)
<i>FIP</i> × <i>Contract</i>	<i>Investment profile</i>	0.1739** (0.0693)	0.1745** (0.0692)		
	<i>Repudiation Expropriation</i>			0.2285*** (0.0461)	0.2305*** (0.0466)
<i>DIP</i> × <i>Contract</i>	<i>Enforcement costs</i>	-0.0348* (0.0204)		-0.0446** (0.0211)	
	<i>Enforcement procedures</i>		-0.0079 (0.0063)		-0.0145** (0.0064)
<i>Government effectiveness</i> × <i>Contract</i>		0.0354 (0.0527)	0.0318 (0.0510)	0.0021 (0.0241)	0.0009 (0.0225)
<i>Government effectiveness</i>		0.0039 (0.0547)	0.0081 (0.0541)	0.0650** (0.0278)	0.0666** (0.0277)
	Controls	Yes	Yes	Yes	Yes
	Acquirer country FE	Yes	Yes	Yes	Yes
	Target country FE	Yes	Yes	Yes	Yes
	Industry FE	Yes	Yes	Yes	Yes
	Year FE	Yes	Yes	Yes	Yes
	Observations	31,192	31,192	30,348	30,348
	adj. R-sq	0.249	0.249	0.253	0.253

Note: This table summarizes the estimation results of model 6 by controlling for the government effectiveness indicator and its interaction with contract intensity. The data on *Government effectiveness* is collected from World Governance Indicator database. *FIP* × *Contract* is an interaction term between contract intensity and foreign investor protection, measured by *Investment Profile* in columns (1) and (2), and by *Repudiation Expropriation* in columns (3) and (4). *DIP* × *Contract* is an interaction between contract intensity and domestic investor protection, measured by *Enforcement Cost* in columns (1) and (3) and by the number of *Enforcement Procedure* in columns (2) and (4), respectively. Control variables include GDP per capital of acquirer and target countries, import ratio and export ratio. All regressions include acquirer country, target country, industry, and year fixed effects. Standard errors reported in parentheses are clustered at the acquirer country level. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

distance between the acquirer and target countries is above the sample median and zero otherwise. To save on space, Table 13 reports the results of the estimated coefficients of the triple interactions. Although only the estimated coefficients of the triple interaction with *Repudiation Expropriation* are significant, all the estimates with *FIP* display a positive sign, and those with *DIP* display a negative sign. The results suggest that the promotion effect of *FIP* and the crowding-out effect of *DIP* are stronger when the trading costs are large. For example, according to column 3, a one-standard-deviation increase in *Repudiation Expropriation* would be associated with 0.0909 more in logarithms of M&As on average (a magnitude of  $0.0909/0.2974 = 30.58\%$ , where 0.2974 is the mean value of  $\ln(MA_{number_{sijt}})$ ), for

**Table B2**  
Effects of FIP and DIP: PPML.

		(1)	(2)	(3)	(4)
<i>FIP</i>	<i>Investment profile</i>	0.1365*** (0.0384)	0.1253*** (0.0356)		
	<i>Repudiation Expropriation</i>			0.1397* (0.0734)	0.1331* (0.0723)
<i>DIP</i>	<i>Enforcement costs</i>	-0.0669*** (0.0126)		-0.0739*** (0.0148)	
	<i>Enforcement procedures</i>		-0.0134*** (0.0046)		-0.0182*** (0.0036)
	Controls	Yes	Yes	Yes	Yes
	Acquirer country FE	Yes	Yes	Yes	Yes
	Industry FE	Yes	Yes	Yes	Yes
	Year FE	Yes	Yes	Yes	Yes
	Observations	43,808	43,808	42,843	42,843

Note: We adopt Poisson Pseudo-Maximum-Likelihood (PPML) model to investigate the effects of FIP and DIP in this table. The dependent variable is total number of cross-border acquisitions in target industry  $s$  from acquirer country  $i$  to target country  $j$  in year  $t$ . *FIP* is foreign investor protection, measured by *Investment Profile* in columns (1) and (2), and by *Repudiation Expropriation* in columns (3) and (4), respectively. *DIP* is domestic investor protection, measured by *Enforcement Cost* in columns (1) and (3) and by the number of *Enforcement Procedure* in columns (2) and (4), respectively. All regressions include acquirer country, industry, and year fixed effects. Standard errors reported in parentheses are clustered at the acquirer country level. \*\*\* and \*\* denote statistical significance at the 1% and 5% levels, respectively.

**Table B3**  
Controlling for country-industry HHI.

		(1)	(2)	(3)	(4)
<i>FIP</i> × <i>Contract</i>	<i>Investment profile</i>	0.2228*** (0.0405)	0.2183*** (0.0394)		
	<i>Repudiation Expropriation</i>			0.1944*** (0.0377)	0.1923*** (0.0364)
<i>DIP</i> × <i>Contract</i>	<i>Enforcement costs</i>	-0.0810*** (0.0255)		-0.0729*** (0.0257)	
	<i>Enforcement procedures</i>		-0.0232*** (0.0084)		-0.0216*** (0.0076)
<i>Industry HHI</i>		-0.0960** (0.0431)	-0.0958** (0.0428)	-0.0855** (0.0420)	-0.0855** (0.0419)
	Controls	Yes	Yes	Yes	Yes
	Acquirer country FE	Yes	Yes	Yes	Yes
	Target country FE	Yes	Yes	Yes	Yes
	Industry FE	Yes	Yes	Yes	Yes
	Year FE	Yes	Yes	Yes	Yes
	Observations	32,749	32,749	32,482	32,482
	adj. R-sq	0.274	0.273	0.275	0.275

Note: This table reports the estimation results of model 6 by controlling for the country-industry HHI. See the methodology of calculating HHI in Section 4.3.3. *FIP* × *Contract* is an interaction term between contract intensity and foreign investor protection, measured by *Investment Profile* in columns (1) and (2), and by *Repudiation Expropriation* in columns (3) and (4). *DIP* × *Contract* is an interaction between contract intensity and domestic investor protection, measured by *Enforcement Cost* in columns (1) and (3) and by the number of *Enforcement Procedure* in columns (2) and (4), respectively. Control variables include GDP per capital of acquirer and target countries, import ratio and export ratio. All regressions include acquirer country, target country, industry, and year fixed effects. Standard errors reported in parentheses are clustered at the acquirer country level. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

a country pair moving from the below-median-distance subsample to the above-median-distance subsample. The findings are consistent with the idea in the previous literature that firms have a stronger incentive to participate in cross-border M&As when exporting is relatively more expensive.

M&A demands a lot of financial resources. If a target country's financial markets are underdeveloped, foreign investments in that country will be severely constrained (Desai et al., 2004). On the contrary, financial openness and development of financial institutions could increase private credit to domestic firms in the target countries (Chinn and Ito, 2006; Baltagi et al., 2009) and enhance their competitiveness over foreign entrants. Following previous studies (e.g., Dharmapala and Riedel, 2013; Allen et al., 2018), we employ the "financial institutions depth" (FID) index as a proxy for financial development. FID is defined as the ratio of credits by banks and other financial institutions to GDP. The FID index is collected from the updated financial structure database described in Beck et al. (2010).

We replace  $Feature_{sijt}$  by the dummy  $HighFID_{jt}$  in model 7, which equals one if the FID index is above the sample median and zero otherwise. Table 14 presents the results of the triple interaction terms. The results reveal that the roles of the target country's investor

**Table B4**  
2SLS estimates: taking one IV as the regressor.

Results from more IV estimations				
	(1)	(2)	(3)	(4)
FIP × Contract	0.7796*** (0.2871)	0.4987*** (0.1034)	0.3810*** (0.1261)	0.4953*** (0.1033)
DIP × Contract	-1.1704 (0.7316)	-0.3942** (0.1853)	-0.2050 (0.1602)	-0.3186** (0.1473)
ELF85 × Contract	-0.7452 (0.5209)			
Several languages × Contract		-0.1437 (0.0975)		
Several colonizers × Contract			0.0964 (0.1176)	
Gene Distance × Contract				0.8057 (1.4863)
Controls	Yes	Yes	Yes	Yes
Acquirer country FE	Yes	Yes	Yes	Yes
Target country FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	43,127	43,127	43,127	43,127
<i>p</i> value of over-identification test	0.85	0.51	0.13	0.14

Note: This table reports the second-stage results of IV estimations. *ELF85* is ethnolinguistic fractionalization (ELF) Index of year 1985 from [Roeder \(2001\)](#); *Several languages* is a dummy indicating whether the country has more than official language; *Several colonizer* is a dummy indicating whether the target country has more than one colonizer; *Gene distance* is the average genetic distance of the target country toward other countries worldwide. In each column, we choose three IVs from our IV pool and take the remaining one as the regressor. FIP is measured by *Investment Profile*, and DIP is measured by *Enforcement Costs*. Control variables include GDP per capita of acquirer and target countries, import ratio and export ratio. All regressions include acquirer country, target country, industry, and year fixed effects. Standard errors reported in parentheses are clustered at the acquirer country level. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

**Table B5**  
Tests of exclusion condition.

	GDP per capita (1)	HHI (2)	Financial development (3)
ELF85 × Contract	0.0003 (0.0009)	-0.0109 (0.0219)	0.0006 (0.0096)
Several languages × Contract	0.0003 (0.0004)	0.0062 (0.0113)	0.0004 (0.0051)
Several colonizers × Contract	0.0000 (0.0004)	0.0033 (0.0077)	0.0023 (0.0047)
Genetic Distance × Contract	0.0010 (0.0068)	-0.3076* (0.1705)	-0.0306 (0.0498)
N	17,415	10,067	17,394
adj. R-sq	0.902	0.813	0.943

Note: This table tests the exclusion condition of four instruments. The dependent variables in columns (1) – (3) are GDP per capita, the weighted country HHI based on the sales of listed firms, and the financial development index from IMF database, respectively. All regressions include country, industry, and year fixed effects. Standard errors reported in parentheses are clustered at the country level. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

protection and target industry's contract intensity in cross-border M&As are more important when the target country has a better developed financial market. Specifically, the estimated coefficients of  $\beta_1$  in model 7 are all significantly positive at the 1% level, and 3 of 4 estimated coefficients of  $\beta_2$  have significantly negative signs.

## 5. Conclusions

Multinational firms may enter a foreign market for several characteristics of target countries: corporate cultural fit ([Weber et al., 1996](#)), comparative advantage ([Hennart and Park, 1993](#)), less restrictive standards ([Károlyi and Taboada, 2015](#)), stronger shareholder protection ([Rossi and Volpin, 2004](#)), and industrial specialization ([Frésard et al., 2017](#)). However, the literature has largely overlooked the differential effects of FIP and DIP on cross-border M&As. This paper aims to address that issue. To this end, we first present a theoretical model that elaborates on the potential mechanisms through which FIP and DIP separately affect cross-border M&As. The analysis predicts that, in the target country, FIP promotes cross-border M&As, whereas DIP impedes them, especially in contract-intensive industries. This prediction is confirmed by our empirical investigation based on the sample of completed cross-border deals over 1988–2014.

**Table B6**  
2SLS estimates: including stringent fixed effects.

		(1)	(2)	(3)	(4)
<i>FIP</i> × <i>Contract</i>	<i>Investment profile</i>	0.5318*** (0.1017)	0.4595*** (0.0758)		
	<i>Repudiation Expropriation</i>				
<i>DIP</i> × <i>contract</i>	<i>Enforcement costs</i>	-0.3990** (0.1687)		-0.5319** (0.2033)	
	<i>Enforcement procedures</i>		-0.0935** (0.0434)		-0.1299*** (0.0433)
	Controls	Yes	Yes	Yes	Yes
	Acquirer-country-year FE	Yes	Yes	Yes	Yes
	Target-country-year FE	Yes	Yes	Yes	Yes
	Industry-year FE	Yes	Yes	Yes	Yes
	Observations	42,433	42,433	41,480	41,480
	F statistics	29.92	26.21	20.92	17.32

Note: This table reports the second-stage results of IV estimations by adding acquirer-country-year, target-country-year, and industry-year fixed effects. *ELF85* is ethnolinguistic fractionalization (ELF) Index of year 1985 from Roeder (2001); *Several languages* is a dummy, which is equal to one if the country has more than official language and zero otherwise; *Several colonizer* is a dummy indicating whether the target country has more than one colonizer; *Gene distance* is the average genetic distance of the target country toward other countries worldwide. Control variables include GDP per capital of acquirer and target countries, import ratio, and export ratio. Standard errors reported in parentheses are clustered at the acquirer country level. \*\*\*, \*\*, and \* denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Our research has some practical implications to policy makers and managers of multinational firms. Cross-border mergers and acquisitions are, by definitions, an internationalization strategy involving at least two firms from different countries. Conflicts between the multinational firms and domestic acquired firms, as well as disputes between the merged entity and other domestically based firms are widely observed in post-merger periods. We show that a strong protection for foreign investors or a weak protection for domestic investors encourages multinationals to make M&As in the specific country, particularly for M&As with a large stake in the merged entity or those with a long geography distance from headquarters. The managers should be aware of specific entities receiving strong protection. If a country has a preference on their national firms, multinationals must be cautious in the engagement of a partial international partnership, like cross-border mergers. Our focus on the differential effect of *FIP* and *DIP* is, at the most abstract level, an attempt providing a new direction to analyze the location choice and value-creation of cross-border M&As.

**Declaration of Competing Interest**

None.

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**Appendix A**

**Analysis of cross-border M&A profits.**

Given the profit  $\pi_F$  in Eq. (3), the cross-border M&A condition,  $\pi_F > 0$ , is equivalent to

$$\varepsilon > \varepsilon^* = \frac{\sigma}{\sigma - 1} \frac{r^{\mu_K} W^{\mu_L} P_M^{\mu_M}}{P} \left( \frac{\alpha Y}{\sigma b} \right)^{\frac{1}{1-\sigma}}.$$

We then obtain that the probability of any firm from Foreign to conduct cross-border M&A in Home is

$$\Pr(\varepsilon > \varepsilon^*) = 1 - H \left( \frac{\sigma}{\sigma - 1} \frac{r^{\mu_K} W^{\mu_L} P_M^{\mu_M}}{P} \left( \frac{\alpha Y}{\sigma b} \right)^{\frac{1}{1-\sigma}} \right). \tag{A1}$$

**Proof of Proposition 1.**

When foreign investment receives imperfect protection, working with the merged firm, *K* can only share one half of the protected revenue through bargaining, which is  $\frac{1}{2}\beta_f(p_g - wx - r\rho y)$ . The individual rationality condition becomes  $\frac{1}{2}\beta_f(p_g - wx - r\rho y) \geq r(1 - \rho)y$ . Consequently, the cost of input, *g*, for the merged firm is  $p_{gf} = wx + \frac{2r}{\beta_f}(1 - \rho)y + r y$ .

If domestic investors also receive imperfect protection, assume that the protected revenue for firms working with domestic firms is

represented by a fraction  $\beta_d \leq 1$ . Then, the cost of input,  $g$ , for domestic firms is  $p_{gd} = wx + \frac{2r}{\beta_d}(1 - \rho)y + ry$ .<sup>27</sup>

A change in FIP (represented by  $\beta_f$ ) affects  $p_{gf}$ , which ultimately affects the marginal cost (see Eq. (1)) and profit (see Eq. (3)) of the merged firm under cross-border M&As. A change in DIP (represented by  $\beta_d$ ) affects  $p_{gd}$ , which directly affects the marginal cost (see Eq. (1)) and price of domestic firms. As a result, a change in the aggregate price  $P$  will change indirectly affect the merged firm's profit. To uncover the effects of FIP and DIP, we differentiate the cross-border M&As probability (Eq. (A1)) and obtain:

$$\Pr(\varepsilon > \varepsilon^*) = \Psi \frac{P_G^{1-\varsigma}}{P_G^{1-\varsigma} + P_Z^{1-\varsigma}} \left[ \frac{\frac{2r}{\beta_f}(1-\rho)y d \beta_x}{wx + \frac{2r}{\beta_f}(1-\rho)y + ry} - \frac{\frac{2r}{\beta_d}(1-\rho)y d \beta_d}{wx + \frac{2r}{\beta_d}(1-\rho)y + ry} \right], \tag{A2}$$

where  $\Psi = \frac{h(\varepsilon^*)\varepsilon^* \mu_M \int_{\omega \in \Omega_d} p_d(\omega)^{1-\sigma} d\omega}{\int_{\omega \in \Omega_x} p_x(\omega)^{1-\sigma} d\omega + \int_{\omega \in \Omega_d} p_d(\omega)^{1-\sigma} d\omega}$ , where  $h(\varepsilon) = \frac{dH(\varepsilon)}{d\varepsilon}$  is the probability density function (PDF) of  $\varepsilon$ ,  $\Omega_x$  denotes the set of varieties provided by the merged units, and  $\Omega_d$  denotes the set of varieties provided by the domestic firms. Eq. (A2) directly implies

$$\frac{\partial \Pr(\varepsilon > \varepsilon^*)}{\partial \beta_f} > 0 \text{ and } \frac{\partial \Pr(\varepsilon > \varepsilon^*)}{\partial \beta_d} < 0.$$

Thus, Proposition 1 is proven.

**Proof of Proposition 2.**

We can rewrite  $CI = \frac{P_G^{1-\varsigma}}{P_G^{1-\varsigma} + P_Z^{1-\varsigma}} \times 1 + \frac{P_Z^{1-\varsigma}}{P_G^{1-\varsigma} + P_Z^{1-\varsigma}} \times 0$ , where  $\frac{P_G^{1-\varsigma}}{P_G^{1-\varsigma} + P_Z^{1-\varsigma}}$  is the expenditure share of the inputs whose production needs relationship-specific investments, and  $\frac{P_Z^{1-\varsigma}}{P_G^{1-\varsigma} + P_Z^{1-\varsigma}}$  is the expenditure share of non-relationship-specific inputs. Thus, a larger  $CI$  represents a higher degree of contract intensity. To study the heterogeneous effects of FIP and DIP across industries, we take the second-order derivative of  $\Pr(\varepsilon > \varepsilon^*)$  with respect to  $CI$ , which yields

$$\frac{\partial^2 \Pr(\varepsilon > \varepsilon^*)}{\partial \beta_f \partial CI} = \Psi \frac{\frac{2r}{\beta_f^2}(1-\rho)y}{wx + \frac{2r}{\beta_f}(1-\rho)y + ry} > 0,$$

and

$$\frac{\partial^2 \Pr(\varepsilon > \varepsilon^*)}{\partial \beta_d \partial CI} = -\Psi \frac{\frac{2r}{\beta_d^2}(1-\rho)y}{wx + \frac{2r}{\beta_d}(1-\rho)y + ry} < 0.$$

This completes the proof.

## Appendix B

Table B1, Table B2, Table B3, Table B4, Table B5, Table B6

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<sup>27</sup> Both DIP and FIP affect the cost of input  $g$  through  $\beta_d$  and  $\beta_f$ , respectively. As an alternative approach, we can equivalently assume different  $\rho$ 's for the domestic firms ( $\rho_d = 1 - \frac{2r}{\beta_d}(1 - \rho)$ ) and foreign firms ( $\rho_f = 1 - \frac{2r}{\beta_f}(1 - \rho)$ ).

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