ORIGINAL ARTICLE

Cross-border and domestic minority acquisitions and financial constraints: Reaping big benefits from small shareholders

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Abstract

Research Question/Issue: Do the motivations of cross-border minority acquisitions differ from those of domestic minority acquisitions? We examine and compare the underlying motivations for and consequences of domestic and cross-border minority acquisitions by analyzing data from transactions that took place across 31 countries over a 13-year period.

Research Findings/Insights: Using a sample of 11,926 domestic and cross-border minority acquisitions, we show that the interplay of financing and country-level governance motives is the main driver of such deals in both settings. We find that financially constrained firms are more likely to engage in both domestic and cross-border minority acquisitions, even in the face of higher information asymmetry and transaction costs that international transactions entail. In the wake of either domestic or cross-border deals, financially constrained firms' long-term debt increases; their short-term debt, cash holdings, and equity decrease. The greater likelihood of minority acquisitions of financially constrained firms is explained by the degree of corporate governance institutions in the country in which the targeted firm is based and by differences in levels of creditor and shareholder protections between the home countries of the targeted and acquiring firms involved. Our results remain robust after controlling for alternative explanations such as the contracting motive, the gravity model of foreign transactions, economic development levels, and differences in tax and exchange rates.

Theoretical/Academic Implications: Our results extend prior literature on mergers and acquisitions that have focused solely on control transfers or domestic deals. We provide empirical evidence for the importance of jointly considering financing and governance motivations in seeking to explain domestic and cross-border minority acquisitions and their consequences in alleviating financial constraints. We provide new evidence on how firm- and country-level characteristics interact to affect minority acquisitions.

Practitioner/Policy Implications: Our results offer valuable insights for business policy by highlighting how firms can circumvent financial constraints through partial integration, especially in cross-border settings. The results also offer evidence of beneficial ex post outcomes for targeted firms' leverage and liquidity. In terms of public policy, the results show that minority shareholder protections improve the equity market and provide a positive externality to the debt market through a certification effect.

KEYWORDS

corporate governance, domestic and cross-border acquisitions, financial constraints, investor protection, minority acquisitions

1 | INTRODUCTION

Do the motivations for cross-border minority acquisitions differ from those of domestic minority acquisitions? Minority acquisitions—transactions in which the buyer acquires less than 50% of the target—have grown over recent decades; they now represent 35% of all mergers and acquisitions (M&A) in 2020, up from 20% in the 1990s (Kengelbach et al., 2020). Prior research aiming to understand the determinants of minority acquisitions has shown that target firms' financial constraints are the primary driver of these transactions (Liao, 2014; Ouimet, 2013). When targeted firms are financially constrained, they are more likely to sell a minority stake to provide finance for investment opportunities that otherwise would be hindered either because of high capital costs or the lack of alternative sources of external capital.

By focusing exclusively on domestic minority acquisitions, even when examining a sample of international transactions, prior studies have held constant cross-country corporate governance and variations in transaction costs. Therefore, little is known about the trade-offs between domestic and cross-border minority acquisitions under financial-market frictions. Once minority acquisitions cross borders, transaction costs tend to increase (Hennart, 2000), and therefore, the relevance of financing motivations may change for acquisitions that take place in international contexts. Moreover, institutional differences between home and host countries may affect the decisions of both buyers and sellers to enter into minority acquisitions (Baulkaran & Lupton, 2020; Globerman & Shapiro, 2003).

This paper examines the potential trade-offs between cross-border and domestic acquisitions by examining the differences and similarities in the determinants of minority acquisitions that take place in domestic and cross-border settings, and by assessing the implications for target firms' financing decisions. We investigate how target firms' financial constraints jointly interact with country-level corporate governance to explain minority acquisitions across cross-border and domestic transactions. We use a sample of 11,926 minority transactions that took place from 2002 to 2014 involving 31 countries. We find a positive relationship between measures of financial constraints (such as the Whited and Wu [WW] Index, Whited & Wu, (2006); and

Size–Age (SA) Index, Hadlock & Pierce, 2010) and the likelihood of minority acquisitions for both domestic and cross-border transactions. The financing perspective posits that in the wake of a minority acquisition financially constrained firms' cash holdings should decrease, and debt should rise (Liao, 2014). Our results corroborate this argument. We show that target firms' long-term debt rises compared to the debt levels of matched firms that did not enter into a minority transaction. We also show that cash holdings significantly decrease for target firms that were involved in either cross-border or domestic transactions.

Moreover, our research fills a research gap by showing whether and how country-level corporate governance affects the likelihood and consequences of minority acquisitions of financially constrained firms. We extend the prior literature by showing a significant impact of two cross-border governance issues: investor protections in the country in which the targeted firm is based, and the differences in creditor and shareholder protections of the two countries in which targeted and acquiring firms are based. For example, the stronger that creditor protections are in the target country, the lower the likelihood is that a minority acquisition will emerge. This can be explained by the fact that in a world of imperfect capital markets with asymmetric information, better creditor protections increase the availability of credit, reducing the need for investments by acquirers of minority stakes in financially constrained firms (Myers, 2001).

Our results show that strong shareholder protections have different effects for cross-border and domestic transactions. While strong minority shareholder protections increase the likelihood of minority acquisitions, they decrease the likelihood of domestic transactions. On the one hand, shareholder protections generally raise the probability of cross-border minority acquisitions because acquirers are more likely to target firms in those countries where they enjoy greater minority shareholder protections than in their home country. Foreign firms generally have a harder time conducting proper due diligence about potential acquisition targets abroad due to the high information and transaction costs. Therefore, stronger minority shareholder protections can compensate for such disadvantages. On the other hand, in the domestic market, information costs are lower and acquirers have alternative ways to obtain relevant information (e.g., through social networks, as in Nguyen et al., 2022). Therefore domestic

acquirers may take advantage of the fact that targets in countries with weaker country-level corporate governance measures (i.e., with lower shareholder protections) often trade at a discount without running excessive risks. Consequently, domestic minority acquisitions are more likely to occur in countries with lower shareholder protections.

In addition, a strong shareholder-protection environment increases the power of minority shareholders to influence managerial decisions such as the ability to deter possible M&A, especially if such operations are contrary to minority shareholders' interests. Therefore, in a minority acquisition transaction, current owners may be reluctant to approve domestic deals that may harm firm value, and they may prefer to accept cross-border bidders. Indeed, Danbolt and Maciver (2009) show that target firms present higher abnormal returns after cross-border transactions than after comparable domestic transactions. Bertrand and Zitouna (2008) find that efficiency gains are stronger for cross-border transactions and that the gains influence current owners' support of cross-border deals.

Our analyses also show that cross-border transactions are less common than domestic deals. This result corroborates prior evidence that a home-country bias persists in M&A (Levis et al., 2016); however, at the same time, we show that cross-border differences in country-level corporate governance matter and that such differences may help to alleviate this home bias (Dahlquist et al., 2003; Rossi & Volpin, 2004).

Moreover, by examining the interplay between financing and country-level governance motives, we are able to show that creditor and shareholder protections should not be considered in isolation. Indeed, this interplay of target's financial constraints and regulatory measures helps explain minority acquisitions. For example, the likelihood of minority acquisitions is the highest in two contexts: When the target is based in a country that has higher shareholder protections than those that are in place in the country where the acquirer is based, and when creditor protections are higher for the acquirer than for the targeted firm. In other words, there is a bootstrapping effect in terms of shareholder protections for the acquirer in target countries in which the corporate debt market is dry due to low levels of creditor protections.

Our findings are robust to many alternative explanations for minority acquisitions—including firm size, performance, free cash flow, differences in economic development, gravity model of foreign transactions, contracting motivations, and other firm- and country-level characteristics described in prior research.

In sum, our study contributes to the corporate governance and finance literature on the motives for M&A. First, though early works document several motivations for minority acquisitions (Liao, 2014; Ouimet, 2013), our paper is to the best of our knowledge the first study that examines the differences and similarities between the determinants of cross-border and domestic minority acquisitions. Indeed, we corroborate that the target firm's financial constraints affect domestic minority acquisitions, and, surprisingly, we find that this result also explains cross-border acquisitions—despite the higher information asymmetry and transaction costs in cross-country

transactions that persist even after controlling for several alternatives explanations.

Second, our study shows that a combination of financial constraints and country-level corporate governance compellingly explains the likelihood of cross-border and domestic minority acquisitions. We show that differences in creditor and shareholder protections between target and acquirer firms' home countries create scenarios that are associated with different probabilities of minority acquisitions of financially constrained and unconstrained firms. To the best of our knowledge, these findings are novel in the corporate governance literature.

The rest of this paper is structured as follows: Section 2 reviews the literature on minority acquisitions. Section 3 describes the empirical setting, including the description of the data, the measures used, and the identification strategy. Section 4 presents our results. In Section 5, we discuss our findings and connect them to the literature in corporate governance and finance. Section 6 concludes.

2 | BACKGROUND

Asymmetric information, agency problems, and incomplete contracting create market frictions, leading some firms to pay higher capital costs and to rely on contractual covenants to raise funds to pursue investment opportunities (Chen & Campello, 2010). Indeed, financially constrained firms have difficulties accessing capital markets, and as a result they typically have to eschew investment opportunities that otherwise would likely have created greater value (Almeida et al., 2004), making financially constrained firms more likely to become a takeover target (Khatami et al., 2015).

Financial constraints are especially detrimental for firms that operate in less developed capital markets. Moreover, economic uncertainties in emerging economies are remarkably higher than those in developed countries (Witt et al., 2017). Such uncertainties are likely to affect firms' strategies, including their financing decisions (Kabbach de Castro et al., 2021). Therefore, minority acquisitions represent a strategy to mitigate the target firm's financial constraints because acquirers' can either provide new capital, or give the target company access to external finance (Erel et al., 2015).

In a study of customer-supplier relationships between US firms, Fee et al. (2006) find that, consistent with the financing perspective, suppliers' financial constraints contribute to the minority ownership decision by their customers. Using a sample of acquisitions in the United States, Ouimet (2013) reveals that minority acquisitions may be an optimal choice of integration if the target firms are financially constrained or if they can benefit from the acquirer's certification. The target firm's financial constraints are also an important determinant of minority acquisitions. This is because a potential acquiring firm with a close relationship to the target firm may be better informed about the target's financing constraints and may be more aware of its investment opportunities. Liao (2014) uses a sample of domestic acquisitions in 40 countries to show that target firms are more likely to be financially constrained and more likely to relieve their financial

constraints by selling minority equity stakes to other corporations. Erel et al. (2015) examine a sample of acquired European firms, concluding that target firms were financially constrained before the deals and that their financing improved after the transactions. Using a sample of US firms, Khatami et al. (2015) also find that the target firms' financial constraints are one of the most critical determinants of domestic acquisitions.

However, none of these studies has either considered cross-border minority acquisitions or examined how acquisitions that cross borders may differ from domestic ones. For financially constrained firms that continuously seek access to international financial markets, the sale of a minority stake to a foreign acquirer can eliminate transaction costs by creating internal capital markets and by providing access to global financial markets (Rugman, 2006). However, institutional differences and the higher costs of international transactions can make cross-border minority acquisitions more challenging. Therefore, minority acquisitions that cross borders may be less likely to occur than those that occur within a domestic market because geographic and institutional distances make it harder for relevant information to flow across borders—thus increasing the complexity of the deals (Ghemawat, 2001; Hitt & Pisano, 2003; Johanson & Vahlne, 1977). As a consequence, acquirers may face significant barriers when conducting due diligence and assessing the risks involved in making minority acquisitions. This situation may be exacerbated in countries with weaker institutions. Such circumstances increase information asymmetry and make it difficult to rely on the legal system (Meyer et al., 2009). Indeed, international corporate governance research has documented substantial differences across countries. This line of the literature has established that governance institutions matter for the protection of minority shareholders (La Porta et al., 1998).

Prior research also examined how governance differences among countries affect the likelihood of acquisitions (Rossi & Volpin, 2004; Martynova & Renneboog, 2008). Country-level governance institutions refer to the legal frameworks that govern contractual relationships, including corporate financing; these institutions thus affect the risks of debt and equity financing for recipients and providers of finance. On the one hand, target firms may prefer to sell their shares to foreign firms from countries with better shareholder protections to improve their governance practices, reducing agency and financing costs. For example, in a study of cross-border and domestic acquisitions across 49 economies, Rossi and Volpin (2004) find that a corporate governance regime with stronger investor protections leads to a more active market for M&A. They argue that a target firm may sell equity stakes to a foreign firm to opt out of a weak governance regime via cross-border deals, providing a contractual convergence in corporate governance regimes across countries. Martynova and Renneboog (2008) also describe an increase in minority transactions when corporate governance in the countries of acquiring firms are better at protecting shareholders' rights than the corporate governance in countries in which the target firms are based; they find that this leads to a positive spillover effect of governance practices.

Another explanation is that acquirers of minority stakes may be motivated by a desire to reduce their investment risk in a cross-country transaction; they may thus search for safer places to do business. Therefore, they will search for institutional environments where their minority participation enjoys stronger protection against potential expropriation from controlling shareholders. One example comes from a study by Baulkaran and Lupton (2020) of the impact of shareholder protection of host countries when US multinational firms engage in cross-border acquisitions; they show that the expropriation is less likely to occur in countries with strong shareholder rights. Therefore, these countries tend to attract more foreign investment than those countries with weak investor protections. Globerman and Shapiro (2003) also studied US firms' foreign direct investments; they show that the host countries more likely to receive foreign investments are those with effective governance infrastructure that protects investors' property rights and enforces the rule of law. A study by Martynova and Renneboog (2008) shows that in situations in which acquiring firms are from countries with lower investor protections than those in the target firms' countries, acquirers may abide by stricter regulations, and they may bootstrap their governance practices in the host country.

Still, these studies examine M&A motivated by a change of control in which the acquirer is in a position to influence firm-level governance mechanisms. Thus, the determinants of minority acquisitions remain an open question.

Yet another alternative explanation for the determinants of minority acquisition is the contracting motive (Liao, 2014). Contracting between buyers and suppliers becomes difficult in situations in which asset specificity and information asymmetry are high and/or when contracts are not self-enforced to protect the property rights of the parties (Aghion & Tirole, 1994). For example, intangibles are particularly relevant and difficult to price for firms that have an intensive focus on research and development (R&D). This is a particular concern for institutional environments in which the enforcement of investor rights is weak; safeguards against non-contractible resources such as R&D expenses are difficult to implement, and transaction costs can therefore become prohibitive, leading to market frictions (Khanna & Palepu, 2020). In such contexts, minority acquisitions represent a particular form of backward or forward integration that has the potential to mitigate incomplete contracts and to facilitate cooperation between independent firms—without transferring control (Fee et al., 2006).

These information asymmetries are exacerbated by the impaired information flows that characterize cross-border transactions; such asymmetries are key reasons why the valuations in M&A are especially difficult. Therefore, unsurprisingly, prior literature finds mixed results for the contracting motive. For instance, Liao (2014) finds that target firms' R&D intensity does not increase the likelihood of minority transactions, whereas Ouimet (2013) shows firms targeted by minority acquisitions tend to have high levels of R&D expenses. Therefore, the relevance of the contracting motive of minority cross-border acquisitions remains to be established, especially in different institutional settings.

In what follows, we extend prior literature by providing empirical evidence to answer our research question: Do the motivations for

cross-border minority acquisitions differ from those for domestic minority acquisitions?

3 | DATA AND METHODOLOGY

To shed light on the potential drivers of cross-border and domestic minority acquisitions, we examine a sample of firms that were either acquirers or targets of minority acquisitions over the period from 2002 to the end of 2014. We use several databases that provide the financial data and stock returns for the firms involved, and country-level variables for economic fundamentals, market development, and institutional measures related to shareholder and creditor protections.

We collect firm information from two Bureau van Dijk (BvD) databases: Zephyr, which contains information on minority acquisitions, initial public offerings, private equity, and venture-capital deals and rumors, and Osiris, which provides financial and market information about publicly listed firms.[1] We collect country-level data regarding economic fundamentals and financial-market development from the World Bank's Global Financial Development Database (GFDD). To explore the effect that institutional changes within and between countries have on firm-level financing decisions, we draw upon the University of Cambridge Centre for Business Research Leximetric Datasets (Armour et al., 2016). These datasets provide time-series data on minority shareholder and creditor protections for 31 countries over the period from 2000 to 2013.

Because we focus on minority acquisitions, we exclude all deals that have reported an initial, acquired, or final equity stake higher than 49.99% of the targeted firm's shares. We also exclude all deals that did not report the target's BvD number. In addition, we exclude target firms from the financial sector (Standard Industrial Classification [SIC] codes 6000 to 6999), utilities (SIC codes 4000 to 4999), and public administration (SIC codes 9000 to 9899); these have different regulatory structures for both financial information and for M&A. Our variables and indices were winsorized at the 5% and 95% levels to avoid outliers. Our final sample comprises 11,926 unique minority acquisitions, with 248,402 deal-year observations for the period between 2002 and 2014.

3.1 | Measures of financial constraints

We investigate the determinants and consequences of cross-border and domestic minority acquisitions in the presence of target firms' financial constraints. We use three indices of financial constraints to classify target firms. By doing so, and by considering that the firms' financial constraints may not always be directly observable, we avoid the problem of an arbitrary choice about the proxies that might indicate the presence of such constraints.

Following Lamont et al. (2001), we define the *KZ* Index as

$$
\begin{aligned}
KZ_{it} = & -1.0019 \times (CashFlow/K_{it-1})_{it} + 0.28264 \times Q_{it} \\
& + 3.1392 \times (TotalDebt/TotalAssets)_{it} \\
& - 39.3678 \times (Dividends/K_{it-1})_{it} \\
& - 1.3148 \times (CashHoldings/K_{it-1})_{it},
\end{aligned} \tag{1}
$$

where i is the firm; t is the year; K_{it} is the capital stock (fixed assets); $CashFlow_{it}$ is defined as the sum of earnings after tax plus depreciation, amortization, and depletion; $TotalDebt_{it}$ is the sum of short-term and long-term debt; $TotalAssets_{it}$ is the book value of firms' assets; Q_{it} is proxied by the growth in gross sales for the period; $Dividends_{it}$ is defined as the ordinary dividends paid; and $CashHoldings_{it}$ is defined as the sum of cash and short-term investments.

Following Whited and Wu (2006)[2]:

$$
\begin{aligned}
WW_{it} = & \ 0.652 - 0.091 \times (CashFlow/TotalAssets)_{it} - 0.062 \times (Dividend)_{it} \\
& + 0.021 \times (Leverage/TotalAssets)_{it} - 0.044 \times (Size)_{it} \\
& + 0.102 \times (IndustryGrowth)_{it} - 0.035 \times (SalesGrowth)_{it},
\end{aligned} \tag{2}
$$

where $Dividend_{it}$ is a dummy variable coded one if the firm pays dividends during the period, and zero otherwise; $Leverage_{it}$ is a measure of total long-term debt; firm $Size_{it}$ is the natural logarithm of total assets; $IndustryGrowth_{it}$ is defined as the growth in gross sales for the three-digit-SIC industry group; and $SalesGrowth_{it}$ indicates the yearly growth rate in firms gross sales - i.e., $(Sales_{i,t} - Sales_{i,t-1})/Sales_{i,t-1}$.

As proposed by Hadlock and Pierce (2010), the *SA* Index measures financially constrained firms as

$$
SA_{it} = -0.737 \times (Assets)_{it} + 0.043 \times (Assets)_{it}^2 - 0.040 \times (Age)_{it}, \tag{3}
$$

where $Assets_{it}$ is the natural logarithm of book assets deflated by the Consumer Price Index (CPI) to 2004 price levels and Age_{it} is the number of years (plus one) elapsed since the year of the company's incorporation. Following Hadlock and Pierce (2010), we limit the size of firms to $4.65 billion and the age of firms to 37 years. This is because, according to Hadlock and Pierce (2010), at these size and age limits, the relation between financial constraints and firm characteristics is essentially flat.

After computing all the indices of financial constraints for each year of the sample, we classified firms into distinct groups regarding the presence (or absence) of such constraints. In this regard, firms that belong to the fourth and fifth quintiles within each financial-constraint index were classified as financially constrained. Conversely, firms belonging to the first and second quintiles were classified as financially unconstrained. Those firms in the third quintile (between 40% and 60%) were excluded because they may possibly represent an ambivalent group of firms. This procedure was implemented for each year. Therefore, a specific firm's classification can change during the period covered in our database.

3.2 | Methodology

3.2.1 | Ex ante determinants of minority acquisitions

We estimate a series of panel data logistic regression (logit) models to explore the drivers of cross-border and domestic minority acquisitions. Our specifications follow a random effects logit model as follows:

$$Y_{it} = \alpha_i + \beta \times Firm_{i,t-1} + \gamma \times Country_{i,t-1} + \psi \times Controls_{i,t-1} + u_{i,t}, \quad (4)$$

where the dependent variable is measured as the minority acquisition deal, assigned one if firm i was a target in a minority acquisition in period t for a specific pair of acquirer and target firms, and zero otherwise. Regarding the right-hand side of the equation, α_i is an individual-specific and time-invariant effect for the random effects equation, and $Firm_{i,t-1}$ is a vector of independent variables measuring financial constraints and other firm-level characteristics, such as *Cash Holdings*, *Cash Flow*, and the three indices of financial constraints. $Country_{i,t-1}$ represents country-level variables, which include both the target creditor-protection index (*Target CPI*) and target shareholder-protection index (*Target SPI*), depending on the model specification. We also include a vector of controls, $Controls_{i,t-1}$, that comprises both firm-level characteristics, such as *Size*, *Total Debt*, *Yearly Stock Returns*, *Stock Volatility*, and *Sales Growth*, as well as target country-level characteristics, such as *GDP*, *Corporate Bond Issuance*, and *Bank Deposits*. Lastly, $u_{i,t}$ is a disturbance term for the random effects estimator, which is composed of a random individual effect and an idiosyncratic error. All covariates are lagged by 1 year as a way to purge deal-contemporary effects from the model. All models include year dummies to control for common, time-varying heterogeneity. Table A1 presents a detailed description of all the variables included in the baseline specification.

3.2.2 | Ex post outcomes of minority acquisitions: differences across financially constrained and unconstrained firms

In the search for financing motives for minority acquisitions, we should observe different financing decisions between financially constrained and unconstrained firms before and after the minority acquisition. To investigate whether this is the case, we use our sample of target and non-target firms and run the following difference-in-differences specification:

$$\begin{aligned} Y_{i,t} = {} & \beta_1 Deal_i + \beta_2 FC_{i,t-1} + \beta_3 Post_{i,t} + \beta_4 \times (Deal_{i,t} \times FC_{i,t-1}) + \beta_{DD} \quad (5) \\ & \times (FC_{i,t-1} \times Post_{i,t}) + \gamma_1' X_{i,t-1} + \gamma_2' (X_{i,t-1} Post_{i,t}) + \alpha_{d,t} + \alpha_{c,t} \\ & + \varepsilon_{i,t}, \end{aligned}$$

where $Y_{i,t}$ is a measure of firms' fundamentals at period t. More specifically, we consider *Long-Term Debt*, *Short-Term Debt*, *Cash Holdings*, and *Equity* as measures of firms' future fundamentals. As such, the coefficient of interest is β_{DD}, which captures the differential effects *after* the deal has taken place in terms of $Y_{i,t}$, for *financially constrained* firms.

With respect to the other covariates, $Deal_{i,t}$ is the assignment variable that takes the value one if the observation is treated (i.e., if the firm has entered into a minority deal as a target during the sample period), and zero otherwise; this variable controls for baseline differences in outcome levels for the target (treated) and never-treated firms. Additionally, $Post_{i,t}$ is a dummy variable, coded one if the observation relates to periods after the deal year; it controls for differences in outcome levels for treated firms before/after the deal has taken place. [3]$FC_{i,t-1}$ is a dummy variable coded one if the observation was financially constrained in period $t-1$; it controls for baseline differences in outcomes for financially constrained/unconstrained firms. $X_{i,t-1}$ is a matrix of firm-level financials and country-level variables lagged by 1 year; this matrix controls for time-varying, observable characteristics. The variables $\alpha_{c,t}$ and $\alpha_{d,t}$ refer to country-year and industry-year fixed effects, respectively. As such, our specification controls for time-varying, common, and unobservable characteristics across both dimensions. We allow $X_{i,t-1}$ to have different effects before and after a deal has taken place by introducing an interaction with $Post_{i,t}$, thereby alleviating concerns that changes in fundamentals in the post deal period may affect firms' outcomes.

3.2.3 | Differences across targeted and non-targeted firms

Another critical concern within the minority acquisitions literature is the matter of determining whether such transactions could ease targets' financial constraints. Empirically assessing the benefits of minority acquisitions is not straightforward. Country-, industry-, and firm-level variables may influence financial constraints and firms' future outcomes, leading to a seemingly significant relationship that would bias the estimates of interest. For example, firms' investment opportunities may simultaneously increase the attractiveness of a deal for acquirer firms and affect the target firms' fundamentals.

To partly overcome these endogeneity issues, we also employ a matching procedure to understand the impact of minority acquisitions on target firms' ex post deal outcomes. Notably, the corporate finance and governance literature reports matching techniques as a sound methodology to address endogeneity concerns (see, e.g., Bertrand, 2009; Khatami et al., 2015). As such, for the implementation of the matching procedure, we create a control group using firm- and country-level data from firms that did not enter into minority transactions between 2002 and 2014.

To provide confidence about the conditional independence assumption, we impose an exact matching on year, industry (two-digit SIC code) and country and minimize the distance in terms of 1-year-lagged levels of cash flow, cash holdings, total debt, and PPE (all normalized by total assets), as well as sales growth and size (natural logarithm of firms' total assets). Therefore, we can condition on

a wide set of potentially confounding factors, extending the previous literature that has matched firms in only one dimension (i.e., firm size).

4 | RESULTS

4.1 | Univariate analysis

Table 1 and Figure 1 present the distribution of minority transactions per country and the number of deals per year, respectively. Our sample has 11,926 deals; of these, 8427 (70.7%) are domestic transactions and 3499 (or 29.3%) cross-border transactions that involve targeted firms in 72 countries. Overall, the most representative countries were the Republic of Korea, with 1676 deals, followed by China (1198), the United Kingdom (1176), Russia (757), Norway (665), and Australia (541), accounting for approximately 50% of our sample. It is worth noting that the number of deals diminishes between 2008 and 2010, due to the international financial crisis. After 2010, the number increases.

Table 2 breaks down the descriptive statistics of our variables between domestic and cross-border minority acquisitions and across different measures of financial constraints (provided by the SA, WW, and KZ Indices). On average, almost 70% of the firms in the sample face difficulties from financing restrictions. Interestingly, there are more deals with financially constrained targets than with financially unconstrained firms. This is the case for almost every classification of financial constraint. Furthermore, the heterogeneity between financially constrained and unconstrained firms is noticeable and consistent across subsamples of domestic and cross-border minority acquisitions. For example, examining the subsamples by SA and WW Indices, we see that financially constrained targets are smaller and less leveraged; they generate lower cash flows (relative to total assets) and have higher R&D expenses.

Overall, these results show that smaller firms and informationally opaque firms may have more difficulty accessing external finance than bigger firms that operate with greater financial transparency. This difference in access to finance may affect the likelihood of smaller firms selling minority stakes to relieve financial constraints. In addition, managers may opt to hold cash as a precautionary motive because cash flow generation is relatively lower for financially constrained firms than for unconstrained firms. Examining the SA and WW Indices shows that *Cash Holdings* are substantially higher for financially constrained firms, which may indicate that managers opt for financial policies aimed at relieving the firm's dependence on external capital (Ferreira & Vilela, 2004).

In terms of profitability, financially constrained targets are less profitable. They have lower—or negative—levels of returns on assets, lower returns on equity, and lower earnings before interest, taxes, depreciation, and amortization (EBITDA margins). Financially constrained firms have higher investment opportunities than unconstrained firms (as proxied by a higher enterprise-value-to-EBITDA ratio), irrespective of the financial-constraint measures used.

The correlation between classification measures by the SA and WW Indices is .56; the correlation between SA and KZ is −.03; and the correlation between WW and KZ is .10. These correlations corroborate the results of prior corporate finance empirical research. Indeed, Almeida and Campello (2007) suggest that KZ measures often yield opposite classifications to those provided by other financial-constraint measures.

We note that the percentage of shares acquired in an average deal is generally higher for financially constrained targets. Also,

TABLE 1 Deals by country, domestic, and cross-border transactions

Panel A: Domestic				Panel B: Cross-border			
Country	Deals	%		Target	Acquirer	Deals	%
Republic of Korea	1389	11.6%		United Kingdom	United States	211	1.8%
China	1056	8.9%		Netherlands	United States	118	1.0%
United Kingdom	624	5.2%		Republic of Korea	United States	101	0.8%
Russia	579	4.9%		France	United States	91	0.8%
Norway	458	3.8%		Denmark	United Kingdom	74	0.6%
Sweden	385	3.2%		Denmark	United States	74	0.6%
Australia	377	3.2%		Russia	Cyprus	68	0.6%
Canada	307	2.6%		Canada	United States	60	0.5%
United States	302	2.5%		Australia	United States	55	0.5%
Poland	267	2.2%		Republic of Korea	Singapore	55	0.5%
Others	2683	22.5%		Others	Others	2592	21.7%
Total—Domestic	8427	70.7%		Total—Cross-border		3499	29.3%

Note: This table presents the number of deals, in absolute and percentage terms, for each of the target and acquirer firms' countries. In Panel A, we provide the list of the ten countries with the highest number of domestic transactions, ordered from the highest to lowest in terms of the number of transactions. Column "%" presents the percentage with respect to the total number of deals in our sample (11,926). All other countries are collapsed in "Others." Panel B presents the same information for the subset of cross-border deals, presenting the 10 target–acquirer pairs with the highest number of deals.
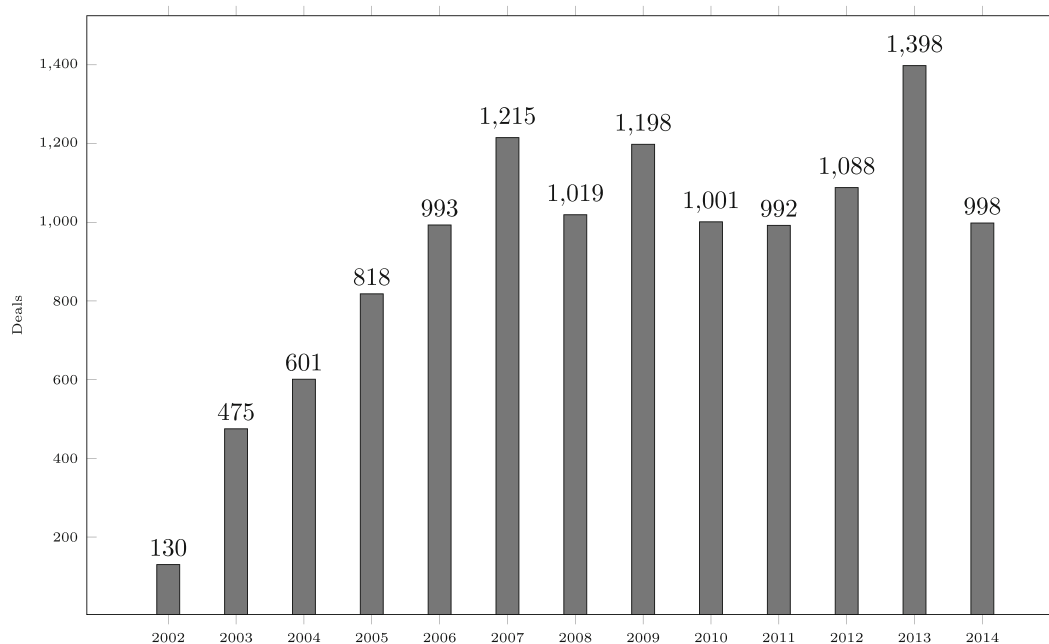
FIGURE 1 Deal activity by year. This figure presents the total number of minority acquisition deals per year from 2002 to 2014. The number of deals is presented after all the necessary filters and adjustments, yielding a number of 11,926 unique deals over the period

TABLE 2 Summary statistics—domestic and cross-border subsamples

	Panel A: Summary statistics of target firms under domestic deals								
	SA Index			WW Index			KZ Index		
Variables	Unc. (1)	Constr. (2)	(1–2)	Unc. (3)	Const. (4)	(3–4)	Unc. (5)	Constr. (6)	(5–6)
Cash Flow Ratio	0.08	0.06	0.03***	0.08	0.06	0.02***	0.09	0.06	0.03***
Cash Holdings Ratio	0.12	0.17	−0.05***	0.13	0.16	−0.04***	0.23	0.12	0.12***
Acquired Stake (%)	5.34	6.04	−0.7***	4.94	6.20	−1.27***	5.08	6.05	−0.98***
Initial Stake (%)	7.60	6.90	0.69***	7.85	7.14	0.71***	7.54	7.22	0.32***
EBITDA Margin	0.12	0.10	0.02***	0.13	0.11	0.02***	0.13	0.11	0.03***
EV/EBITDA	12.14	12.96	−0.82***	12.21	13.51	−1.3***	12.19	13.64	−1.46***
Financial Acquirer	0.77	0.85	−0.08***	0.76	0.82	−0.05***	0.82	0.80	0.03***
Leverage	1.96	1.29	0.67***	1.83	1.47	0.36***	1.26	1.76	−0.5***
Size	14.70	11.65	3.05***	14.35	12.59	1.76***	12.95	13.25	−0.3***
Long-Term Debt Ratio	0.16	0.10	0.05***	0.14	0.12	0.02***	0.10	0.14	−0.04***
PPE/Assets	0.33	0.25	0.07***	0.33	0.27	0.06***	0.14	0.34	−0.21***
Sales Growth	0.14	0.14	0.00	0.15	0.14	0.01***	0.17	0.14	0.03***
R&D/Assets	0.01	0.03	−0.02***	0.01	0.03	−0.02***	0.04	0.02	0.02***
ROA	0.04	−0.01	0.05***	0.05	0.01	0.04***	0.04	0.01	0.03***
ROE	0.08	−0.06	0.15***	0.09	−0.03	0.12***	0.08	−0.01	0.09***
Same Industry	0.06	0.04	0.02***	0.08	0.05	0.03***	0.04	0.06	−0.01***
Short-Term Debt Ratio	0.41	0.31	0.09***	0.38	0.35	0.03***	0.33	0.37	−0.04***
Target CPI	6.10	6.37	−0.27***	6.07	6.27	−0.2***	6.47	6.06	0.41***
Corporate Bond Issuance	0.03	0.02	0.01***	0.03	0.02	0.02***	0.02	0.03	−0.01***
Bank Deposits	0.59	0.60	−0.01***	0.59	0.58	0.01***	0.57	0.59	−0.02***
Target SPI	6.86	6.77	0.08***	6.99	6.76	0.23***	6.88	6.77	0.11***
Total Debt Ratio	0.64	0.45	0.18***	0.60	0.50	0.1***	0.47	0.56	−0.09***

TABLE 2 (Continued)

	Panel B: Summary statistics of target firms under cross-border deals								
	SA Index			WW Index			KZ Index		
Variables	Unc. (1)	Constr. (2)	(1–2)	Unc. (3)	Constr. (4)	(3–4)	Unc. (5)	Constr. (6)	(5–6)
Cash Flow Ratio	0.10	0.06	0.04***	0.11	0.07	0.03***	0.10	0.07	0.03***
Cash Holdings Ratio	0.13	0.19	−0.06***	0.13	0.17	−0.04***	0.21	0.12	0.09***
Acquired Stake (%)	2.10	4.16	−2.06***	2.06	3.75	−1.69***	2.34	3.88	−1.54***
Initial Stake (%)	3.44	4.42	−0.98***	3.22	4.40	−1.18***	3.56	4.45	−0.89***
EBITDA Margin	0.14	0.12	0.02***	0.15	0.12	0.3***	0.14	0.13	0.01***
EV/EBITDA	8.88	10.58	−1.7***	8.86	10.53	−1.67***	9.87	10.43	−0.57***
Financial Acquirer	0.93	0.88	0.06***	0.94	0.89	0.05***	0.93	0.88	0.04***
Leverage	2.05	1.44	0.61***	1.91	1.64	0.27***	1.55	1.93	−0.39***
Size	14.70	11.41	3.29***	14.56	12.53	2.03***	13.31	13.28	0.03***
Long-Term Debt Ratio	0.17	0.12	0.05***	0.16	0.14	0.02***	0.12	0.17	−0.05***
PPE/Assets	0.30	0.25	0.05***	0.30	0.26	0.04***	0.14	0.36	−0.22***
Sales Growth	0.10	0.16	−0.06***	0.11	0.14	−0.03***	0.16	0.11	0.05***
R&D/Assets	0.02	0.05	−0.03***	0.02	0.04	−0.02***	0.04	0.02	0.01***
ROA	0.05	0.00	0.05***	0.06	0.01	0.05***	0.05	0.01	0.04***
ROE	0.11	−0.02	0.13***	0.14	0.01	0.13***	0.14	0.00	0.14***
Same Industry	0.01	0.04	−0.03***	0.01	0.03	−0.02***	0.02	0.03	−0.01***
Short-Term Debt Ratio	0.37	0.29	0.08***	0.36	0.32	0.03***	0.35	0.33	0.02***
Target CPI	6.48	6.50	−0.02***	6.54	6.43	0.11***	6.54	6.37	0.17***
Corporate Bond Issuance	0.02	0.03	−0.00***	0.02	0.03	−0.00***	0.02	0.03	−0.00***
Bank Deposits	0.72	0.73	−0.01***	0.72	0.69	0.03***	0.67	0.74	−0.07***
Target SPI	6.17	6.36	−0.19***	6.33	6.21	0.13***	6.42	6.14	0.28***
Total Debt Ratio	0.66	0.48	0.18***	0.64	0.53	0.11***	0.54	0.60	−0.06***

Note: This table presents the summary statistics for the sample of minority acquisitions, grouped by the degree of target firms' financing constraints, according to the *SA*, *WW*, and *KZ* Indices. Panel A presents the summary statistics for the subsample of domestic minority acquisitions, while Panel B presents the same results for the subsample of cross-border minority acquisitions. Firms considered as being unconstrained belong to the 1st and 2nd lower quintiles of the distribution, while the constrained ones belong to the 4th and 5th upper quintiles.
*Statistical significance at 10%.
**Statistical significance at 5%.
***Statistical significance at 1%.

financially constrained firms tend to be acquired by financial firms, while financially unconstrained firms tend to be acquired by others in the same industry.

The country-level data show that financially constrained firms usually belong to countries with lower GDP, less bond-issuance activity, and fewer bank deposits. In part, these results show that in smaller economies with less developed capital markets, financially constrained firms are more likely to engage in merger and acquisitions, which is in line with the findings of the related literature (see, e.g., Rossi & Volpin, 2004).

Although the size of target firms is quite similar across domestic and cross-border acquisitions, their economic fundamentals vary significantly. For example, cash flow levels are, on average, 23% higher for firms targeted in cross-border minority acquisitions, relative to those targeted in domestic ones. Differences also emerge across other measures: EBITDA margins are 15% higher and R&D assets are 41%

higher for cross-border acquisitions than for domestic transactions; enterprise-value-to-EBITDA ratios are 23% lower for cross-border acquisitions than for domestic transactions. Acquirers in cross-border acquisitions present initial and acquired shares that are almost half of those for domestic acquisitions. Overall, the descriptive statistics show that both firm and country characteristics are likely to affect minority acquisitions.

4.2 | Multivariate analysis

Table 3 presents the results of our baseline specification (Equation 4) for assessing the determinants of minority acquisitions. The dependent variable takes a value of one if a minority acquisition is made in a given year for a specific pair of target and acquirer firms, and zero otherwise. Models (1) to (3) consider the assignment

TABLE 3 Random effects, panel logit estimates on the likelihood of minority acquisitions

	Dependent variable		
	Deal activity (1 = deal, 0 = no deal)		
	(1)	(2)	(3)
Size	0.005	0.068***	−0.034**
	(0.015)	(0.023)	(0.015)
Total Debt	−0.190	−0.432***	−0.442***
	(0.145)	(0.143)	(0.150)
Cash Holdings Ratio	−0.342	−0.103	−0.347
	(0.228)	(0.218)	(0.219)
Cash Flow Ratio	−0.849***	−0.674***	−0.759***
	(0.264)	(0.251)	(0.250)
Sales Growth	0.056	−0.017	−0.006
	(0.054)	(0.057)	(0.054)
Stock Return	−0.347***	−0.219***	−0.190***
	(0.050)	(0.050)	(0.046)
Volatility	0.048	0.009	0.484**
	(0.065)	(0.116)	(0.224)
Corporate Bond Issuance	−0.024	−0.020	−0.019
	(0.022)	(0.023)	(0.024)
Bank Deposits	−0.009***	−0.009***	−0.009***
	(0.001)	(0.001)	(0.001)
ln(GDP)	−0.159***	−0.196***	−0.194***
	(0.028)	(0.029)	(0.029)
Target CPI	−0.280***	−0.168***	−0.207***
	(0.034)	(0.042)	(0.041)
Target SPI	0.011	0.021	0.063
	(0.044)	(0.044)	(0.044)
R&D/Assets	−1.909***	−2.061***	−2.060***
	(0.732)	(0.614)	(0.616)
SA Index	0.202***		
	(0.052)		
WW Index		0.423***	
		(0.085)	
KZ Index			−0.072
			(0.053)
Year fixed effects	Yes	Yes	Yes
Controls	Yes	Yes	Yes
Full sample	Yes	Yes	Yes
Observations	41,764	38,730	37,764
Log likelihood	−7835.998	−7200.496	−7313.242
Akaike Inf. Crit.	15,722.000	14,450.990	14,676.480
Bayesian Inf. Crit.	15,937.990	14,665.100	14,889.960

Note: This table presents the random effects, panel logit regressions, where the dependent variable is *Deal Activity*, a dummy variable that takes "1" if a firm was target of a minority acquisition in that year for a specific pair of target and acquirer firms, and zero otherwise. Independent variables are lagged by 1 year to avoid a contemporaneity problem. A detailed description of the independent variables is presented in Table A1. Financial-constraint variables were defined based on quintiles of the *SA*, *WW*, and *KZ* Indices. Robust standard errors are used. Constant term and year fixed effects were considered. Standard errors are in parentheses.

*p < .1, statistical significance at 10%. **p < .05, statistical significance at 5%. ***p < .01, statistical significance at 1%.

of target firms into groups of financially constrained/unconstrained firms according to the quintiles of the *SA*, *WW*, and *KZ* Indices, respectively.

Our results show a statistically significant relationship between target firms' financing constraints and the likelihood of minority acquisition. In Models (1) and (2), *SA* and *WW* Indices' coefficients are positive and statistically affect the likelihood of a minority acquisition. On the one hand, according to the *SA* and *WW* Indices, target firms classified as financially constrained show a 5.5% and 5.8% probability of being acquired by minority shareholders, respectively. On the other hand, the probability of financially unconstrained firms being acquired by minority shareholders is 4.5% and 3.9%, for Model (1) (*SA*) and Model 2 (*WW*), respectively.[4]

Additionally, cash flow is negative and statistically significant for all models, indicating that the higher level of cash flow generation by target firms, the lower the propensity to enter into minority acquisitions. On the one hand, financially constrained firms are expected to be more sensitive to cash flow, given that they depend upon internal funding, and could otherwise sell minority stakes to another firm to ease financial constraints. On the other hand, financially unconstrained firms have a lower dependence on internal funds. They do not depend solely on internal cash generation to finance investment projects because they can raise external funding more easily. Therefore, the likelihood of entering into minority acquisitions is less sensitive to cash flow for financially unconstrained firms.

Moreover, we find weak evidence for contracting motivations as determinants of minority acquisitions. From a transaction-cost perspective, the contracting motive hypothesizes that minority acquisitions may increase with the level of asset specificity (Liao, 2014; Williamson, 1979). Therefore, firms with higher levels of R&D activities are more likely to be targets of acquisitions to safeguard property rights and to resolve contracting difficulties. We examine this hypothesis using the R&D intensity of firms, as measured by R&D expenses over asset. Our results do not support the contracting motive.[5]

Previous studies have examined the relationship between firms' integration and several other factors, including R&D activities (Bena & Li, 2014), product–market synergy (Hoberg & Phillips, 2010), and customer–supplier relationships (Ahern & Harford, 2014; Allen & Phillips, 2000). They show that synergies generated from combining research activities between firms that are targets and acquirers are significant drivers of M&A. However, it is worth noting that the proportion of deals in the same three-digit SIC code is approximately 5% of the overall sample, indicating a low level of organizational synergies, which could partially explain the negative effect of R&D activities on the likelihood of minority acquisitions. In other words, it may be challenging to accomplish the expected results of research activities within a partial integration scheme in which there are few synergies between acquiring and targeted firms.

Thus far, we have shown that the financing motive is a significant factor that helps explain the likelihood of minority acquisitions. Above all, results from several specifications highlight that financial constraints affect the occurrence of minority acquisitions, which is in line with related studies in the M&A literature, such as Liao (2014) and Khatami et al. (2015), who found similar evidence regarding the relationship between financial constraints and minority acquisitions.

We also examine governance motivations by looking at the country-level governance measures protecting creditors and minority shareholders. We find that the level of creditor protections in the target firm's country is negatively and significantly related to deal occurrence. In this regard, creditor-protection indices appear to affect the likelihood of a deal—which is in line with the findings presented in Renneboog et al. (2017). However, in our combined sample, shareholder-protection levels have negligible effects on the likelihood of a minority acquisition. On the one hand, following a transaction-cost perspective, one would expect that higher levels of shareholder protection would translate into lower transaction costs for the acquirer, therefore increasing the likelihood of a deal. On the other hand, however, higher shareholder-protection levels might undermine small shareholder expropriation by current blockholders; this may in turn disincentivize acquirer firms from minority acquisition attempts.

To explore governance motives in further detail, we ask whether these results could be explained by differences in the contexts in which the transactions occur—that is, whether they take place in a domestic setting or in a setting that crosses international borders. Table 4 shows that the baseline results regarding financing motivations remain significant and positive across subsamples of domestic and cross-border acquisitions. Target countries' shareholder-protection levels may have intrinsically different implications for the likelihood of a minority acquisition. Columns (1), (3), and (5) show that target countries' shareholder-protection levels are negatively related to the occurrence of domestic minority acquisitions, whereas the effect is positive for cross-border minority acquisitions, as presented in Columns (2), (4), and (6). The estimated coefficients remain statistically significant and consistent across all three specifications.

In light of the results shown in Table 4, country-level governance measures aimed at protecting shareholder rights have different impacts on the likelihood of a minority acquisition, depending on the geography of the transaction. On the one hand, lower (higher) levels of shareholder protection at the target country seem to increase (decrease) the likelihood of a domestic minority acquisition. In the domestic market, information costs are lower, and acquirers have alternative modes of obtaining relevant information (e.g., through social networks, as in Nguyen et al., 2022). Therefore, acquirers in countries with high levels of protection may take advantage of the fact that target firms in countries with weak shareholder protections trade their shares at a discount.

In addition, a strong shareholder-protection environment increases the power of minority shareholders to influence managerial decisions (e.g., anti-takeover provisions), especially those that affect the value of the firm, such as M&A transactions (Straska & Waller, 2014). On the other hand, the higher shareholder protections are, the higher the probability is that a cross-border transaction takes place. This result indicates that shareholder protections may act as a way to reduce the adverse effects of higher information asymmetry derived from a cross-border transaction.

TABLE 4 Random effects, panel logit estimates on the likelihood of minority acquisitions—cross-border and domestic subsamples

	Dependent variable								
	Deal activity (1 = deal, 0 = no deal)								
	(1)	(2)	$p\text{-}val\chi^2$	(3)	(4)	$p\text{-}val\chi^2$	(5)	(6)	$p\text{-}val\chi^2$
Target CPI	−0.168***	−0.334***	.02	−0.104*	−0.218***	.20	−0.149***	−0.227***	.37
	(0.044)	(0.059)		(0.057)	(0.069)		(0.056)	(0.068)	
Target SPI	−0.155***	0.193***	.00	−0.141**	0.157**	.00	−0.113*	0.247***	.00
	(0.053)	(0.069)		(0.057)	(0.073)		(0.059)	(0.071)	
R&D/Assets	−0.547	−0.898	.80	−1.509*	−0.337	.33	−1.804**	−0.433	.26
	(0.991)	(1.006)		(0.872)	(0.828)		(0.890)	(0.828)	
SA Index	0.013	0.290***	.01						
	(0.070)	(0.079)							
WW Index				0.411***	0.245*	.35			
				(0.112)	(0.138)				
KZ Index							−0.035	0.002	.73
							(0.071)	(0.082)	
Year fixed effects	Yes	Yes		Yes	Yes		Yes	Yes	
Controls	Yes	Yes		Yes	Yes		Yes	Yes	
Cross-border sample	No	Yes		No	Yes		No	Yes	
Observations	15,709	26,055		14,349	24,381		14,646	23,118	
Log likelihood	−4114.088	−3532.532		−3743.625	−3292.657		−3848.367	−3305.047	

Note: This table presents the random effects, panel logit regressions across subsamples of domestic/cross-border minority acquisitions, where the dependent variable is *Deal Activity*, a dummy variable that takes "1" if a firm was target of a minority acquisition in that year for a specific pair of target and acquirer firms, and zero otherwise. Column $p\text{-}val\chi^2$ denotes the p value of the F test for the equality of the coefficients from both subsamples, for each definition of financial constraint—that is, over regressions (1–2), (3–4), and (5–6). *Controls* denotes the set of all other covariates as in Table 3. All other regression specifications are similar to Table 3. Standard errors are in parentheses.

*$p < .1$, statistical significance at 10%. **$p < .05$, statistical significance at 5%. ***$p < .01$, statistical significance at 1%.

To better understand these findings, we define *CPI Difference* (*SPI Difference*) as the difference in creditor (shareholder) protection between the target and the acquirer at the country level. To explore possible relationships between financing and country-level governance motivations in cross-border minority transactions, we repeat the specifications of Table 3 in Table 5. Now, we consider a cross-border dummy variable that equals one for cross-border acquisitions, and zero otherwise, and we examine country-level governance differences between target and acquirer countries.

If cross-country institutions matter, differences in country-level governance between the countries in which the target and the acquiring firms are based should play a role in explaining the potential effects on the likelihood of minority acquisitions. Drawing upon a transaction-cost perspective (Williamson, 1979), we hypothesize that higher shareholder protections in the target firm's country (than in the acquiring firm's country) will lead to a greater likelihood of a minority acquisition. In this situation, minority shareholders may benefit from stronger shareholder protections in their target's country; acquirers may voluntarily bootstrap to the better-governance regime of the target firm's country (the bootstrapping effect, described in Martynova & Renneboog, 2008).

We also conjecture that the size of the gap between such creditor protections matters; that is, the higher creditor protections are in the country in which the target firm is based compared to those in the country in which the acquiring firm is based, the lower the likelihood is that a transaction will take place. Arguably, this relationship may reflect two circumstances. First, target firms may seek to attract foreign shareholders to benefit from an increase in access to external capital markets. Second, acquirers may be in a better position to reduce their target's financial constraints through certification, in which acquirers improve the target's corporate governance through the partial takeover (i.e., the spillover effect described in Martynova & Renneboog, 2008). Therefore, in the absence of a certification effect, the target firms are less likely to engage in minority acquisitions.

As shown in Table 5, in all specifications, cross-border minority acquisitions are less likely to occur. This result reflects the fact that cross-border minority acquisitions are approximately 30% of all our sample. It also reflects the home-bias effect on M&A that has been reported in prior research (Ferreira & Matos, 2008). Moreover, in line with our hypotheses, differences in shareholder protections between the countries of target and acquiring firms are statistically significant and positively related to the occurrence of a minority acquisition, and differences in creditor protection have a negative coefficient. This last

TABLE 5 Random effects, panel logit estimates on the likelihood of minority acquisitions—institutional differences across target and acquirer countries

	Dependent variable		
	Deal activity (1 = deal, 0 = no deal)		
	(1)	(2)	(3)
Cross-border	−0.747***	−0.760***	−0.638***
	(0.057)	(0.063)	(0.060)
CPI Difference (Target − Acquirer)	−0.124***	−0.009	−0.073*
	(0.038)	(0.041)	(0.040)
SPI Difference (Target − Acquirer)	0.321***	0.235***	0.285***
	(0.042)	(0.047)	(0.045)
R&D/Assets	0.101	−0.292	−0.691
	(0.750)	(0.629)	(0.642)
SA Index	0.162***		
	(0.054)		
WW Index		0.382***	
		(0.092)	
KZ Index			−0.019
			(0.057)
Year fixed effects	Yes	Yes	Yes
Controls	Yes	Yes	Yes
Full sample	Yes	Yes	Yes
Observations	36,485	34,006	33,157
Log likelihood	−6716.700	−6176.800	−6314.679
Akaike Inf. Crit.	13,485.400	12,405.600	12,681.360
Bayesian Inf. Crit.	13,706.520	12,624.890	12,899.990

Note: This table presents the random effects, panel logit regressions, where the dependent variable is *Deal Activity*, a dummy variable that takes "1" if a firm was target of a minority acquisition in that year for a specific pair of target and acquirer firms, and zero otherwise. *Cross-border* is a dummy variable that assigns 1 (one) if target and acquirer countries are distinct, and zero otherwise. *CPI Difference* (*SPI Difference*) denotes the difference in creditor (shareholder) protection levels between the target and acquirer countries. *Controls* denotes the set of all other covariates as in Table 3. All other regression specifications are similar to Table 3. Standard errors are in parentheses.

*$p < .1$, statistical significance at 10%. **$p < .05$, statistical significance at 5%. ***$p < .01$, statistical significance at 1%.

result is in line with a spillover effect that occurs when country-level creditor protections of acquiring firms are higher than those in the country of the target firms; acquiring firms generate a governance certification for the target firms in the relevant capital markets.

4.2.1 | Differential effects across cross-border and domestic deals

Thus far, our results show that differences in country-level institutional protection between the countries in which target and acquiring firms are based may affect the likelihood of firms to engage in minority acquisitions.

To better understand the differences across the institutional environments (e.g., domestic vs. cross-border contexts), we present the differences between domestic and cross-border acquisitions by analyzing heterogeneous effects on financial-constraint indices (Table 6).

Even though cross-border acquisitions are less likely to occur (the coefficient of the cross-border dummy is negative and statistically significant), this effect is attenuated for financially constrained target firms. Consider the *SA Index*. In our sample, the probability of minority acquisitions for financially unconstrained firms is 6.5% in the domestic contexts and 4.7% in cross-border contexts. However, when considering financially constrained firms, the probability of a minority acquisition increases to 7% for domestic transactions and to 5.4% for cross-border transactions; an increase of 7.7% and 14.9%, respectively, for domestic and cross-border transactions.

Together, these results constitute a fine-grained examination of the determinants of minority acquisitions. They show that financing considerations drive the occurrence of minority acquisitions and that country-specific factors are especially relevant for financially constrained firms. We also examine whether the degree of institutional differences moderates the effect of financial constraints in terms of the likelihood of minority transactions in cross-border deals.

TABLE 6 Random effects, panel logit estimates on the likelihood of minority acquisitions—interaction terms between financing and cross-border

	Dependent variable		
	Deal activity (1 = deal, 0 = no deal)		
	(1)	(2)	(3)
R&D/Assets	0.030	−0.438	−0.690
	(0.750)	(0.635)	(0.642)
Cross-border	−0.852***	−0.892***	−0.639***
	(0.075)	(0.084)	(0.083)
CPI Difference (Target − Acquirer)	−0.119***	−0.010	−0.073*
	(0.038)	(0.041)	(0.040)
SPI Difference (Target − Acquirer)	0.299***	0.220***	0.285***
	(0.043)	(0.047)	(0.045)
SA Index	0.085		
	(0.064)		
SA Index × Cross-border	0.242**		
	(0.110)		
WW Index		0.298***	
		(0.098)	
WW Index × Cross-border		0.266**	
		(0.113)	
KZ Index			−0.020
			(0.069)
KZ Index × Cross-border			0.003
			(0.107)
Year fixed effects	Yes	Yes	Yes
Controls	Yes	Yes	Yes
Full sample	Yes	Yes	Yes
Observations	36,485	34,006	33,157
Log likelihood	−6714.293	−6174.059	−6314.679
Akaike Inf. Crit.	13,482.590	12,402.120	12,683.360
Bayesian Inf. Crit.	13,712.210	12,629.840	12,910.400

Note: This table presents the random effects, panel logit regressions, where the dependent variable is *Deal Activity*, a dummy variable that takes "1" if a firm was target of a minority acquisition in that year for a specific pair of target and acquirer firms, and zero otherwise. *Cross-border* is a dummy variable that assigns 1 (one) if target and acquirer countries are distinct, and zero otherwise. *CPI Difference* (*SPI Difference*) denotes the difference in creditor (shareholder) protection levels between the target and acquirer countries. *Controls* denotes the set of all other covariates as in Table 5. All other regression specifications are similar to Table 5. Standard errors are in parentheses.
*$p < .1$, statistical significance at 10%. **$p < .05$, statistical significance at 5%. ***$p < .01$, statistical significance at 1%.

To explore the mechanisms that may drive the interplay between financing and governance motivations across cross-border deals, we split the sample into financially constrained and unconstrained firms (according to the *SA Index*). Table 7 presents the regression results, and Figure 2 presents a graphical interpretation of the relationship between institutional differences and financial constraints.

Figure 2 shows a noticeable interplay between financial constraints and institutional differences, as indicated by the differences in probability levels across financially constrained/unconstrained firms in the level plots. On the one hand, for financially unconstrained targets, combinations that feature more pronounced differences in shareholder and creditor protections are associated with a higher probability of minority acquisitions. On the other hand, for financially constrained targets, combinations of higher (lower) institutional differences in shareholder protections and lower (higher) differences in creditor protections are associated with higher (lower) probability of minority acquisitions.

These results suggest that the likelihood for a financially constrained firm to engage in minority acquisitions is related to (i) the potential gains in relieving financing constraints by accessing markets

TABLE 7 Random effects, panel logit estimates for governance indices and financing constraints (based on the SA Index) among cross-border deals

	Dependent variable			
	Deal activity (1 = deal, 0 = no deal)			
CPI Difference (Target − Acquirer)	−0.245***	−0.224***	−0.127**	−0.121*
	(0.063)	(0.067)	(0.062)	(0.065)
SPI Difference (Target − Acquirer)	0.264***	0.278***	0.331***	0.327***
	(0.067)	(0.068)	(0.069)	(0.070)
CPI Difference × SPI Difference		−0.033		0.019
		(0.036)		(0.055)
Controls	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Cross-border sample	Yes	Yes	Yes	Yes
Financing constraints	Yes	Yes	No	No
Observations	5555	5555	15,235	15,235
Log likelihood	−887.588	−887.163	−1572.156	−1572.097
Akaike Inf. Crit.	1823.177	1824.325	3192.311	3194.193
Bayesian Inf. Crit.	1982.116	1989.886	3375.464	3384.977

Note: This table presents the random effects, panel logit regressions for financially constrained firms (based on the *SA Index*) among cross-border deals, where the dependent variable is *Deal Activity*, a dummy variable that takes "1" if a firm was target of a minority acquisition in that year for a specific pair of target and acquirer firms, and zero otherwise. *Controls* denotes the set of all other covariates as in Table 5. All other regression specifications are similar to Table 5. Standard errors are in parentheses.
*$p < .1$, statistical significance at 10%. **$p < .05$, statistical significance at 5%. ***$p < .01$, statistical significance at 1%.

with greater creditor protections and (ii) a favorable institutional environment for outside shareholders, aiming to mitigate potential agency costs related to higher levels of information asymmetry associated with cross-border deals. Therefore, country-level governance and financing motives combine to explain cross-border minority acquisitions.

4.2.2 | Robustness

We conduct a series of robustness tests. We first examine other potential confounders related to cross-country differences, such as currency and tax considerations, and differences in information costs arising from geographical and economic distance between target and acquirer countries (Owen & Yawson, 2013). Our results continue to hold, quantitatively and qualitatively (see Table OA2 in the Online Appendix). Additionally, we repeat Table 7's estimations using different indices of financing constraints. The results remain qualitatively similar (see Tables OA3 and OA4 and Figures OA1 and OA2).

4.3 | Assessing ex post deal effects

If minority acquisitions are an effective mechanism for relieving financial constraints, we would expect target firms that are financially constrained to present different trajectories for their economic fundamentals before and after a minority acquisition. To investigate the ex post effect of minority acquisitions, we study the results of the

difference-in-differences specification, highlighted in Equation (5), for the subsamples of domestic and cross-border deals, respectively (see Table 8). Relative to financially unconstrained firms that were also targets of minority acquisitions (i.e., the control group), financially constrained firms (i.e., treated firms) present consistently higher levels of long- and short-term debt, and higher levels of equity after the deal. The results are statistically significant in almost all specifications.

More specifically, for the *SA*, *KZ*, and *WW* specifications, ex post differentials between treated and control groups are positive for both debt and equity levels. To the extent that firms can relieve their financing constraints either through debt or equity, these differences indicate that target firms are able to boost their financing sources after the deal.[6]

Differences in ex post cash holdings levels between financially constrained and unconstrained firms increase after minority acquisitions. In line with the financing motives, we interpret this result as a greater decrease in cash holdings for financially unconstrained vis-à-vis constrained firms. To further explore this interpretation, we investigate a matching sample of financially constrained firms before and after minority acquisitions (see Section 4.4).

The ex post effects presented in Table 8 are qualitatively consistent across subsamples of domestic and cross-border minority acquisitions, implying that financing motivations are present across different institutional environments between targets and acquirers. However, the magnitude of the results does vary. According to the *KZ* and *WW* Indices' specifications, cross-border minority acquisitions present ex post differential effects for financially constrained firms. The *KZ Index*
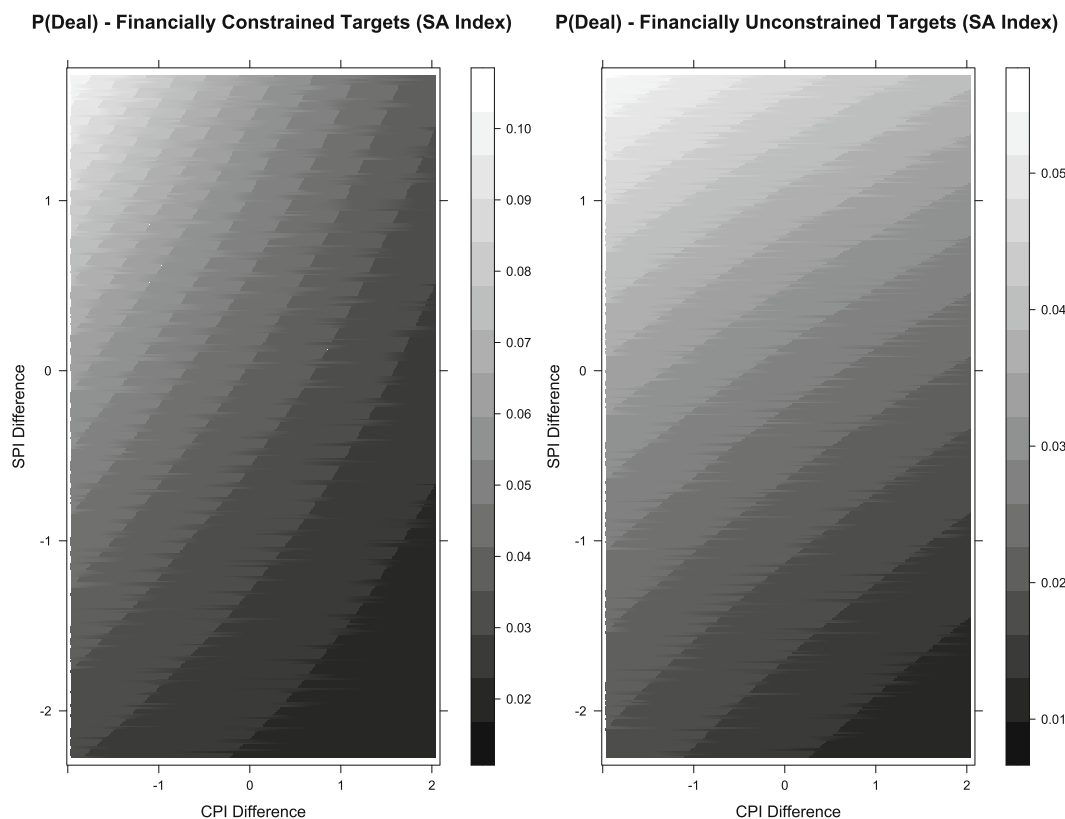
FIGURE 2 Predicted deal probabilities—financial-constraint (based on the SA Index) status and institutional differences. This figure presents the predicted probabilities of the random effects, panel logit regressions for financially constrained firms (based on the SA Index) among cross-border deals, presented in Table 7, Columns 1 and 3. Based on the subsample of cross-border minority acquisitions, we calculate the predicted probabilities as follows. First, we impose *SA Index* = 1 (left panel) and *SA Index* = 0 (right panel). Next, we use a grid of 0.10 across ± 1 standard deviations around the mean values of the *CPI Difference* and *SPI Difference*. For each combination, we calculate the predicted probabilities and average them across the whole sample

shows differences that are seven times those from the group of firms in domestic deals; the *WW* Index shows differences that are roughly twice those from the group of firms in domestic deals.

In contrast, the magnitudes of the effects when using the *SA* Index are slightly lower than those obtained in the domestic subsample. These differences are likely to reflect the sorting of firms according to economic fundamentals (*KZ* and *WW* Indices) or size (*SA* Index). Nevertheless, it is worth noting that, overall, both short- and long-term debt levels increase substantially more in cross-border minority acquisitions. Along with our previous finding that financially constrained targeted firms in cross-border deals tend to rely on institutional environments with high differences in shareholder protections and few differences in creditor protections between the involved countries, the increase in short- and long-term debt after the deal can be related to better institutional protections for creditors—which thereby decreases transaction costs due to increases in the recovery rate of debt.

4.4 | Matching on observables

Both the results from the ex ante determinants of minority acquisitions and those on the ex post financial fundamentals for target firms

indicate that financially constrained firms increase their debt levels more than unconstrained firms do after a minority acquisition. These results are robust after conditioning on a comprehensive set of firm-level, country-year, and industry-year fixed effects.

However, there is still a potential concern regarding our approach related to sample selection. In other words, there may be other characteristics related to our indices of financing constraints that may affect the attractiveness of the transactions. For example, if firms classified as financially constrained are also those that have higher levels of investment opportunities, then our results may simply reflect the fact that a subset of firms has better prospects—which in turn could increase both the attractiveness of a deal ex ante and also drive the increase in economic fundamentals ex post.

Additionally, other motives could influence firms to engage in a minority acquisition—apart from those, for example, that stem from real options or undervaluation. If financial constraints are a true determinant of minority acquisitions, then one would expect the target firms' debt and/or equity decisions to differ from those made by financially constrained firms that did not enter into minority acquisitions. To further investigate these differences, we perform a matching procedure (*k*-nearest neighbors [*k*-NN]) by minimizing the Euclidean distance between the firms' past fundamentals as of the year before

TABLE 8 Ex post deal effects—*Difference-in-Differences*

	Panel A.1: Ex post deal effects (based on SA Index)—domestic deals				Panel A.2: Ex post deal effects (based on SA Index)—cross-border deals			
	Dependent variable				Dependent variable			
	Long-Term Debt	*Short-Term Debt*	*Equity*	*Cash Holdings*	*Long-Term Debt*	*Short-Term Debt*	*Equity*	*Cash Holdings*
Post × SA Index	0.051***	0.035**	0.012	0.043**	0.045***	0.075***	−0.022**	−0.019
	(0.012)	(0.014)	(0.008)	(0.019)	(0.015)	(0.018)	(0.010)	(0.024)
Observations	39,323	39,323	39,323	39,323	35,689	35,689	35,689	35,689
Adjusted R^2	.460	.587	.566	.573	.593	.635	.585	.630
	Panel B.1: Ex post deal effects (based on WW Index)—domestic deals				Panel B.2: Ex post deal effects (based on WW Index)—cross-border deals			
	Dependent variable:				Dependent variable			
	Long-Term Debt	*Short-Term Debt*	*Equity*	*Cash Holdings*	*Long-Term Debt*	*Short-Term Debt*	*Equity*	*Cash Holdings*
Post × WW Index	0.218***	0.293***	0.051***	0.304***	0.337***	0.519***	0.162***	0.511***
	(0.019)	(0.023)	(0.013)	(0.030)	(0.024)	(0.029)	(0.017)	(0.039)
Observations	37,411	37,411	37,411	37,411	34,922	34,922	34,922	34,922
Adjusted R^2	.520	.609	.531	.623	.652	.682	.616	.693
	Panel C.1: Ex post deal effects (based on KZ Index)—domestic deals				Panel C.2: Ex post deal effects (based on KZ Index)—cross-border deals			
	Dependent variable				Dependent variable			
	Long-Term Debt	*Short-Term Debt*	*Equity*	*Cash Holdings*	*Long-Term Debt*	*Short-Term Debt*	*Equity*	*Cash Holdings*
Post × KZ Index	0.003	0.055***	0.005	0.010	0.048***	0.183***	0.032***	0.077***
	(0.013)	(0.016)	(0.009)	(0.021)	(0.016)	(0.018)	(0.011)	(0.025)
Observations	37,155	37,155	37,155	37,155	35,765	35,765	35,765	35,765
Adjusted R^2	.457	.557	.499	.560	.590	.613	.586	.620
Controls × Post fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

*$p < .1$. **$p < .05$. ***$p < .01$.

the deal takes place while imposing an exact matching on year, industry (two-digit SIC code), and country.

Our matching procedure essentially compares two groups of financially constrained firms: the treated group, which consists of financially constrained firms that have entered into minority acquisitions (targets), and the control group, which consists of financially constrained firms that are similar on observables relative to the treated group, but that have not entered into minority acquisitions during our sample period.

For each firm in our treatment group, we compute the growth ratios of firms' fundamentals: specifically, cash holdings, equity, long-term debt, and short-term debt, which are arguably affected by a reduction in financing constraints throughout a window of two

periods before and after the deal year. Additionally, for the year exactly before the deal, we collect information on firms' levels of cash flow, cash holdings, and total debt; data on properties, plants, and equipment (all normalized by total assets); and statistics on sales growth and size (natural logarithm of firms' total assets). In this regard, the estimated average treatment effect on the treated (ATT) can be interpreted as the percentage point difference in growth ratios for these outcomes between targeted and non-targeted financially constrained firms. Table 9 presents a summary of the results for the subsamples of cross-border and domestic minority acquisitions, along with a test of differences, whereas a full description of the matching results for each of the subsamples is presented in Tables OA5–OA7 in the Online Appendix.

In sum, the results from the matching estimates show that, for both cross-border and domestic acquisitions, treated firms experience higher growth in long-term debt relative to control firms, while presenting lower growth ratios for short-term debt, equity, and cash holdings. Together, these results provide a more detailed view on the role of minority acquisitions regarding the financing motives. First, financially constrained targets are able to boost long-term debt ratios and become less dependent on other sources of financing, such as short-term debt and equity. Second, these firms are also able to reduce their dependence on internal resources, possibly due to a reduction in the marginal value of these internal resources for precautionary motives.

Although results are qualitatively similar across subsamples of cross-border and domestic transactions in almost all cases, Table 9 highlights that there are still differences in the magnitudes of the effects between cross-border and domestic deals; these differences can account for additional motivations for and/or mechanisms that relax financing constraints differently.

5 | DISCUSSION

The results presented in the last section provide clear evidence on the determinants and consequences of minority acquisitions for financially

TABLE 9 Matching estimates—comparison between cross-border × domestic minority acquisitions

Outcome	Index	Cross-border (1)	Domestic (2)	(1–2)
Panel A: $[-1, +1]$ years around the deal occurrence				
SA Index	Cash Holdings	−0.09	−0.16	0.08*
	Equity	−0.02	−0.07	0.05*
	Long-Term Debt	0.12	0.13	0.01
	Short-Term Debt	−0.12	−0.10	−0.02
WW Index	Cash Holdings	0.09	−0.24	0.33***
	Equity	−0.15	−0.11	−0.04
	Long-Term Debt	0.11	0.16	−0.05
	Short-Term Debt	−0.17	−0.07	−0.1**
KZ Index	Cash Holdings	−0.08	−0.06	−0.02
	Equity	−0.14	−0.08	−0.06**
	Long-Term Debt	−0.03	0.09	−0.12**
	Short-Term Debt	−0.12	−0.08	−0.04
Panel B: $[-2, +2]$ years around the deal occurrence				
SA Index	Cash Holdings	−0.62	−0.06	−0.57***
	Equity	−0.05	−0.22	0.17**
	Long-Term Debt	0.10	0.05	0.05
	Short-Term Debt	−0.34	−0.08	−0.26***
WW Index	Cash Holdings	−0.64	−1.03	0.39**
	Equity	−0.24	−0.45	0.21**
	Long-Term Debt	0.19	0.21	−0.02
	Short-Term Debt	−0.06	−0.12	0.06
KZ Index	Cash Holdings	−0.45	−0.53	0.08
	Equity	−0.33	−0.31	−0.02
	Long-Term Debt	−0.01	0.08	−0.10
	Short-Term Debt	−0.20	−0.10	−0.10

Note: This table presents the matching estimates for subsamples of cross-border and domestic deals of financially constrained targets, where the treatment assignment is defined as being a *target* of a minority acquisition during the sample period. Panel A compares treated and control firms over a window of ± 1 year around the deal occurrence, whereas Panel B repeats the procedure for a window of ± 2 years. Columns 1 and 2 denote the average treatment effect for cross-border and domestic subsamples, whereas Column 3 (1–2) denotes the difference in means of the estimates. Outcome variables are the growth ratios (in percentage points) in *Cash Holdings*, *Equity*, *Long-Term Debt*, and *Short-Term Debt*. A full description of the matching procedure for the full sample and subsamples of domestic and cross-border minority acquisitions is presented in Tables OA5 and OA7 in the Online Appendix.
*Statistical significance at 10%.
**Statistical significance at 5%.
***Statistical significance at 1%.

constrained firms. Our initial set of results is in line with the previous literature on the specific role of minority acquisitions (Liao, 2014; Ouimet, 2013). We find that the likelihood of being targeted in a minority acquisition is higher for financially constrained firms than for similar financially unconstrained firms—corroborating the financing motive proposed by Liao (2014), in which target firms value minority acquisitions to finance value-enhancing projects that they otherwise would have to forego.

However, these previous studies have not considered the potential effect of differences in country-level governance. We extend this literature by showing that the drivers of cross-border acquisitions differ from those of domestic acquisitions. We find that when shareholder protections in the target firm's country exceed the protections in acquiring firm's country, minority cross-border acquisitions are more likely. This result differs from the findings of prior research on cross-border M&A showing a positive effect of greater differences in shareholder protections in the countries of the acquiring and target firms involved in cross-border acquisitions as a result of a positive spillover effect of governance mechanisms across countries (Martynova & Renneboog, 2008; Rossi & Volpin, 2004). The difference in these findings on cross-border effects may be due to the fact that these prior studies primarily focused on the change in control of target firms (majority acquisitions).

We depart from the previous cross-border literature on M&A (i.e., Martynova & Renneboog, 2008; Rossi & Volpin, 2004) by focusing on minority acquisitions that is, those deals in which the buyer acquires less than 50% of the target. Therefore, we show contrasting effects of country-level governance on the likelihood of acquisitions. We find that the positive effect of institutional differences in cross-country transactions occurs because acquirers of minority stakes are particularly vulnerable to potential expropriation from corporate insiders in overseas markets. This is because of the greater degree of agency problems, which stem from the more pronounced information asymmetries that surface in cross-border transactions. Thus, foreign acquirers engage in minority cross-border acquisitions only when their investments are better protected. In contrast, in majority M&A, the acquirer can afford to buy firms in environments with weaker governance standards because the acquirer, as the controlling shareholder, has the means to change the target firm's governance and, thus, to preempt potential expropriation.

Our work provides novel insights into the determinants of minority acquisitions by examining the interplay between the financing and country-level governance motives. We find that while financially constrained firms benefit from increasing their access to markets with higher levels of creditor protections, country-level shareholder-protection levels offer a favorable institutional environment for outside investors, helping to mitigate the potential agency costs related to higher levels of information asymmetry that are inherent in cross-border deals. All in all, differences between rather than the levels of investor protections in countries in which the target and acquiring firms are based seem to represent an important factor to determine the attractiveness of such transactions.

It is worth noting that our results are unlikely to be driven by sampling choices. First, we note that other research in the literature has also relied on the same primary sources of data (Zephyr and Orbis) that we use in our work. For example, Erel et al. (2015) have also found a broad, positive relationship between deal activity and target financing constraints, which is consistent with our results. Moreover, our results are qualitatively consistent with prior research that addresses similar questions about the effects of financing, governance, and contracting motivations for minority acquisitions—albeit relying on different data sources. For example, Liao (2014) examines domestic minority-block acquisitions across 40 economies and shows that target firms are more likely to be financially constrained. Thus, our findings are in line with those of Liao (2014) in one respect: The results of both papers show support for the financing motive. Ouimet (2013) uses a sample of US acquisitions to show that financially constrained firms are more likely to be targeted in minority transactions and that they benefit from certification. Our ex post results point out to the same interpretation. That is, target firms benefit from the certification effect, especially, in cross-border transactions.

At the same time, we depart from their analyses by focusing on answering the question of whether the motivations of cross-border minority acquisitions differ from those of similar domestic transactions. Therefore, we explore the cross-country governance motives. We find that financing and country-level governance considerations combine to explain minority acquisitions. Our results extend prior work and provide novel evidence on the moderating role of country governance to explain the financing motives for minority transactions.

In sum, our results extend prior research on M&A by examining different mechanisms by which firms engage in cross-border and domestic minority acquisitions. Our findings support prior evidence on financing motives, ruling out the contracting motive. We show that financing and country-level governance considerations jointly explain both cross-border and domestic acquisitions.

6 | CONCLUSION

Minority acquisitions are a prevalent type of organizational change that affects firms in M&A transactions (Ouimet, 2013). Previous research that has sought to understand the drivers of these transactions has suggested three basic theoretical motivations: financing, governance, and contracting. However, understanding has been lacking about whether and how these motives differ between acquisitions that take place within one country and those that play out across international borders. This study addresses this gap.

Our paper explains underlying motivations by showing the interplay of the roles of financing and differences in country-level governance. Our results reveal that the likelihood of minority acquisitions is affected by sharp differences between country-level governance mechanisms to protect outside investors.

A key finding is that financing and country-level governance motivations interact jointly. This linked interaction explains minority acquisitions, and it affects financing decisions of target firms in the wake of these transactions. We find that an increase in the difference in the degree of shareholder protections offered by countries in which the

target and acquiring firms are based increases the likelihood of a minority acquisition for financially constrained firms. That is, this situation occurs where there are greater shareholder protections offered in the country in which the target firm is based than in the country in which the acquiring firm is based. Likewise, greater differences in the creditor protections between the countries involved increase the likelihood of a cross-border minority acquisition. That is, a minority acquisition occurs when creditor protections in the country in which the target firm is based are lower than those in the country in which the acquiring firm is based.

Our results also provide evidence that country-level governance differences across the countries involved in minority acquisitions may compensate for or decrease additional transaction costs involved in a cross-border setting. In this context, investors, creditors, and debtors may seek to capitalize on the more beneficial institutional landscape that such international transactions offer. Moreover, our ex post results confirm that target firms that are financially constrained show higher growth in their financing fundamentals after the transaction, with different magnitudes for domestic and cross-border minority acquisitions. For example, ex post differential effects for financially constrained firms are two to seven times higher in cross-border than domestic transactions.

Future research could address key remaining questions: What are the specific mechanisms behind institutional differences that shape the attractiveness of minority transactions? What other financial and non-financial outcomes can be observed after minority transactions? Whether and how do firm-level governance mechanisms (such as board characteristics, executive compensation, and ownership characteristics) influence minority transactions?

This study has important theoretical and practical implications. From a theoretical perspective, our findings expand the minority acquisitions literature, providing evidence for the importance of jointly examining financing and country-level governance motivation in explaining domestic and cross-border minority acquisitions and their consequences. From a practical perspective, the paper offers valuable insights for business and public policy. The paper highlights how firms can circumvent financial constraints through partial integration, especially in cross-border settings; for example, cross-border and domestic minority acquisitions potentially offer beneficial outcomes for the leverage and liquidity of target firms. In terms of public policy, the findings show that minority shareholder protections improve not only the equity market but also the debt market through a certification effect.

NOTES

[1] Bollaert and Delanghe (2015) describe significant differences between the Zephyr and SDC Platinum databases. Therefore, we caution readers about the degree of direct comparability of our results with those derived using SDC Platinum.

[2] An important concern regarding the *WW* Index is presented by Farre-Mensa and Ljungqvist (2016), who argue that the index was constructed based on quarterly industry growth. To follow the correct specification of the *WW* Index, we transform industry growth and sales growth to a quarterly rate following $(1+g)^{(1/4)}-1$. In unreported tables, unadjusted specifications for the *WW* Index were also applied considering yearly growth rates. All results remain robust to these alternative specifications.

[3] In this regard, $Post_{i,t}$ is coded as one for the year of the deal or after, and zero for any period before the deal takes place. Additionally, note that $Post_{i,t}$ equals one only for firms that entered in deals. As such, the double-interaction term between *Post* and *Deal* is therefore omitted from the regressions.

[4] When assessing the deal likelihood for each subgroup, we take the following steps: For each definition of financing constraints *FC*, we calculate the predicted probabilities of our regression sample imposing that $FC = 1(0)$ for the groups of financially constrained (unconstrained) firms. We also average the individual probabilities p_i across the whole subsample j of financially constrained/unconstrained firms, where $\overline{p}_{FC=j} = \left[\sum_{i,FC=j} 1/(1+e^{-(X_i\beta)})\right]/N_{FC=j}$.

[5] We run the same regressions for different specifications for R&D intensity, such as R&D expenses over gross sales, and find qualitatively similar results. Tables are omitted for the sake of space. Results are available from the authors.

[6] Unfortunately, we do not have access to firms' bond and equity issuances across the post deal period to investigate the specific mechanisms behind these results.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from Bureau van Dijk. Restrictions apply to the availability of these data, which were used under license for this study. Data are available from the authors with the permission of Bureau van Dijk.

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of the article at the publisher's website.

APPENDIX A

TABLE A1 Variables, definitions, and sources

Variable	Definition	Source
Financing constraints		
SA Index	Size Age Index for financial Constraints, where "1" denotes a financially constrained firm, while "0" denotes a financially unconstrained firm, following Hadlock and Pierce (2010).	Hadlock and Pierce (2010)
WW Index	Whited and Wu Index for financial Constraints, where "1" denotes a financially constrained firm, while "0" denotes a financially unconstrained firm, following Whited and Wu (2006).	Whited and Wu (2006)
KZ Index	Kaplan and Zingales Index for financial constraints, where "1" denotes a financially constrained firm, while "0" denotes a financially unconstrained firm, following Lamont et al. (2001).	Lamont et al. (2001)
Financials and deal information		
Cash Flow Ratio	Target firms' level of cash flow, defined as the ratio of firms' Cash Flow to Total Assets.	Osiris
Cash Holdings Ratio	Target firms' level of cash holdings, defined as the ratio of firms' Total Cash and Short-Term Investments to Total Assets.	Osiris
Deal Activity	A dummy variable that takes "1" if a firm was target of a minority acquisition in that year for a specific pair of target and acquirer firms, and zero otherwise.	Zephyr
Acquired Stake (%)	Percentage of the target firms' overall shares acquired by the acquirer firm.	Zephyr
Initial Stake (%)	Percentage of the target firms' overall shares initially held by the acquirer firm before acquisition takes place.	Zephyr
EBITDA Margin	The ratio of target firms' earnings before interest, taxes, depreciation, and amortization (EBITDA) to Total Assets.	Osiris
EV/EBITDA	The ratio of firms' Enterprise Value to EBITDA.	Osiris
Financials	A dummy variable that assigns 1 (one) if the acquirer firm belongs to the Financial industry (SIC Codes 600-679), and zero otherwise.	Osiris
Leverage	The ratio of target firms' Total Debt to Total Equity.	Osiris
Size	The natural logarithm of target firms' Total Assets.	Osiris
Long-Term Debt Ratio	The ratio of target firms' Total Long-Term Debt to Total Debt.	Osiris
PPE/Assets	The ratio of target firms' Property, Plant, and Equipment.	Osiris
Sales Growth	Target firms' sales growth, defined as the annual growth in Gross Sales.	Osiris

(Continues)

TABLE A1 (Continued)

Variable	Definition	Source
R&D/Assets	Target firms' annual research and development expenses over Total Assets.	Osiris
ROA	The ratio of target firms' Net Operating Profit After Taxes (NOPAT) to Total Assets.	Osiris
ROE	The ratio of target firms' Net Profits to Total Equity.	Osiris
Same Industry	A dummy variable that assigns 1 (one) if acquirer and target firms belong to the same 3-Digit SIC Code, and zero otherwise.	Zephyr
Short-Term Debt Ratio	The ratio of target firms' Total Short-Term Debt to Total Debt.	Osiris
Total Debt Ratio	The ratio of target firms' Total Debt to Total Assets.	Osiris
Stock Volatility	Target firms' yearly stock return volatility, defined as the yearly compound target firms' stock return volatility.	Orbis
Yearly Stock Returns	Target firms' yearly stock return, defined as the variation between yearly closing price.	Orbis
Country-level Information		
Target SPI	Target country's Shareholder-Protection Index, following Siems (2008).	Siems (2008)
Target CPI	Target country's Credit Protection Index, following Armour et al. (2009).	Armour et al. (2009)
Corporate Bond Issuance	Ratio of new target countries' corporate bond-issuance volume by private entities in industries other than finance, holding companies, and insurance to GDP.	Global Financial Development Data (GFDD)
Bank Deposits	The total value of target countries' demand, time and saving deposits at domestic deposit money banks as a share of GDP.	Global Financial Development Data (GFDD)
ln(GDP)	Natural Logarithm of target countries' GDP at purchaser's prices.	Global Financial Development Data (GFDD)