Collective Bargaining and Takeover Activity around the World[∗]

M. Farooq Ahmad
Université de Lille – SKEMA Business School
Rue de Mulhouse 2, BP 381, 59020 Lille, France
Email: muhammadfarooq.ahmad@skema.edu

Thomas Lambert
Rotterdam School of Management, Erasmus University
P.O. Box 1738, 3000 DR Rotterdam, The Netherlands
Email: t.lambert@rsm.nl

This version: April 2, 2016

Abstract:

Our results highlight the importance of collective bargaining on the pattern of takeover activity in 46 countries from the early 1990s. We find that the size and dynamics of takeover markets within industries increase in countries with powerful labor unions and high coverage of bargaining coordination. Further analyses show that collective bargaining enhances takeover activity because potential acquirers have greater gain opportunities sourced from the reappropriation of employee rents. In addition, we show that the negative effect of tighter employment legislations on takeovers found in prior works is largely offset by the effect of collective bargaining. Our results provide new insights into the real effects of employment protection in the context of takeovers.

Keywords: collective bargaining, employment protection legislations, labor unions, mergers and acquisitions, premiums, target announcement returns

JEL classification: G30, G34, J51, K31

1. Introduction

A large literature has developed to understand the importance of rank-and-file employees in the context of mergers and acquisitions (M&A). Recent studies highlight, in particular, that variations in employment legislations play an important role in explaining takeover activity (Alimov, 2015; Dessaint, Golubov and Volpin, 2015; John, Knyazeva and Knyazeva, 2015). This is of particular interest to policymakers and firm stakeholders not only because the surge in takeover activity since the 1990s entails massive reallocation of (human) resources across the world economy, but also because employment legislations can be altered by collective bargaining systems over time. This paper reports a set of novel empirical regularities that counter standard theoretical intuition in the analysis of the role of rank-and-file employees following transfers of ownership and contributes to its understanding by focusing on the differential effect of the two main institutions governing employment protection—namely, collective bargaining and employment legislations—in shaping takeover markets across the globe.

This paper has three goals. The first is to empirically investigate the relationship between the national level of employment protection and takeover activity. The focus of this paper is mostly on collective bargaining. However, we also assess the role of the degree of employment protection afforded by laws and regulations. Two competing views motivate the examination of this relationship. On the one hand, tighter employment protection may hinder workforce restructuring and the associated synergy gains, resulting in less active takeover markets. On the other hand, taking over firms in pro-labor environments allows new employers (i.e., acquirers) to achieve relatively greater gains by recouping larger rents held by target employees, in turn increasing aggregate takeover activity. The merit of these two views is an empirical question. The second

goal of this work is to provide further insights into the documented empirical relationship. To do so, we explore the source, magnitude, and direction of wealth transfers between target employees and shareholders. The third goal of the paper is to employ a comprehensive data source on collective bargaining system to document its impact, along with employment legislations, on M&A activity around the world. To the best of our knowledge, this is one of the very first efforts in directly documenting how both institutions of employment protection interact and affect takeovers and mergers. Little is known about their respective effects and how they differ. Indeed, although tighter employment protection legislations give employees more *de jure* bargaining power, they tell us little about employees' *actual* bargaining power in a particular country; that is, how a particular dispute is resolved in practice, given labor market stance and union density. In fact, countries may embrace strict employment protection legislation reforms as a try to achieve at least moderate actual employment protection. This distinction is not purely hypothetical. From a worldwide sample, Kanbur and Ronconi (2016) find a negative correlation between the stringency of employment legislations and the intensity of their enforcement. Figures 1-3 suggest, more particularly, that collective bargaining and employment legislations do not play an identical role on M&A activity around the world, unveiling that their identification is crucial to better comprehend the labor channel in the M&A literature.

In this paper we focus on the two most salient features of countries' collective bargaining system—namely, union density and bargaining coverage—and examine their impact on the size and dynamics of M&A activity around the world. More specifically, using industry-level data from 46 countries over the period 1992 to 2010, we exploit intertemporal variations in collective bargaining across countries to isolate the industry effects of M&A activity that are caused by union density and bargaining coverage, respectively. Looking at union density and bargaining coverage

allows us to identify the impact played by actual (as opposed to de jure) employment protection or degree of labor market rigidity. Indeed, union density captures the strength of labor unions, while bargaining coverage goes some way in capturing the importance of collective agreements as opposed to individual contracts. We consider both features as they do not tell us alone the whole story.[1] As Visser (2003, page 367) explains: "union density is closer to measuring potential union bargaining pressure, … [whereas] bargaining coverage [is] closer to measuring the effectiveness of unions in providing and defending minimum standards of income and employment protection in labor markets."

This paper aims at identifying institutional characteristics of employment protection that are related to M&A activity. The empirical analysis shows that collective bargaining increases the frequency and volume of M&A at the industry level. These results are consistent with the view that differences in countries' collective bargaining protections have a positive and significant effect on M&A activity. The size of the effect is substantial. A one standard deviation increase in union density (resp. bargaining coverage) leads to a 7.2% (resp. 10.7%) increase in the frequency of M&A within industries. Similarly, a one standard deviation increase in union density (resp. bargaining coverage) increases the volume of M&A by 1.7% (resp. 2.6%). In addition to industry-country and industry-year fixed effects, we contemporaneously control for industry levels of competition, leverage, growth prospects and profitability as well as countries' macroeconomic and institutional environment—variables that have been shown to affect M&A activity. In other words, we directly control for industry effects of M&A activity that come through changes in industry-country-level and country-level variables that are brought about by union density and bargaining

---

[1] See, for example, Flanagan (1999) and OECD (2004) in the labor economics literature.

coverage. Thus, the effect of collective bargaining on the pattern of M&A activity that we document is independent of the other determinants of M&A activity.

The second contribution of the paper is to investigate the economic channel. First, we explore cross-sectional heterogeneity of the relationship. Consistent with the view that a reason of firms' attractiveness is linked to the operational gains from active cost-cutting (including layoffs) after takeovers, we find that the positive relationship between collective bargaining and M&A activity is stronger in labor-intensive industries. Second, we further gauge this cost-cutting channel by estimating the magnitude and direction of wealth transfers from employees to shareholders in target firms. Shleifer and Summers (1988) argue that a large part of the takeover premium comes from rent expropriation from employees. Collective bargaining is generally viewed as a rent-seeking institution that successfully captures quasi-rents, such as higher wage premiums and staffing levels, which could have otherwise flowed to shareholders in the form of higher profits. We show that greater collective bargaining leads to higher takeover premiums accruing to target shareholders, as proxied by the announcement returns of target firms (see Schwert, 2000). In a multivariate regressions accounting for a host of potentially correlated effects, we find that target firms in countries with high collective bargaining protections experience higher announcement returns. As an example, target firms' return around the announcement date increases by 51.9% to 64.2% of its unconditional average of 19.5% when a country's union density rate increases by one standard deviation. For average-sized target firms, this means an expected gain of $96.4-119.1 million. All else equal, collective bargaining protections generate substantial gains for target shareholders. We find similar results when we look at offer premiums. Third, we examine the effects of collective bargaining on post-takeover workforce restructuring. We find that takeovers and mergers do reduce combined firm employment, but higher collective bargaining protections

4

are associated with greater reduction in the combined firm workforce. This result suggests that post-takeover reduction in staffing levels is an important source of wealth transfers accruing to target shareholders, which further reinforces the cost-cutting channel interpretation of our main results.

The third contribution of the paper is to assess the combined effect of collective bargaining and employment legislations. We confirm the findings of prior works by showing a direct and negative effect of employment protection legislations on the frequency and volume of M&A at the industry level. Then we find that the direct and positive effect of collective bargaining on M&A activity continues to hold after controlling for employment protection legislations. The economic interpretation of these results reveals that collective bargaining considerably mitigates the negative effect of tightened employment legislations.

We also consider a number of alternative explanations for the increased M&A activity in countries with high prevalence of collective bargaining. First, one could argue that our results are due to the quality of legal institutions protecting outside investors. We address this criticism by running "horse races" between our measures of collective bargaining and several indices of legal protections of shareholder rights. We do not find any evidence that the inclusion of these indices attenuates the impact of collective bargaining on M&A activity. Second, because employment protection could incentivize employees to increase their investment in skills and to take more successful and innovative pursuits, countries with high levels of employment protection could constitute a comparative advantage for acquirers in innovation-intensive industries, in turn fostering M&A activity. We show that this innovation-based explanation is inconsistent with the data. Third, a business cycle effect could also drive the observed positive relationship in this study.

We show that our results are robust to controlling for recession periods, but also that the effect of collective bargaining is more pronounced during recessions.

Finally, we perform a battery of robustness tests. We gauge the sensitivity of our main results to various subsamples to verify whether our findings are not confined to subsets of particular takeover markets such as in the UK and US, in non-OECD countries, or in heavily regulated industries. As the Scandinavian exception could also drive the results, we repeat our analyses without those countries. Then we use other data sources for our indicators of collective bargaining. We also verify the robustness of our results to sample selection issues by imposing different criteria to select and weigh the M&A deals included in our analyses. We do not find any evidence that changes our prior conclusions.

This paper contributes to the empirical literature on labor and takeovers. Early works study employment outcomes following takeovers. From hostile takeovers taking place in the 1980s, Bhagat, Shleifer and Vishny (1990) find that layoffs explain 10-20% of the average takeover premium. Brown and Medoff (1988) and Kaplan (1989) find consistent results in other contexts. Among the more recent work, Li (2013) studies productivity changes after takeovers and finds that target plants undergo significant job destruction, among other operating cost reductions. Davis, Haltiwanger, Handley, Jarmin, Lerner and Miranda (2014) document that private equity buyouts lead to greater job loss at establishments operated by target firms. Ouimet and Zarutskie (2016) show that some firms pursue M&A in order to efficiently increasing the workforce. Other works move one step further to investigate the role of labor unions in takeovers. These works rely on the US experience and include Rosett (1990), Becker (1995), Li (2012), and Tian and Wang (2016). Rosett (1990) and Becker (1995) show that takeovers result in the redistribution of rents held by unionized labor to shareholders. Li (2012) analyzes the role of labor unions in protecting workers'

interests in takeovers. He finds that targets in more unionized industries experience worse wage and employment outcomes after takeovers. Exploiting union election results, Tian and Wang (2016) find that unionization has a negative impact on firm's takeover exposure and merger gains.

Recent studies focus on employment protection legislations and M&A activity. Empirical evidence is also mixed. John et al. (2015) find that acquirers from US states that have passed the right-to-work statutes experience lower announcement returns. However, they report that the volume of acquisition activity is *not* significantly different between weak labor rights and strong labor rights states. Alimov (2015) shows that countries with tighter employment regulations correlate with higher levels of *cross-border* merger activity. In contrast, Dessaint et al. (2015) show reductions in takeover activity and synergies after the passage of major employment legislation reforms that increase employment protection in 21 OECD countries over the period 1985-2007. In this paper, we complement their work along two main dimensions. First, we confirm that the reduced takeover activity in response to tighter employment legislations continues to hold using a sample covering a larger set of countries. Their sample comprises about 70% of deals that took place in the UK or US. Both countries are very different from the average country in our sample of 46 countries in the 1992-2010 interval. Second, we concentrate our analysis on employment protection afforded by collective bargaining and show that the negative effect of employment legislations is largely offset by the positive effect of collective bargaining. To the best of our knowledge, this is the first comprehensive study providing worldwide evidence on the effects of collective bargaining on overall M&A activity.

This paper also builds on the literature on cross-country determinants of M&A activity. Using a sample of 49 countries, Rossi and Volpin (2004) find that better investor protection is associated with high rate of successful M&A deals, more attempted hostile takeovers and fewer

cross-border deals. They also report that takeover premiums are higher in countries with better investor protection. In an industry-level analysis, like ours, Bris, Brisley and Cabolis (2008) examine the effects of cross-border mergers that are associated by differences in investor protection. They find that the Tobin's Q of an industry is positively related to the percentage of the market capitalization in the industry that is acquired by firms coming from countries that are more protective. Bris, Cabolis and Janowski (2010) and Lel and Miller (2015) document that countries adopting takeover and anti-trust laws experience an increase in aggregate M&A activity. Ahern, Daminelli and Fracassi (2015) highlight the role of national culture in merger decisions around the world. Our paper adds to this literature by identifying a significant effect of collective bargaining on M&A activity within industries in a large cross-section of countries over two decades.

The rest of the paper proceeds as follows. Section 2 discusses the various channels through which employment protection affects takeover activity and, in this way, lays out the hypotheses to be tested. Section 3 describes the data and provides preliminary results. Section 4 contains regression results. Section 5 presents concluding remarks.

2. Hypotheses Development

We propose two competing testable hypotheses for the link between employment protection and takeover activity. First, the pursuit of efficiency is commonly presumed to be an important motive of takeover decisions.[2] In particular, acquiring firms create efficiency gains by correcting existing inefficiencies such as redundant employment and excessive wages. Employees

---

[2] See pioneering works of Gort (1969), Jensen (1993), and Mitchell and Mulherin (1996).

as a group may thus resist takeover when they face employment uncertainty, giving rise to conflicts of interest between target employees and shareholders. Employees' ability to resist is a function of their bargaining power, being either determined by collective bargaining or by laws. There are several plausible reasons that employees' bargaining power deters takeovers. Collective bargaining protections give employees mechanisms to partake in firm decisions, limiting acquirers' ability to renegotiate the employment contracts that they have incentive to breach. Some deal announcements are also subject to labor unions' approval and involve negotiations about concessions on wages and employment contract terms.[3] The legal framework governing individual and collective dismissals further influences the costs incurred by acquirers in restructuring the workforce. These reasons are supported by numerous studies that show employment protection and, in particular, labor unions destroy firm value in the long run (see, most notably, Lee and Mas, 2012). Another reason is related to the role of employees for integrating the two firms following the takeover. Efficient integration process usually goes hand-in-hand with an increase of employees' investment in post-takeover firm-specific human capital (see John et al., 2015, for a discussion). The willingness and engagement of employees in providing their time, skills and knowledge are, indeed, crucial to ensure a successful integration between the two firms.[4] Thus, by bearing the cost of effort and firm-specific human capital investment, employees' interests may diverge with the ones of shareholders in the M&A context, threatening efficient integration process and deal performance. Taken together, employees' bargaining power may be treated as heavy hurdle to potential acquirers, reducing target firms' attractiveness and in turn slowing down overall M&A activity. We therefore propose the following hypothesis.

---

[3] Relatedly, organized labor can take collective actions, such as strikes and lockouts, to oppose a takeover bid or be very effective in mobilizing media and politicians to block the deal and thereby retain their jobs (see Hellwig, 2000).
[4] For example, employees must learn new production and information technologies or get new job responsibilities resulting from the combination of the two firms.

Hypothesis 1: There is a negative relation between the national level of employment protection and M&A activity.

Second, an alternative hypothesis generates the opposite empirical prediction, that is, the degree of employment protection increases takeover activity. When employment protection is tighter, managers are more likely to collude with employees when strong managerial incentives are absent. Pagano and Volpin (2005) argue that managers may offer higher wage premiums in return for employees' support to avert hostile takeovers, decreasing firm value. Cronqvist, Heyman, Nilsson, Svaleryd and Vlachos (2009) show that entrenched managers pay their employees more. However, a change in ownership can break collusive agreements between managers and employees. Stronger managerial incentives following takeovers and mergers may lead to greater gains originated from rents held by target employees, and such gains will be greater when bargaining with (unionized) employees is tougher. In other words, greater employee rents, associated with tighter employment protection, are seen as important sources of post-takeover gains accruing to target shareholders, in turn enhancing aggregate takeover activity. Consistent with this idea, Rosett (1990) and Becker (1995) find wealth concessions by unions in takeovers. Li (2012) shows that unions worsen wage and employment outcomes after transfers of ownership. This is further consistent with Shleifer and Summers (1988) who propose a view of takeovers as breaching existing contracts, either explicit or implicit, between incumbent managers and firm stakeholders; Garvey and Gaston (1997) formalize this view. The authors argue that acquirers renege on existing contracts and expropriate rents from target firm stakeholders. Anticipating this breach of contract, target shareholders demand higher prices from the acquirers, and thus the post-acquisition transfers show up as (part of) the takeover premiums. The victims of such

redistributions are, among firm stakeholders, mostly employees. Thus, we have the following alternative hypothesis.

Hypothesis 2: There is a positive relation between the national level of employment protection and M&A activity.

Conceptually, the discussion above applies to the national level of *employment protection*. However, different institutions govern employment protection at the national level with potentially different effects on M&A. Collective bargaining and employment legislations are the two key institutions. As discussed in the introduction, the latter defines employees' de jure bargaining power, while the former reflects employees' actual bargaining power in a particular country. Our analysis accounts for this institutional difference. More specifically, we assess whether the effects on M&A activity played by both institutions are complementary, substitute or simply opposite.

In addition, collective bargaining at industry level between individual labor unions and employer associations is a central arena for setting wage and employment conditions in some countries, which may cast some doubts on the importance of collective bargaining at the national level that we investigate. We address this possibility by including interacted industry and year fixed effects to control for industry-level dynamics.

3. Sample, Variables Definitions and Preliminaries

3.1. Sample Composition and Data Sources

Our sample of transactions is obtained from the Securities Data Corporation's (SDC) Mergers and Acquisitions database for 46 countries covered by the Institutional Characteristics of

Trade Unions, Wage Setting, State Intervention and Social Pacts' (ICTWSS) database over the period 1992-2010. Our sample period starts in 1992 because it is the first year when the data quality in the SDC database became reliable.[5] We include all completed deals (domestic and cross-border) valued at $1 million or more for which the target is a public firm. We exclude LBOs, spin-offs, exchange offers, recapitalization, share repurchases, tender offers and buyback transactions. We drop self-dealing transactions from our sample for which acquirer and target CUSIPS and announcement dates are identical. For each deal, we obtain information (from SDC) on announcement date, public status of target, transaction value, form of deal, industry classification and other deal-related variables. The data filters yield a sample of 32,912 M&A deals with an aggregate deal value of $13,645.35 billion across the 46 countries.

Table 1 presents the sample composition. The numbers reported are in line with prior studies, including Rossi and Volpin (2004), Erel, Liao and Weisbach (2012), Ahern et al. (2015) and Lel and Miller (2015), and thus do not warrant detailed discussion. Panel A reports the time distribution of deals. For example, we observe an increase in both the number of M&A deals and transaction values over the years 1997 to 2000, which reflects the M&A wave of the 1990s. We observe another surge in years 2007-2009. Panel B presents the distribution of deals across countries. The top three target countries undertaking large number of deals in our sample are the US (11,409), Japan (3,503) and Canada (2,779). Consistent with Rossi and Volpin (2004), Common law countries represent the bulk of M&A activity. Panel C presents the breakdown of the number of deals per industry-year. We classify industry using the Fama-French (FF) definitions of 12 industry portfolio (see Fama and French, 1997). The number of deals per industry is relatively

---

[5] See Netter, Stegemoller and Wintoki (2011) for a thorough discussion on the completeness of SDC data. In particular, the authors point out that SDC covers deals of any value, including unreported values, only after 1992 (see also the SDC online help).

stable over the sample period. The financial services industry counts the highest number of deals, with a total of 7,117 deals over the sample period. A boom in this industry is also observed in 1998 with 490 deals. The industry called "Other" which includes, among others, mines, construction, hotels and entertainment is the second biggest industry in terms of number of deals.

The data on firm/industry characteristics are obtained from Center for Research in Security Prices (CRSP) for the US and from Worldscope for the other 45 countries. We use all listed firms available in each year across all the countries. The daily security prices data are obtained from CRSP and Compustat Global databases. For country and country-pair characteristics, we collect data from various data sources. All variables definitions and sources are summarized in Table A1.

3.2. Measuring Takeover Activity

Our indicators of takeover activity measure the frequency and volume of M&A, which respectively capture the dynamics and size of takeover activity. We construct our variables at the industry level using the 12-FF industries. A more detailed industry classification (like the 48-FF industries) would inflate the number of zeros due to the low takeover activity in many industries of some countries. Closely following Rossi and Volpin (2004) and Bris et al. (2008), our indicators of M&A activity are defined as follows.

The frequency of M&A is calculated as the number of M&A transactions per industry-country-year scaled by the number of listed firm per industry-country-year. More formally,

$$Frequency\ of\ M\&A_{jkt} = \frac{Number\ of\ M\&A\ transactions_{jkt}}{Number\ of\ listed\ firms_{jkt}},$$

where j, k and t are industry, target country and year, respectively. Scaling the number of M&A transactions by the number of listed firms allows us to capture the relative intensity of M&A activity *across* and *within* industries-countries.

The volume of M&A is calculated as follows:

$$Volume\ of\ M\&A_{jkt} = \frac{Total\ dollar\ transaction\ value\ of M\&A_{jkt}}{Total\ market\ capitalization\ of\ listed\ firms_{jkt}},$$

that is, the dollar value of all M&A of firms from industry j in country k in year t divided by the total stock market capitalization of industry j in country k in year t. Information on the number of listed firms and stock market capitalization for each firm is retrieved from CRSP (for the US) and Worldscope (for the other countries).

3.3. Measuring Takeover Gains

Our measurement of M&A gains of target firms follows Masulis, Wang and Xie's (2007) study, meaning that we compute the cumulative abnormal returns (CAR) relative to announcement date by market model. We calculate a 3-day CAR spreads over (-1,+1) event window in which 0 is the announcement date. The parameter of the market model is estimated by 200-day estimation period spreads over (-236,-36) days from day 0. For robustness purposes, we also calculate target CAR over 7-day and 11-day windows around the deal announcement date and also look at the offer premium. The offer premium is defined as the offer price relative to target market price four weeks prior to deal announcement.

3.4. Measures of Collective Bargaining

We measure two salient features of a country's collective bargaining system which shapes labor power over the firm (see, e.g., Flanagan, 1999; OECD 2004). The two country-level indicators used are union density and bargaining coverage. We draw our measures from the comprehensive ICTWSS database compiled by Visser (2011) at the Amsterdam Institute for Advanced Labor Studies (AIAS) of the University of Amsterdam, of which most researchers in labor economics refer to.

Union density is net union membership as a proportion of wage and salary earners in employment.[6] It ranges from 0 to 1. Moving from low to high shows increase in union density rate. Next, bargaining coverage is number of employees covered by collective (wage) bargaining agreements as a proportion of all wage and salary earners in employment with the right to bargaining. The index does not include the sectors and occupations that are excluded from right to bargain. It ranges from 0 to 1. Moving from low to high shows increase in coverage by bargaining agreements. While union density represents one measure of potential union bargaining clout, bargaining coverage is a complementary indicator of union presence as it measures the real extent to which salaried workers are subject to union-negotiated terms and conditions of employment. For robustness purposes, we also use additional measures of union density and bargaining coverage reported by the OECD and International Labour Office (ILO).

---

[6] This makes the best available approximation because this measure corrects for the number of retired workers, among others; see also Ebbinghaus and Visser (2000).

3.5. Measure of Employment Protection Legislations

To capture the stringency of employment protection legislations, we use the Employment Protection Laws (EPL) index compiled by the OECD. The EPL is a composite index covering various aspects of dismissal protection grouped into three broad categories: (1) the procedural requirements that need to be followed after the decision of firing in case of regular employment contracts; (2) the notice and severance pay requirements; (3) the difficulty of dismissal. This index ranges from 0 to 5. Higher EPL strengthens employees' de jure bargaining power. The use of the EPL index offers an important advantage as it is comparable across and within countries.

3.6. Other Determinants of Takeovers

Since many other factors are likely related to the patterns of collective bargaining, we control for a host of industry-country-level factors and country-level characteristics in our industry-level analysis. For our (deal-level) CAR analysis we further control for other deal-level, firm-level and country-pair characteristics. All control variables employed have been shown by existing research to be associated with the size and dynamics of M&A activity and gains (e.g., Rossi and Volpin, 2004; Billet and Xue, 2007; Masulis et al., 2007; Bris et al., 2008; Erel et al., 2012; Ahern et al., 2015; Lel and Miller, 2015). All the variables used in the analyses are further detailed in Table A1.

First, in our deal-level analysis we include deal size, relative size and target market capitalization variables as well as cash payment, financial acquirer, toehold, friendly deal and same industry dummy variables. Second, we control for firm-level characteristics: total assets, leverage,

market-to-book ratio, ROA, dividend per share and competition structure of the industry. Third, we convert all firm-level variables at industry-level by taking the industry median of each variable.[7] The inclusion of these variables isolates the effects of deal, firm and industry characteristics on M&A activity/gains from our measures of collective bargaining. Fourth, we account for various country-level and country-pair characteristics. To capture a country's size and level of economic development, we use GDP and GDP per capita. We also control for recession periods. We add both stock market capitalization and private credit ratios to capture a country's level of financial development. Trade openness is the sum of imports and exports as a share of GDP. We proxy for a country's institutional environment by including time-varying indices taken from the International Country Risk Guide's (ICRG) database and capturing the quality of institutions, state of investment environment and democratic accountability. As exchange rate differences between acquirer and target countries affect M&A gains, we calculate the exchange rate volatility between acquirer and target countries from 36 months up to 1 month relative to the announcement date. Last, we include cross-border and same legal origin dummy variables.

3.7. A First Look at the Data

The descriptive statistics are displayed in Table 2. We only comment on descriptive statistics of collective bargaining variables. The descriptive statistics of the other variables do not warrant further discussions as they are consistent with existing studies. Concerning union density, Table 2 reports a mean value of 0.300 and a standard deviation equal to 0.191. Although Table 1 Panel B clearly indicates that union density varies substantially over time (mean and standard

---

[7] The industry-level analysis also accounts for labor intensity.

deviation for each country are reported), this hides a lot of the information. A closer look at our sample shows the following patterns. Some countries have experienced significant reduction in union density over our sample period. For example, union density rate in Australia, the Netherlands and the UK drops, respectively, by 52.2%, 23.4%, 32.0% between 1992 and 2010. This contrasts with other countries, like Finland, Iceland and Sweden, where union density shows several periods of significant increase over the same period. Cross-country variation is also substantial (see Table 1 Panel B). For example, France, Spain and the US have very low union density rates (lower than 20%). The Scandinavian countries have very high rates (all above 50%, some around 80%). The pattern is not necessarily similar for bargaining coverage. Table 2 reports a mean value of 0.557 and a standard deviation equal to 0.284. Bargaining coverage is on average much higher than union density and much more stable over the period. While high union density leads to high coverage of bargaining agreements, the converse is not true. As an example, France and Spain have very low union density, yet bargaining coverage is above 80%.[8] Note also that the correlation (untabulated) between union density and bargaining coverage is 0.572.

We now turn to discussing initial assessments on the relation between collective bargaining and M&A activity. In Table 3 Panel A, we compare our M&A indicators for industry-country-year observations for which collective bargaining is above and below the sample median. The frequency of M&A and volume of M&A are 0.022 and 0.012 higher in countries where union density is above the median than those below the median, respectively. Similar insights apply for bargaining coverage. Surprisingly, the differences in means on CARs and premium are negative. In countries with an above median union density (or bargaining coverage) target CARs and offer

---

[8] The bulk of the variance between union density and bargaining coverage is explained by mandatory extensions of collective agreements to non-unionized sectors as well as the share of employers belonging to employer associations that negotiate collective contracts (see OECD, 2014, for further details).

premium are smaller. Systematic differences between the US and the average country in our sample may explain the different result. Indeed, Panel B reveals that the US drives this very result. If we drop the US, differences become positive. For example, CAR (-1,+1) is 0.103 (resp. 0.106) higher in countries where union density (resp. bargaining coverage) is above the median relative to countries below the median. Overall, the differences in means reported in Table 3 suggest that the extent of collective bargaining is positively associated with M&A activity and the gains it creates.

Furthermore, Figure 1 (resp. Figure 2) exhibits a positive association between union density (resp. bargaining coverage) and the volume of M&A averaged for each country in our sample period. In contrast, Figure 3 exhibits a negative association between the average EPL index compiled by the OECD and the average volume of M&A.[9] Of course, all sorts of omitted variables may explain these correlations. Still, they suggest that rigidities in labor markets take many forms with different effects on M&A activity, of which the regression analyses to follow aim at assessing.

4. Regression Results

4.1. Collective Bargaining and Takeover Activity

We begin our analysis by examining the effect of collective bargaining on the frequency and volume of M&A. Using industry-level data, we estimate the following specification:

$$y_{jkt} = \alpha_j + \alpha_k + \alpha_t + \beta \cdot Labor_{kt} + \gamma \cdot X_{jkt} + \varepsilon_{jkt}, \tag{1}$$

---

[9] When we reproduce Figures 1-3 with respect to all our M&A measures, we can see similar patterns. Moreover, the correlation between the EPL index and union density (resp. bargaining coverage) is 0.078 (resp. 0.423).

where j denotes an industry, k a country and t a year. The dependent variable, y_{jkt}, is either the frequency of M&A or volume of M&A. α_j, α_k and α_t are industry, country, and year fixed effects, respectively. $Labor_{kt}$ is one of the two measures of collective bargaining (i.e., union density and bargaining coverage). X_{jkt} is a vector of control variables and ε_{jkt} the error term. The vector of control variables takes into account industry-country-level factors (total assets, leverage, market-to-book ratio, ROA, dividend per share, labor intensity, and competition) as well as country-level characteristics (GDP, GDP per capita, recession, stock market capitalization, private credit, trade openness, institutional quality, investment profile, and democratic accountability). In all cases, standard errors are adjusted for heteroskedasticity and clustered in two ways, by industry-country and by year since we are collapsing the data at these levels.

Tables 4 and 5 report the coefficients of Ordinary Least Squares (OLS) regression models derived from specification (1).[10] Table 4 focuses on the frequency of M&A (i.e., the dynamics of the takeover market), while Table 5 repeats the analysis with the volume of M&A (i.e., the size of the market). In column (1) of Table 4, we do not include any control variables, but the fixed effects. The coefficient of interest (β in specification (1) above) is positive and significant at the 1% level. In column (2), we add to the previous specification industry-country-level and country-level control variables. The results are unchanged: β is positive and significant at the 1% level. In column (3), besides controlling for the all usual determinants of the frequency of M&A, we have industry-year fixed effects ($\alpha_j \times \alpha_t$) to account for industry-level dynamics and country fixed effects to account for time-invariant country-specific characteristics. In column (4), we estimate

---

[10] We estimate all specifications using linear models as the large number of fixed effects introduced could affect the estimates in Tobit regression models (see Greene, 2004). For robustness purposes, we re-estimate all specifications using Tobit regression models to account for the truncation of observed M&A activity at zero. Table A2 in Appendix displays the results, which are very similar.

20

the same specification as in column (3) but we replace country fixed effects by industry-country fixed effects ($\alpha_j \times \alpha_k$), which allow for differences across countries within the same industry.

Across columns (1)-(4), the coefficient of union density is positive, always statistically significant at the 1% level, and has a similar magnitude. These positive effects have large economic consequences. For the average industry, a one standard deviation increase in countries' union density leads to an increase of 7.2% in the frequency of M&A (using results from column (4)). Our specifications contain a large number of control variables, capturing effects that are known to influence M&A activity, for which estimated coefficients show the expected sign in most regression models.

In columns (5)-(8), we mirror the specifications in columns (1)-(4) for bargaining coverage as an independent variable of interest. The results are in line with those presented so far. Throughout our specifications, increases in bargaining coverage at the country level are associated with increases in the frequency of M&A at the industry level. The economic effect is sizable. Using the results of column (8), the frequency of M&A of an industry increases by 10.7% as bargaining coverage increases by a one standard deviation.[11]

Turning to the volume of M&A, columns (1)-(4) of Table 5 report the coefficients on union density, while columns (5)-(8) report the coefficients on bargaining coverage. We find that the coefficients, either on union density or bargaining coverage, are positive and statistically significant at the 5% level in seven out of eight specifications. The magnitude of the effects is also economically meaningful. Using the results of column (4) (resp. (8)), the volume of M&A

---

[11] These tabulated results show regression specifications considering union density and bargaining coverage separately to avoid multicollinearity problems arising from the strong correlations between the two variables. For robustness purposes in section 4.3, we include in the same specification union density and bargaining coverage.

increases by 1.7% (resp. 2.6%) in response to an increase of union density (resp. bargaining coverage) by one standard deviation.

It is also worthwhile emphasizing that all the results on M&A activity presented here are obtained using as dependent variable, either the frequency of M&A or the volume of M&A, which are respectively scaled by the number of all listed firms per industry-year in a target country and the stock market capitalization of all listed firms in an industry-country-year. The advantage of such scaling is that it allows industry comparisons across and within countries. However, such scaling may disproportionately weight countries with relatively small M&A markets, in turn affecting statistical inference. Table A2 in the Appendix shows consistent results when we employ unscaled dependent variables; that is, the logarithm of the number of deals by industry-country and the logarithm of the dollar volume of deals by industry-country.[12]

Collectively, these results, supporting Hypothesis 2, strongly characterize collective bargaining as being a key driver of M&A activity at the industry level in developed economies. We now turn to address the role of employment protection legislations.

4.2. The Role of Employment Protection Legislations

As the national level of employment protection results from various combinations of collective bargaining and employment protection legislations, it is important to examine their respective role and interaction on takeover activity. To capture the stringency of employment

---

[12] These results are also robust to the time period. The results, unreported, are qualitatively similar if we restrict our sample to the 1990s, the 2000s, or even the pre-2008 crisis period. The global financial crisis is, indeed, a severe structural shock for both collective bargaining systems and takeover markets.

protection legislations, we use the EPL index.[13] The results are displayed in Table 6. The dependent variable in all regressions is the frequency of M&A.[14] Odd-numbered columns take a specification similar to (1) with the further addition of EPL to test the relative importance of each labor market institution. Even-numbered columns condition the effect of collective bargaining on the frequency of M&A on EPL as our proxy for employment legislations; in this way, we test the extent to which collective bargaining complements or substitutes employment legislations.

In column (1), the coefficient obtained on EPL appears negative and significant at the 10% level, supporting Hypothesis 1 and confirming evidence from other studies (e.g., Dessaint et al., 2015). Controlling for EPL does not reduce the explanatory power of union density on the frequency of M&A, consistent with Hypothesis 2. In column (2), we augment the previous specification with the interaction term. Union density continues to play a direct and positive effect on the dynamics of M&A activity at the industry level around the world, contrasting again with a direct and negative effect for EPL. The coefficients obtained indicate that union density produces an impact on takeover activity higher than EPL by a factor of 1.5 (using the estimates in column (2)), suggesting that collective bargaining fully offsets the effect of legal protections. Also from column (2), the interaction term (*Union Density x EPL*) appears positive and significant and its estimate is greater than the estimate on union density itself. This implies that the effect of union density is reinforced in countries with tighter laws protecting employees. Columns (3)-(4) repeat these tests with bargaining coverage. It confirms the conclusions drawn for union density and EPL, except that the interaction term turns out to be insignificant. Overall, these findings show that the

---

[13] In further analyses we use two (time-invariant) indices borrowed from Botero, Djankov, La Porta, Lopez-de-Silanes and Shleifer (2004). One of these indices, called employment laws index, measures the difficulty and the costs of reducing wages and working hours, and covers regulations concerning overtime and use of temporary contracts. The other index, called collective relations laws index, assesses the legal protection of labor unions and the regulation of collective disputes. The results, unreported, are very similar to those presented with the EPL index.
[14] The results are robust to employing volume of M&A as dependent variable.

both institutions have opposite effects, with collective bargaining mitigating to a large extent the effect of employment legislations.

4.3. Sensitivity Tests

Table 7 presents a number of sensitivity tests on the frequency of M&A.[15] Panel A reports the estimates from a country-level analysis. Columns (1) and (2) report the coefficients on union density, while columns (3)-(4) show the coefficients on bargaining coverage.[16] Across the specifications we can see that collective bargaining is positively associated with the frequency of M&A at the country level. The coefficients on union density and bargaining coverage are positive and always significant at conventional levels. In terms of economic size, the estimate in column (2) suggests that when a country experiences an increase of its union density rate by one standard deviation the frequency of countrywide M&A activity increases by 7.9%. For bargaining coverage, a one standard deviation increase implies a 12.5% increase in the dynamics of M&A activity at the country level (using the estimate in column (4)).

We also conduct a variety of other analyses to determine whether the patterns (at the industry level) we document are robust. Our regression specifications thus far considered union density and bargaining coverage separately to avoid multicollinearity problems arising from the strong correlations between the two variables. In Panel B column (1), we include in the same specification union density and bargaining coverage. This yields similar results with coefficients on both measures of collective bargaining still positive and significant. Then, we test the sensitivity

---

[15] Unreported results, available upon request, show that the results of this section are robust to employing volume of M&A as dependent variable.

[16] For this test, we cluster standard errors at the dimensions of the panel, which in this case amounts to double clustering by country and year.

of our results to the use of other measures of union density and collective bargaining retrieved from different sources. In column (2) we use the OECD measure of union density, while in columns (3) and (4) we use the ILO measures of union density and bargaining coverage, respectively. Our results are very robust to the use of alternative data sources.

Further analyses include: dropping UK and US (Panel C columns (1) and (6)); dropping Scandinavian countries (Panel C columns (2) and (7)); splitting the sample between OECD and non-OECD countries (Panel C columns (3), (4), (8) and (9)); and excluding targets in financial services industry (Panel C columns (5) and (10)). In all cases, the results are very similar to those shown in Table 4.

Furthermore, our results continue to hold when we impose different sample selection criteria to compute our dependent variables. These alternative sample selection criteria are the following: selecting only transfers of stakes above 10% (Panel D columns (1) and (5)); focusing on transactions that represents an explicit change of control, meaning that the acquirer purchases 50% or more of the target's shares in the transaction and owns less than 50% of the target prior to the transaction (Panel D columns (2) and (6)); limiting only to transfers of stakes of 100% (Panel D columns (3) and (7)); and expanding the selection to failed deals (Panel D columns (4) and (8)).

4.4. Identifying the Economic Channel

4.4.1. Cross-Sectional Heterogeneity

Our evidence is consistent with the hypothesis that collective bargaining spurs M&A activity. In this section, we analyze underlying mechanisms through which this occurs. In section

2, we argue that greater gains can be sourced from cost-cutting in countries with high prevalence of collective bargaining. If our results are attributable to this channel, we should expect to observe a greater positive association in labor-intensive industries, that is, industries in which labor is a more important input of production. To test this conjecture, we estimate

$$y_{jkt} = \alpha_j + \alpha_k + \alpha_t + \beta_1 \cdot Labor_{kt} + \beta_2 \cdot I_{jkt} + \beta_3 \cdot (Labor_{kt} \times I_{jkt}) + \gamma \cdot X_{jkt} + \varepsilon_{jkt}. \quad (2)$$

Here I_{jkt} is a measure of labor intensity for industry j in year t for a country k, while β_3 is the coefficient of interest. (See Table A1 for variables definitions.) All the other variables and subscripts are defined as before. Standard errors are double-clustered by industry-country and year.

Table 8 presents the results for labor intensity, in which the dependent variable is the frequency of M&A. For the sake of exposition, we do not report the results for which the volume of M&A is the dependent variable since they are very similar. We proxy labor intensity with the industry median of the number of employees. In column (1), besides the usual determinants of M&A activity, we control for industry, country and year fixed effects. In this specification we see that union density is positively associated with the frequency of M&A only to the extent that target firms operate in labor-intensive industries. In fact, the direct effect of union density (β_1 in specification (2)) is positive but insignificant, while the interaction between union density and labor intensity (β_3) is positive and significant. In column (2), we estimate specification (2) by including country fixed effects and industry-year fixed effects to control for industry dynamics. The coefficient β_3 on the interaction remains positive and significant. The estimate of β_3 is once again positive and significant in column (3), in which we estimate the same specification as in column (2) with the further addition of the interacted industry and country fixed effects. In column (4), we repeat the same specification as in column (2) by dropping UK and US. Our results are unaltered. In specifications in columns (5)-(8) we interact labor intensity with bargaining coverage

using the same combinations of fixed effects. In these specifications, we also see that bargaining coverage is positively associated with the frequency of M&A only in labor-intensive industries. These results indicate that the incidence of M&A increases significantly more in industries in which there are more opportunities to restructure the labor force. This analysis suggests that cost-cutting objectives might serve as an underlying mechanism through which collective bargaining increases the size and dynamics of M&A activity.

4.4.2. Wealth Transfers: Direction and Magnitude

Another way to gauge the cost-cutting channel is to look at the gains accruing to shareholders in target firms. In section 2, we argue that a large part of the takeover premium comes from rent expropriation from firm stakeholders, in particular employees (Shleifer and Summers, 1988). Collective bargaining is generally viewed as a rent-seeking institution that successfully capture quasi-rents—such as higher wage and benefit premiums, higher staffing levels and a host of subtle constraints on management discretion and flexibility in its control of the workforce—that could have otherwise flowed to shareholders in the form of higher profits. In this section, we test (at the deal level) whether the shareholder gains from takeovers come at the expense of labor.

For that purpose, we perform OLS regressions of the following specification:

$$CAR_{it} = \alpha_j + \alpha_k + \alpha_t + \beta \cdot Labor_{kt} + \gamma \cdot X_{ikt} + \varepsilon_{it}. \tag{3}$$

Here CAR_{it} is, for deal i,[17] the target's 3-day CAR (-1,+1) surrounding the acquisition announcement date, α_j, α_k and α_t are fixed effects for industry, country and year, $Labor_{kt}$ is one

---

[17] We focus on deals representing an explicit change of control. Table A3 (Panel B) reports qualitatively similar results if we opt for other criteria in selecting deals.

of the two measures of collective bargaining, X_{ikt} is a vector of control variables and ε_{it} the error term. To isolate the relationship between CAR and differences in countries' collective bargaining, we control for a host of deal-level, target firm-level, country-level and country-pair characteristics (X_{ikt}) that past researchers have shown help explain target announcement returns. These control variables are discussed in Section 3 and are more completely defined in Table A1. Standard errors are double-clustered by country and year.

Three comments are in order regarding this test. First, it is worth noting that the target CAR component largely reflects the premium paid by the acquirer (see Schwert, 2000). We also employ the offer premium in robustness. Second, from specification (3), we expect that β is greater than zero, indicating higher gains for target shareholders in countries with tighter collective bargaining protections. If equation (3) is correctly specified, then β is an unbiased estimate of the additional gains when the target firm is in a "labor-friendly" country. Third, this test does not provide direct evidence on the source of the wealth transfers; however, it indicates both the magnitude and direction of wealth shift from employees to target shareholders.

Table 9 presents the results.[18] In column (1), we only include deal-level and firm-level control variables with the fixed effects. The coefficient of interest (β in specification (3) above) is positive and significant at the 5% level. In column (2), we add to the previous specification country-level and country-pair determinants of CAR. β is positive and significant at the 5% level. In column (3), we estimate the same specification as in column (2) but we further account for firm-level determinants (i.e., total assets, leverage, market-to-book ratio, ROA, dividend per share and competition). The inclusion of the additional firm-level determinants in column (3) dramatically reduces the number of observations, but does not overturn the finding.

---

[18] Due to data restrictions on some variables the following countries are removed from the CAR analysis: Brazil, Bulgaria, Estonia, Iceland, Latvia, Lithuania, Malta and Slovakia.

Across columns (1)-(3), the coefficient of union density is positive and always statistically significant at conventional levels, suggesting that collective bargaining positively impact on target firm CARs. These effects are economically meaningful. Increasing union density by one standard deviation leads from 51.9% to 64.2% increase from the average target return of 19.5%. In dollar terms, this implies a range of value creation for average-size target firms of $96.4 to $119.1 million. For median-size target firms, the increase is $13.1 to $16.1 million.

Columns (4)-(6) repeat the analysis for bargaining coverage as an independent variable of interest. The results are in line with those linking union density and target CAR. Across the specifications, the coefficient on bargaining coverage is positive and significant at conventional levels. The economic significance is considerable as a one standard deviation increase in bargaining coverage implies a 35.4% to 42.2% increase from the average target return of 19.5%. In dollar terms, the increase ranges from $65.7 to $78.4 million for average-size target firms and from $8.9 to $10.6 million for median-size target firms.

We test the robustness of these results in the following ways. First, we alternatively measure target abnormal announcement returns over event days (-3,+3) and (-5,+5). Second, we use various other criteria in selecting transactions. Third, we sequentially exclude from our sample targets in the US or the UK, in Scandinavian countries, in non-OECD countries, and in financial services industry. Fourth, we employ a measure of the offer premium as dependent variable. In all cases, we find that our main results on the direction and magnitude of wealth transfers hold. For the sake of exposition, these robustness checks are relegated to the Appendix (see Table A3 Panels A-D).

The findings in this section are entirely consistent with the cost-cutting channel and provide clear indications on both magnitude and direction of wealth transfers going from employees to

shareholders in target firms. However, these findings offer little insights into the *source* of these wealth transfers. In theory it could take the form of lower employment levels as well as lower wages and benefits. In the next section we provide insights into the source of such transfers.

4.4.3. Workforce Restructuring as a Source of Wealth Transfers

Since labor accounts for a large share of the costs in many firms, changes in employment associated with takeovers might explain a significant fraction of the takeover premium. A natural extension of our previous analysis is to assess the effect of collective bargaining on post-takeover layoffs, a potentially important source of wealth transfers. Our prediction is indeed that collective bargaining is associated with higher levels of workforce restructuring following takeovers. In this analysis we are, however, limited to the use of a fraction of our sample for which firm-level employment data are available. Also, we can only observe changes in employee headcount at the combined firm relative to the acquirer and the target before the deal. After a deal, layoffs should mostly occur at the target rather than the acquiring firm. Thus, the caveat, important to have in mind when analyzing the results, is that the former typically represents a smaller part of the combined firm, while the latter may also count a number of hiring and firing.

We first estimate the effect of takeovers on employment outcomes, and then examine how collective bargaining interacts in this association. To do so, we construct a panel at the deal-year level. All deals are followed over a five-year window around their completion, which allows to identify the dynamics of the total number of employees at the acquirer and target firms in the years surrounding the deal. The specification is the following:

$$y_{it} = \alpha_i + \alpha_t + \beta_1 \cdot Post\ Takeover_{it} + \beta_2 \cdot Labor_{kt} + \beta_3 \cdot (Post\ Takeover_{it} \times Labor_{kt}) +$$

$$\gamma \cdot X_{kt} + \varepsilon_{it}, \tag{4}$$

where y_{it} is the log-number of employees of the acquirer and the target in year $t+x$, where t is the year of completion of the deal i, and $+x$ ($-x$) is the number of years after (before) the takeover. α_i and α_t are fixed effects for deal and year, $Post\ Takeover_{it}$ is a dummy variable equal to one for the years after and equal to zero for the years prior to the takeover, $Labor_{kt}$ is one of our measures of collective bargaining, X_{kt} is a vector of country-level controls and ε_{it} the error term. As with above tests, we cluster standard errors by country and year.

Table 10 reports the estimation results. In column (1), we show the baseline estimate of the effect of takeovers on employment (*Post Takeover*), controlling for country-level determinants of takeovers as well as deal and year fixed effects. The coefficient of interest (β_1 in specification (4)) is negative and significant at the 1% level, meaning that, on average, following takeovers, employment at the combined firm decreases. In economic terms, post-takeover employment is reduced by 8.8% relative to the employment at the acquirer and the target prior to the deal. Reassuringly, this estimate is very in line with other studies (e.g., Davis et al. 2014; Dessaint et al., 2015). In column (2), we estimate the interaction with union density (*Post Takeover x Union Density*). The effect of takeover on employment (β_1 in specification (4)) is still negative and significant. As predicted, the interaction term (β_3) is negative and significant, while the coefficient on union density (β_2) become insignificant albeit negative. The negative sign on the interaction term implies that the adverse effect of takeover on employment is further pronounced in countries where unions have stronger bargaining clout. In column (3), we evaluate the effect of bargaining coverage on workforce restructuring in post-takeover years and find a similar result. We show that there is a negative and significant reduction in the combined firm employment following

takeovers, which is amplified in countries with high coverage of bargaining coordination. Again, the effects reported are large, with the estimate on the interaction term greater than the estimate on *Post Takeover* itself.

These results indicate that after takeovers combined firms in countries with higher prevalence of collective bargaining actually experience significantly larger job reductions. Although these results on the source of wealth transfers are partial (wage cuts, pension termination might also account for a significant part of these transfers[19]), the economic effect is large and suggests that workforce restructuring represents a primary source of wealth redistribution between target employees and shareholders. With this analysis we offer further support in favor of the cost-cutting channel interpretation for the effects on M&A activity that we documented above.

4.5. Alternative Explanations

In this section, we deal with potential alternative explanations through which collective bargaining could operate. Table 11 reports the results. As before, we use the frequency of M&A as dependent variable, but we obtain similar results with the volume of M&A. First, the legal protections of minority shareholders against expropriation by firm insiders prove to be important determinants of M&A activity around the world (Rossi and Volpin, 2004). We evaluate the role of legal protections of minority shareholders, which also allows testing whether part of the significant results for collective bargaining is driven by confounding effects with investor protection. We proxy for the strength of legal protections of minority shareholders using measures compiled by Djankov, La Porta, Lopez-de-Silanes and Shleifer (2008) and Spamann (2010),

---

[19] See, for example, Rosett (1990), Pontiff, Shleifer and Weisbach (1990), Ippolito and James (1992), and Petersen (1992).

namely the anti-self-dealing index and the corrected anti-director rights index. Both indices measure minority shareholder protection against controlling shareholders' actions that would hurt shareholder interests.

In columns (1) to (4), we run the regression specification (1) including the full set of control variables and fixed effects in addition to one of the indices of investor protection. We exclude country fixed effects as time-invariant indices of investor protection would become encompassed. Across specifications, the coefficients on both indices of investor protection together with the coefficients on both measures of collective bargaining are positive and significant at conventional levels in almost all cases. This indicates that a more active market for corporate control is the outcome of stronger investor protection, consistent with prior research. Importantly, collective bargaining exerts a positive role, independent from investor protection, on the frequency of M&A.

Second, innovation is another channel through which collective bargaining may positively impact on M&A activity. Manso (2011) argues that tolerance for failure is critical for motivating innovation. As innovation activities have high probability of failure, collective bargaining protections can provide firms a commitment device to not punish employees for short-run failures and, thereby, can appear to have positive ex ante effect on innovation. In other words, collective bargaining, by pushing wages upward and providing greater job security, encourages employees to increase their investment in skills and to pursue value-increasing innovation activities. Innovative firms tend accordingly to flourish in countries with greater collective bargaining. Acharya, Baghai and Subramanian (2013, 2014) show that employment protection spurs the extent of innovation in an economy, particularly in R&D-intensive industries, by enhancing employees' innovative efforts. Countries with greater collective bargaining increase target firms' attractiveness by creating a comparative edge in innovation-intensive industries, which fosters M&A industry

activity. Alimov (2015) shows that firms in OECD countries with stringent labor market regulations are more likely to be acquired by foreign acquirers if the firm is in a sector with high productivity and skill.[20]

We thus investigate the differential effect of collective bargaining on the frequency of M&A across industries that differ in terms of R&D intensity. In columns (5) and (6), we run regression specification (2) by considering innovation intensity instead of labor intensity. We proxy innovation intensity with the industry median of R&D expenditures scaled by total book assets. The results reveal that the direct effect of collective bargaining, captured either through union density or bargaining coverage, is positive and significant at the 5% level, but not so for the interaction term. In fact, the interaction between union density (resp. bargaining coverage) and R&D intensity is negative and insignificant. This suggests that the industry effects of M&A activity caused by collective bargaining do not go through the innovation channel.

Finally, the observed positive relationship in this study could be driven by a business cycle effect. For example, it may be that unionization increases during booms as those are times when firms have higher cash holdings. Klasa, Maxwell and Ortiz-Molina (2009) show that unions bargain harder when firms are flushed with cash, and this may result in higher union density rates. At the same time, takeover waves are possibly driven by industry shocks and this depends on whether there is sufficient overall capital liquidity (Harford, 2005). This is more likely to be true during expansions.

To rule out this alternative explanation, in all our analyses we have controlled for recession periods occurring in countries of our sample. Now, we examine the differential effect of collective

---

[20] Guadalupe, Kuzmina and Thomas (2012) analyze the likelihood of being a target by a foreign acquirer using a sample of Spanish firms. The authors find that foreign firms cherry pick the most productive firms within industries. They further find that following the acquisition, these firms are more likely to innovate.

bargaining on takeover activity across business cycles. Our results in columns (7) and (8) show that this phenomenon is not affecting our posited causal relationship. As expected, recessions negatively and significantly impact on M&A activity. Union density and bargaining coverage still have a direct and significant effect on takeovers, while the interaction term is, quite surprisingly, also positive and significant. This means that collective bargaining exerts a more accentuated positive effect on M&A activity in recession periods. We rationalize this result as follows. In expansion periods when there is sufficient capital liquidity in the market, acquirers can better achieve revenue enhancements. Alternatively, in recession periods, targets with operational inefficiencies represent a comparative advantage for acquirers to achieve greater gains. The stronger positive effect of collective bargaining identified during recession periods supports the notion that in the absence of substantial revenue enhancement opportunities in those periods, acquirers choose their targets with high potential of cost-cutting; that is, precisely in countries where bargaining with unions is tougher.

The alternative arguments addressed in this section do not explain our main result; this increases our confidence in support of Hypothesis 2 that collective bargaining does enhance takeover activity around the world.

5. Conclusion

This paper investigates the role of collective bargaining on the pattern of M&A activity. Similarly to Kanbur and Ronconi (2016), we argue that the focus on legal protections of employees, rather than on *actual* coordination through collective bargaining, may be misleading because institutionally distinct countries can and do achieve the same functional outcome through

different means. In this attempt, this paper helps reconcile prior findings by illuminating one key channel of labor influence: collective bargaining. In a comprehensive sample of domestic and cross-border M&A from 46 countries over 1992-2010, we identify evidence that a country's collective bargaining system has a significant and economically meaningful impact on the size and dynamics of M&A activity. Controlling for industry-country and industry-year fixed effects as well as a multitude of industry-country characteristics including competition, growth prospects and profitability and countries' institutional quality, we find clear evidence of a positive relationship between union density and bargaining coverage and the frequency and volume of M&A at both industry and country levels.

Moreover, we find that the positive effect of unionization and coverage by bargaining coordination on the pattern of M&A activity is more pronounced for industries in which labor is more important input of production. We further show greater wealth transfers from employees to target shareholders in countries with higher prevalence of collective bargaining. Workforce restructuring is a major source of wealth transfers. These findings appear consistent with the view that rigidities in the labor market generate gain opportunities sourced from the reappropriation (by shareholders) of employee rents.

This paper is part of a growing field of research at the intersections between labor economics and corporate governance. Although our findings offer new insights on this issue, it does suffer from potential limitations. International comparisons have the advantage of showing a broad picture and identifying the crucial role played by countries' institutional arrangements. This also constitutes the main drawback. Indeed, for the sake of comparability and data availability, we are constrained by the use of country-level proxies and by the focus only on target firms that are publicly traded. This may affect our ability to capture all the variation at the plant-level or at

specific characteristics of employment contracts. Delving into such matters requires a considerable effort to match firm-level data on financial and balance sheet variables with contract-level or plant-level data on employment, wages and labor relations. The effort of joining such disparate datasets may partly explain why so far efforts in this direction have been limited, but this constitutes assuredly fruitful avenues for research.

This paper has also implications for the ongoing (policy and research) debates on the functioning and real effects of corporate governance mechanisms, and takeover markets in particular. Indeed, it supports that corporate governance problems become more acute when one takes into account the role played by labor market institutions or by firm constituencies with different horizons, interests and opportunities. This paper suggests that policy efforts that aim at improving corporate governance could benefit from taking into account the specificities of unionized firms and from designing sensible policies with respect to the specificities of a country's labor market institutions. From an academic standpoint, this paper suggests that researchers who want to study the functioning and real effects of takeover markets could benefit from interacting their proxies with indicators of both collective bargaining and employment legislations. To give an example, initial findings suggest that employment levels fall in years following a takeover (see, e.g., Bhagat, Shleifer and Vishny, 1990). Similar to ours, the work by Li (2012) investigates in turn how labor unions interact in this relationship. Exploiting variations in US states with right-to-work laws (i.e., where labor unions face a less favorable bargaining environment), he finds, contrary to the conventional wisdom, that target firms in unionized industries experience relatively higher levels of wage and employment reductions. In another corporate governance context, Atanassov and Kim (2009) find that the stringency of employment legislations is less effective in preventing employee layoffs when financial leverage is high. While this research drive takes an

important path, more research is needed to better understand how governance mechanisms work in "labor-friendly" industries/countries and, thereby, affect social welfare.

References

Acharya, Viral, Ramin Baghai, and Krishnamurthy Subramanian, 2013, Labor Laws and Innovation, *Journal of Law and Economics* 56, 997—1037.

Acharya, Viral, Ramin Baghai, and Krishnamurthy Subramanian, 2014, Wrongful Discharge Laws and Innovation, *Review of Financial Studies* 27, 301—346.

Ahern, Kenneth, Daniele Daminelli, and Cesare Fracassi, 2015, Lost in Translation? The Effect of Cultural Values on Mergers around the World, *Journal of Financial Economics* 117, 165—189.

Alimov, Aziz, 2015, Labor Market Regulations and Cross-Border Mergers and Acquisitions, *Journal of International Business Studies* 46, 984—1009.

Atanassov, Julian, and Han Kim, 2009, Labor and Corporate Governance: International Evidence from Restructuring Decisions, *Journal of Finance* 64, 341—374.

Becker, Brian, 1995, Union Rents as a Source of Takeover Gains among Target Shareholders, *Industrial and Labor Relations Review* 49, 3—19.

Bhagat, Sanjay, Andrei Shleifer, and Robert Vishny, 1990, Hostile Takeovers in the 1980s: The Return to Corporate Specialization, *Brookings Papers on Economic Activity: Microeconomics*, 1—84.

Billett, Matthew, and Hui Xue, 2007, The Takeover Deterrent Effect of Open Market Share Repurchases, *Journal of Finance* 62, 1827—1850.

Botero, Juan, Simeon Djankov, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer, 2004, The Regulation of Labor, *Quarterly Journal of Economics* 119, 1339—82.

Bris Arturo, Neil Brisley, and Christos Cabolis, 2008, Adopting better corporate governance: Evidence from cross-border mergers, *Journal of Corporate Finance* 14, 224—240.

Bris, Arturo, Christos Cabolis, and Vanessa Janowski, 2010, The Effect of Merger Laws on Merger Activity: International Evidence, in Greg Gregoriou, and Luc Renneboog, eds.: *International Mergers and Acquisitions Activity Since 1990: Quantitative Analysis of Recent Research* (Elsevier, New York).

Brown, Charles, and James Medoff, 1988, The Impact of Firm Acquisition on Labor, in Alan Auerbach, ed.: *Corporate Takeovers: Causes and Consequences* (Chicago University Press, Chicago).

Davis, Steven, John Haltiwanger, Kyle Handley, Ron Jarmin, Josh Lerner, and Javier Miranda, 2014, Private Equity, Jobs, and Productivity, *American Economic Review* 104, 3956—3990.

Dessaint, Olivier, Andrey Golubov, and Paolo Volpin, 2015, Employment Protection and Takeovers, Working Paper.

Djankov, Simeon, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer, 2008, The Law and Economics of Self-Dealing, *Journal of Financial Economics* 88, 430—465.

Ebbinghaus, Bernhard, and Jelle Visser, 2000, *Trade Unions in Europe since 1945* (London, Palgrave-Macmillan).

Erel, Isil, Rose Liao, and Michael Weisbach, 2012, Determinants of Cross-Border Mergers and Acquisitions, *Journal of Finance* 67, 1031—1043.

Fama, Eugene, and Kenneth French, 1997, Industry Costs of Equity, *Journal of Financial Economics* 63, 153—194.

Flanagan, Robert, 1999, Macroeconomic Performance and Collective Bargaining: An International Perspective, *Journal of Economic Literature* 37, 1150—1175.

Garvey, Gerald, and Noel Gaston, 1997, A Theory of the Optimal Cost Barrier to Corporate Takeovers, *International Economic Review* 38, 657—675.

Gort, Michael, 1969, An Economic Disturbance Theory of Mergers, *Quarterly Journal of Economics* 83, 624—642.

Greene, William, 2004, The Behaviour of the Maximum Likelihood Estimator of Limited Dependent Variable Models in the Presence of Fixed Effects, *Econometrics Journal* 7, 98—119.

Guadalupe, Maria, Olga Kuzmina, and Catherine Thomas, 2012, Innovation and Foreign Ownership, *American Economic Review* 102, 3594—3627.

Harford, Jarrad, 2005, What Drives Merger Waves? *Journal of Financial Economics* 77, 529—560.

Hellwig, Martin, 2000, On the Economics and Politics of Corporate Finance and Corporate Control, in Xavier Vives, ed.: *Corporate Governance: Theoretical and Empirical Perspectives* (Cambridge University Press, Cambridge).

Ippolito, Richard, and William James, 1992, LBOs, Reversions and Implicit Contracts, *Journal of Finance* 47, 139—167.

Jensen, Michael, 1993, The Modern Industrial Revolution, Exit, and the Failure of Internal Control Systems, *Journal of Finance* 48, 831—880.

John, Kose, Knyazeva, Anzhela, and Knyazeva, Diana, 2015, Employee Rights and Acquisitions, *Journal of Financial Economics* 118, 49—69.

Kanbur, Ravi, and Lucas Ronconi, 2016, Enforcement Matters: The Effective Regulation of Labor, CEPR Discussion Paper No. 11098.

Kaplan, Steven, 1989, The Effects of Management Buyouts on Operations and Value, *Journal of Financial Economics* 24, 217—254.

Klasa, Sandy, William Maxwell, and Hernán Ortiz-Molina, 2009, The Strategic Use of Corporate Cash Holdings in Collective Bargaining with Labor Unions, *Journal of Financial Economics* 92, 421—442.

Lee, David, and Alexandre Mas, 2012, Long-Run Impacts of Unions on Firms: New Evidence from Financial Markets, 1961–1999, *Quarterly Journal of Economics* 127, 333—378.

Lel, Ugur, and Darius Miller, 2015, Does Takeover Activity Cause Managerial Discipline? Evidence from International M&A Laws, *Review of Financial Studies* 28, 1588—1622.

Li, Xiaoyang, 2012, Workers, Unions, and Takeovers, *Journal of Labor Research* 33, 443—460.

Li, Xiaoyang, 2013, Productivity, Restructuring, and the Gains from Takeovers, *Journal of Financial Economics* 109, 250—271.

Manso, Gustavo, 2011, Motivating Innovation, *Journal of Finance* 66, 1823—1860.

Masulis, Ronald, Cong Wang, and Fei Xie, 2007, Corporate Governance and Acquirer Returns, *Journal of Finance* 62, 1851—1889.

Mitchell, Mark, and Harold Mulherin, 1996, The Impact of Industry Shocks on Takeover and Restructuring Activity, *Journal of Financial Economics* 41, 193—229.

Netter, Jeffry, Mike Stegemoller, and Babajide Wintoki, 2011, Implications of Data Screens on Merger and Acquisition Analysis: A Large Sample Study of Mergers and Acquisitions from 1992–2009, *Review of Financial Studies* 24, 2316—2357.

OECD, 2004, *OECD Employment Outlook 2004* (OECD Publishing, Paris).

Ouimet, Paige, and Rebecca Zarutskie, 2016, Acquiring Labor, Working paper.

Pagano, Marco, and Paolo Volpin, 2005, Managers, Workers, and Corporate Control, *Journal of Finance*, 60, 843—870.

Petersen, Mitchell, 1992, Pension Reversions and Worker-Stockholder Wealth Transfers, *Quarterly Journal of Economics* 107, 1033—1056.

Pontiff, Jeffrey, Andrei Shleifer, and Michael Weisbach, 1990, Reversions of Excess Pension Assets after Takeovers, *Rand Journal of Economics* 21, 600—613.

Rosett, Joshua, 1990, Do Union Wealth Concessions Explain Takeover Premiums, *Journal of Financial Economics* 27, 263—282.

Rossi, Stefano, and Paolo Volpin, 2004, Cross-Country Determinants of Mergers and Acquisitions, *Journal of Financial Economics* 74, 277—304.

Schwert, William, 2000, Hostility in Takeovers: In the Eyes of the Beholder? *Journal of Finance* 55, 2599—2640.

Shleifer, Andrei, and Lauwrence Summers, 1988, Breach of Trust in Hostile Takeovers, in Alan Auerbach, ed.: *Corporate Takeovers: Causes and Consequences* (University of Chicago Press, Chicago).

Spamann, Holger, 2010, The "Antidirector Rights Index" Revisited, *Review of Financial Studies* 23, 467—486.

Tian, Xuan, and Wenyu Wang, 2016, Hard Marriage with Heavy Burdens: Labor Unions as Takeover Deterrents, Working Paper.

Visser, Jelle, 2003, Unions and Unionism around the World, in John Addison, and Claus Schnabel, eds.: *International Handbook of Trade Unions* (Edward Elgar, Cheltenham).

Visser, Jelle, 2011, Data Base on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts, 1960-2010 (ICTWSS), University of Amsterdam (www.uva-aias.net/208).

Figure 1. Union Density and Volume of M&A

The figure shows the total M&A dollar transaction values divided by total GDP relative to union density. These figures are averaged by country in our sample over the period 1992-2010.
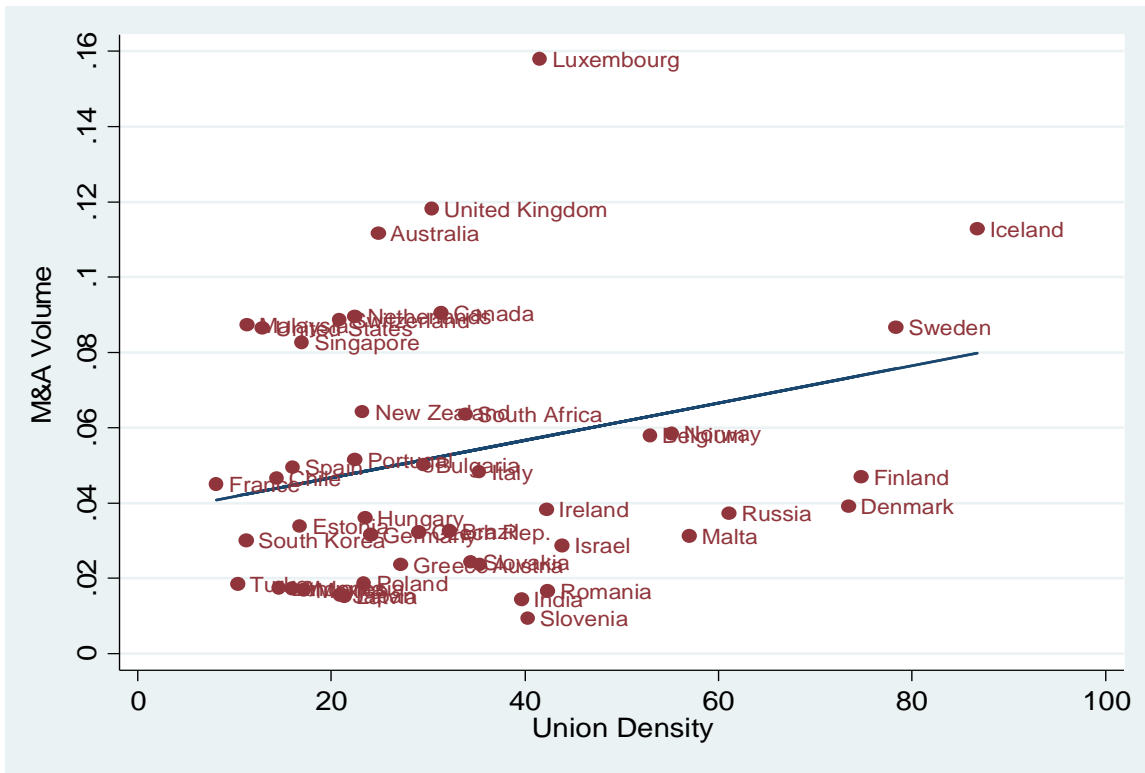
Figure 2. Bargaining Coverage and Volume of M&A
The figure shows the total M&A dollar transaction values divided by total GDP relative to bargaining coverage. These figures are averaged by country in our sample over the period 1992-2010.
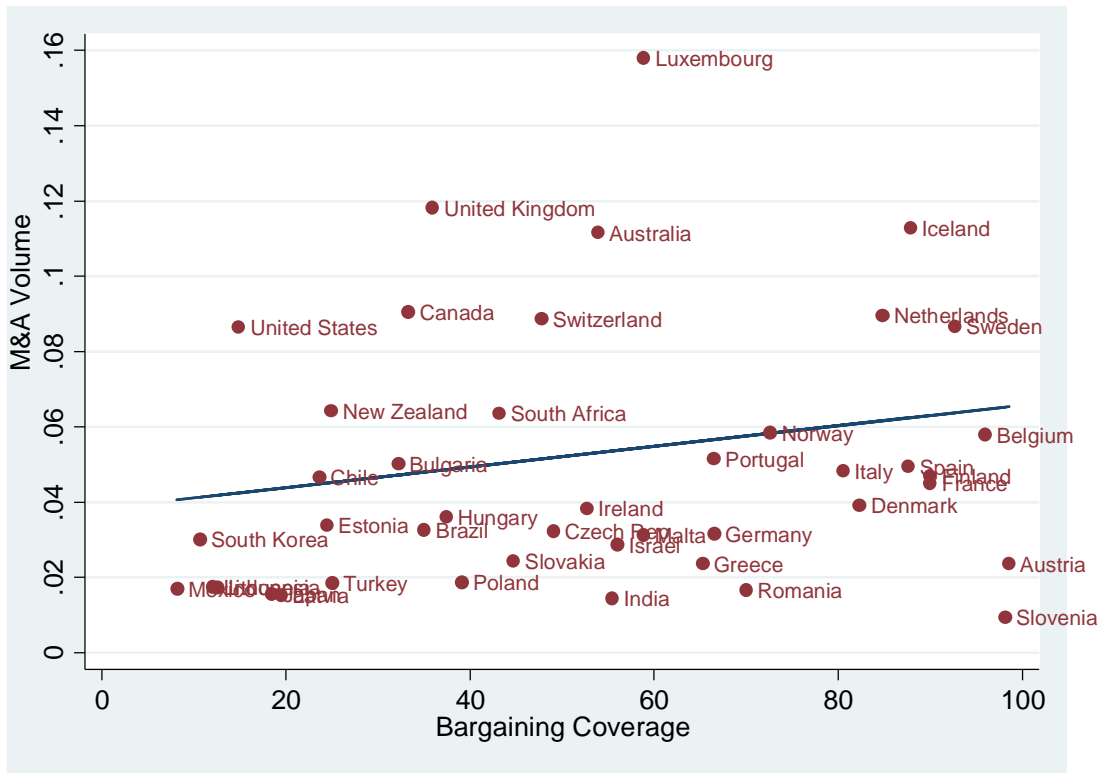
Figure 3. EPL and Volume of M&A
The figure shows the total M&A dollar transaction values divided by total GDP relative to the EPL index. These figures are averaged by country in our sample over the period 1992-2010.
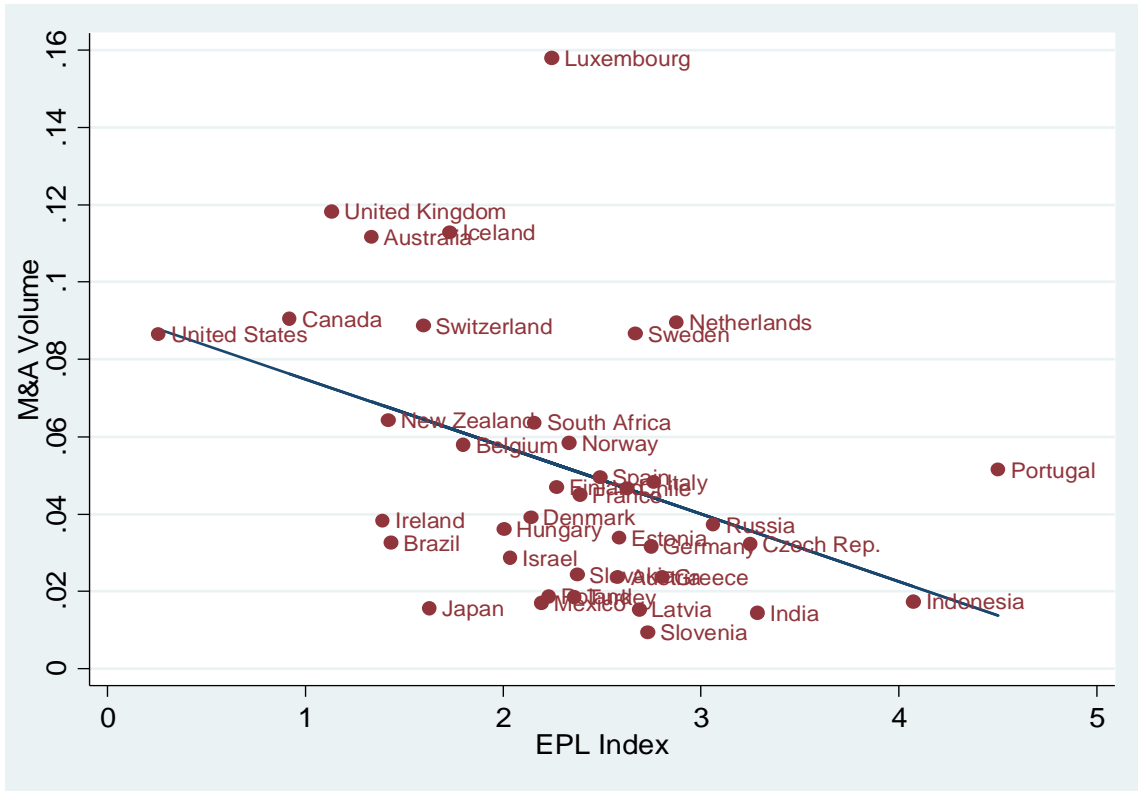
Table 1. Sample Composition

The table presents the M&A sample composition. Panel A describes the M&A sample by year. Panel B describes the M&A sample by country. Panel C describes the M&A sample by industry-year. The last row of Panels A-C reports the total number of M&A transactions, while the last row of Panel A and B also reports the total dollar value of M&A transactions in the sample. In Panel C: "NoDur" means non-durable consumer goods (food, tobacco, textiles, apparel, leather, toys); "Durbl" means durable consumer goods (cars, TVs, furniture, household appliances); "Manuf" means manufacturing (machinery, trucks, planes, off. furn., paper, com. printing); "Enrgy" means oil, gas and coal extraction and products; "Chems" means chemicals and allied products; "BusEq" means business equipment (computers, software and electronic equipment); "Telcm" means telephone and television transmission; "Utils" means utilities; "Shops" means wholesale, retail and some services (laundries, repair shops); "Hlth" means healthcare, medical equipment and drugs; "Money" means financial services; "Other" includes mines, constr., bld. mt., trans., hotels, bus. serv., entertainment. All variables are defined in Table A1.

Panel A - By Year

Year	Total Number of Deals			Total Volume of Deals [in $ billion]		
	Number	Percentage	Cumulative Percentage	Total Value	Percentage	Cumulative Percentage
1992	841	0.03	0.03	89.07	0.01	0.01
1993	1106	0.03	0.06	159.52	0.01	0.02
1994	1412	0.04	0.10	126.95	0.01	0.03
1995	1633	0.05	0.15	398.88	0.03	0.06
1996	1980	0.06	0.21	474.87	0.03	0.09
1997	1749	0.05	0.26	576.96	0.04	0.13
1998	2040	0.06	0.33	1028.65	0.08	0.21
1999	2296	0.07	0.40	1732.93	0.13	0.34
2000	2158	0.07	0.46	1224.98	0.09	0.43
2001	1594	0.05	0.51	670.12	0.05	0.48
2002	1373	0.04	0.55	377.09	0.03	0.50
2003	1393	0.04	0.59	439.77	0.03	0.53
2004	1411	0.04	0.64	722.30	0.05	0.59
2005	1613	0.05	0.69	917.42	0.07	0.66
2006	1926	0.06	0.75	1440.87	0.11	0.76
2007	2351	0.07	0.82	1176.15	0.09	0.85
2008	2060	0.06	0.88	990.22	0.07	0.92
2009	2100	0.06	0.94	523.44	0.04	0.96
2010	1876	0.06	1.00	575.18	0.04	1.00
All Years	32912			13645.35		

Panel B - By Country

Country	Total Number of Deals	Total Volume of Deals [in $ billion]	Frequency of M&A	Volume of M&A	CAR (-1,+1)	Union Density		Bargaining Coverage	
						Mean	Std Dev	Mean	Std Dev
Australia	2418	358.46	0.11	0.04	0.12	0.27	0.07	0.58	0.16
Austria	62	21.07	0.05	0.02	0.06	0.37	0.06	0.98	0.00
Belgium	149	80.78	0.06	0.01	0.17	0.53	0.02	0.96	0.00
Brazil	394	152.86	0.31	0.11	-	0.34	0.06	0.35	0.00
Bulgaria	10	1.28	0.00	0.01	-	0.33	0.17	0.32	0.04
Canada	2779	662.40	0.08	0.04	0.16	0.32	0.02	0.34	0.03
Chile	126	25.38	0.03	0.01	0.06	0.15	0.02	0.24	0.00
Czech Republic	31	10.47	0.03	0.03	0.04	0.29	0.13	0.49	0.08
Denmark	103	41.47	0.02	0.02	0.14	0.74	0.03	0.83	0.02
Estonia	15	0.45	0.05	0.03	0.14	0.18	0.15	0.24	0.04
Finland	152	36.03	0.10	0.03	0.19	0.75	0.04	0.89	0.05
France	1221	602.29	0.07	0.03	0.04	0.08	0.01	0.90	0.00
Germany	574	580.33	0.04	0.02	0.12	0.25	0.05	0.67	0.04
Greece	106	41.76	0.02	0.01	0.05	0.28	0.04	0.66	0.01
Hungary	25	0.70	0.04	0.01	0.11	0.27	0.17	0.37	0.04
Iceland	17	3.02	0.04	0.01	-	0.87	0.04	0.90	0.03
India	922	74.14	0.13	0.01	0.05	0.40	0.01	0.51	0.16
Indonesia	237	34.74	0.03	0.02	0.05	0.16	0.11	0.13	0.02
Ireland	68	10.67	0.06	0.02	0.08	0.44	0.08	0.54	0.06
Israel	202	27.52	0.12	0.02	0.04	0.48	0.15	0.56	0.00
Italy	522	390.47	0.10	0.04	0.06	0.36	0.02	0.81	0.01
Japan	3503	674.00	0.05	0.01	0.08	0.22	0.03	0.19	0.02
Latvia	5	0.03	0.00	0.01	-	0.21	0.04	0.20	0.03
Lithuania	24	0.46	0.04	0.03	-	0.15	0.07	0.12	0.02
Luxembourg	17	7.99	0.02	0.01	0.02	0.42	0.03	0.59	0.01
Malaysia	574	61.72	0.05	0.02	0.05	0.12	0.02	-	-
Malta	4	0.20	0.01	0.00	-	0.60	0.05	0.62	0.05
Mexico	114	90.07	0.05	0.02	0.08	0.18	0.03	0.08	0.01
Netherlands	188	165.80	0.07	0.02	0.20	0.23	0.02	0.85	0.02
New Zealand	336	21.41	0.17	0.05	0.08	0.26	0.08	0.29	0.15
Norway	434	90.33	0.09	0.04	0.13	0.56	0.02	0.72	0.01
Poland	204	24.46	0.09	0.03	0.02	0.24	0.06	0.39	0.02
Portugal	139	27.47	0.09	0.02	0.03	0.23	0.03	0.68	0.13
Romania	20	2.25	0.02	0.02	-0.10	0.47	0.16	0.70	0.00
Russia	230	180.37	0.07	0.04	-0.12	0.64	0.17	-	-
Singapore	614	67.45	0.07	0.02	0.12	0.17	0.02	-	-
Slovakia	2	0.01	0.00	0.00	0.03	0.34	0.16	0.44	0.04
Slovenia	4	0.10	0.00	0.01	0.00	0.43	0.10	0.98	0.03
South Africa	411	95.21	0.04	0.02	0.09	0.34	0.07	0.43	0.01
South Korea	1030	114.39	0.05	0.02	0.03	0.12	0.02	0.11	0.00
Spain	474	268.14	0.14	0.03	0.06	0.16	0.01	0.87	0.03
Sweden	444	131.87	0.10	0.04	0.16	0.79	0.06	0.92	0.02
Switzerland	157	174.50	0.02	0.01	0.09	0.21	0.03	0.48	0.00
Turkey	76	40.77	0.03	0.01	0.04	0.12	0.05	0.25	0.00
United Kingdom	2366	1269.15	0.08	0.03	0.16	0.32	0.04	0.38	0.06
United States	11409	6980.91	0.08	0.03	0.18	0.13	0.01	0.15	0.02
All Countries	32912	13645.35	-	-	-	-	-	-	-

Panel C - By Industry-Year

Year	NoDur	Durbl	Manuf	Enrgy	Chems	BusEq	Telcm	Utils	Shops	Hlth	Money	Other	All Years
1992	85	25	94	31	15	71	32	25	59	60	226	118	841
1993	94	32	94	56	19	107	51	29	85	75	313	151	1106
1994	120	27	136	83	18	149	63	26	120	95	379	196	1412
1995	105	28	172	80	27	159	73	45	132	133	435	244	1633
1996	140	45	188	124	26	181	84	56	181	135	495	325	1980
1997	103	37	194	100	25	171	78	45	146	126	460	264	1749
1998	145	55	212	99	34	239	120	59	153	108	490	326	2040
1999	162	61	256	68	31	363	144	77	171	111	469	383	2296
2000	153	65	228	93	42	349	136	48	164	91	458	331	2158
2001	132	50	153	87	23	269	79	27	114	70	336	254	1594
2002	100	37	149	57	17	207	60	27	135	70	276	238	1373
2003	97	33	121	57	43	218	46	19	126	74	282	277	1393
2004	111	37	135	49	16	200	74	19	126	68	299	277	1411
2005	130	40	114	88	27	246	70	26	172	83	305	312	1613
2006	150	45	179	85	31	288	69	35	160	121	359	404	1926
2007	159	51	229	129	46	329	79	80	200	125	444	480	2351
2008	105	38	180	122	33	340	55	43	131	127	410	476	2060
2009	135	51	162	136	38	377	62	17	141	105	375	501	2100
2010	122	43	184	111	25	284	47	36	119	122	306	477	1876
All Industries	2348	800	3180	1655	536	4547	1422	739	2635	1899	7117	6034	32912

Table 2. Descriptive Statistics
The table presents the descriptive statistics of dependent variables, variables of interest, and deal-level, firm-level, industry-country-level, country-level and country-pair characteristics for the full sample which covers 46 countries over the period 1992-2010. All variables are defined in Table A1.

Variable Name	Mean	Standard Deviation	25th pctl.	Median	75th pctl.	Number of Observations
Dependent Variables						
Frequency of M&A	0.074	0.210	0.000	0.000	0.077	6488
Volume of M&A	0.025	0.082	0.000	0.000	0.010	6488
CAR (-1,+1)	0.195	0.265	0.039	0.146	0.289	6246
CAR (-3,+3)	0.210	0.280	0.046	0.163	0.315	5351
CAR (-5,+5)	0.214	0.287	0.046	0.168	0.326	4646
Offer Premium	0.380	0.423	0.137	0.314	0.544	5898
Employment Protection						
Union Density	0.300	0.191	0.167	0.246	0.362	6488
Bargaining Coverage	0.559	0.284	0.329	0.560	0.835	5566
EPL	2.151	0.761	1.595	2.246	2.679	5170
Deal- and Firm-Level Characteristics						
Deal Size	5.257	1.853	3.928	5.16	6.519	6246
Relative Deal Size	1.463	0.759	1.089	1.348	1.687	6246
Target Market Capitalization ($ million)	951.933	4512.023	40.049	129.079	498.578	6246
Target Market Capitalization (log)	5.014	1.806	3.715	4.868	6.214	6246
Cash Payment	0.511	0.500	0.000	1.000	1.000	6246
Financial Acquirer	0.128	0.334	0.000	0.000	0.000	6246
Toehold	0.160	0.367	0.000	0.000	0.000	6246
Friendly Deal	0.954	0.210	1.000	1.000	1.000	6246
Same Industry	0.547	0.498	0.000	1.000	1.000	6246
Industry-Country-Level Characteristics						
Total Assets	12.325	1.543	11.268	12.139	13.231	6488
Leverage	0.295	0.431	0.023	0.234	0.492	6488
Market-to-Book	0.017	0.017	0.010	0.014	0.020	6488
ROA	0.025	0.082	0.012	0.031	0.051	6488
Dividend Per Share	0.523	1.049	0.000	0.049	0.470	6488
Labor Intensity	6.845	1.380	6.097	6.831	7.689	6488
Herfindahl	0.299	0.266	0.096	0.208	0.418	6488
R&D Intensity	0.057	0.162	0.004	0.013	0.038	4239
Country-Level Characteristics						
GDP	26.620	1.334	25.669	26.444	27.506	6488
GDP Per Capita	9.765	0.952	9.219	10.063	10.466	6488
Recession	0.157	0.364	0.000	0.000	0.000	6488
Stock Market Capitalization	0.789	0.606	0.336	0.620	1.090	6488
Private Credit	0.956	0.502	0.565	0.928	1.234	6488
Trade Openness	0.891	0.699	0.531	0.680	0.974	6488
Investment Profile	9.634	2.217	7.833	10.333	11.500	6488
Quality of Institutions	12.445	2.825	10.167	13.000	15.000	6488
Democratic Accountability	5.409	0.961	5.000	6.000	6.000	6488
Anti-Self-Dealing	0.503	0.239	0.300	0.460	0.650	6400
Spamann	4.137	0.896	4.000	4.000	5.000	5554
Country-Pair Characteristics						
Exchange Rate Volatility	0.009	0.03	0.000	0.000	0.000	6246
Same Legal Origin	0.928	0.259	1.000	1.000	1.000	6246
Cross-Border	0.152	0.359	0.000	0.000	0.000	6246

Table 3. Tests of Differences
The table presents tests of differences in means. Panel A displays the results for the full sample, while Panel B excludes the US. The statistical significance of the difference in mean, for each dependent variable, between high (above median) and low (below median) value of Union Density and Bargaining Coverage are indicated by *, ** and *** for 10%, 5%, and 1% level of significance, respectively. *t*-statistics are in parentheses. All variables are defined in Table A1.

	Union Density				Bargaining Coverage			
	High	**Low**	**Difference (High-Low)**	**t-stat**	**High**	**Low**	**Difference (High-Low)**	**t-stat**
Panel A - Full Sample								
Frequency of M&A	0.087	0.065	***0.022	(4.32)	0.084	0.064	***0.0202	(3.96)
Volume of M&A	0.032	0.020	***0.012	(5.67)	0.028	0.023	*0.005	(2.54)
CAR (-1,+1)	0.157	0.236	***-0.079	(11.97)	0.153	0.242	***-0.088	(13.37)
CAR (-3,+3)	0.172	0.250	***-0.078	(10.36)	0.169	0.256	***-0.086	(11.44)
CAR (-5,+5)	0.180	0.254	***-0.074	(8.88)	0.177	0.259	***-0.082	(9.88)
Offer Premium	0.342	0.421	***-0.079	(7.27)	0.337	0.429	***-0.092	(8.39)
Panel B - Excluding the US								
Frequency of M&A	0.087	0.064	***0.022	(4.30)	0.084	0.064	***0.021	(3.96)
Volume of M&A	0.032	0.020	***0.012	(5.83)	0.028	0.022	**0.006	(2.72)
CAR (-1,+1)	0.156	0.054	***0.103	(6.20)	0.153	0.047	***0.106	(4.01)
CAR (-3,+3)	0.172	0.065	***0.107	(5.36)	0.169	0.037	***0.132	(4.20)
CAR (-5,+5)	0.179	0.070	***0.109	(4.80)	0.177	0.042	***0.135	(3.78)
Offer Premium	0.342	0.185	***0.157	(4.12)	0.337	0.208	0.129	(1.79)

Table 4. Frequency of M&A

The table presents the estimates from OLS models explaining the frequency of M&A. The dependent variable is Frequency of M&A. The variables of interest are Union Density and Bargaining Coverage. Depending on specifications, the regressions control for industry-country-level and country-level characteristics. Inclusion of fixed effects (FE) is indicated at the end. All variables are defined in Table A1. Standard errors are adjusted for heteroskedasticity and double-clustered by industry-country and year. *t*-statistics are in parentheses. Significance at 10%, 5%, and 1% is indicated by *, **, and ***, respectively.

	1	2	3	4	5	6	7	8
Collective Bargaining								
Union Density	***0.353	***0.389	***0.392	***0.376				
	(3.00)	(3.12)	(3.05)	(2.77)				
Bargaining Coverage					***0.336	***0.348	**0.353	**0.375
					(2.82)	(2.61)	(2.56)	(2.57)
Industry-Country-Level Characteristics								
Total Assets		0.010	0.009	-0.001		0.006	0.007	-0.01
		(1.21)	(1.13)	(0.14)		(0.73)	(0.74)	(0.90)
Leverage		-0.012	-0.009	0.002		-0.003	0.000	0.013
		(0.95)	(0.67)	(0.15)		(0.27)	(0.01)	(0.79)
Market-to-Book		0.024	-0.200	0.073		-0.192	-0.391	-0.116
		(0.07)	(0.51)	(0.19)		(0.62)	(1.23)	(0.41)
ROA		-0.107	-0.101	-0.066		-0.189	-0.195	-0.179
		(1.23)	(1.06)	(0.71)		(1.32)	(1.24)	(1.10)
Dividend Per Share		*-0.007	-0.005	-0.008		*-0.006	-0.005	-0.002
		(1.82)	(1.51)	(1.25)		(1.82)	(1.51)	(0.34)
Labor Intensity		-0.004	-0.004	-0.002		0.000	0.000	0.004
		(0.53)	(0.49)	(0.23)		(0.02)	(0.05)	(0.34)
Herfindahl		**-0.041	**-0.036	0.003		**-0.048	*-0.041	-0.035
		(2.45)	(2.03)	(0.11)		(2.17)	(1.80)	(0.70)
Country-Level Characteristics								
GDP		-0.085	-0.110	-0.081		0.276	0.268	0.286
		(0.70)	(0.91)	(0.68)		(1.25)	(1.20)	(1.27)
GDP Per Capita		0.059	0.091	0.075		-0.336	-0.322	-0.333
		(0.46)	(0.70)	(0.58)		(1.47)	(1.40)	(1.42)
Recession		*-0.025	*-0.025	-0.020		*-0.027	*-0.026	-0.024
		(1.85)	(1.83)	(1.47)		(1.81)	(1.75)	(1.63)
Stock Market Capitalization		0.008	0.009	0.006		0.007	0.008	0.004
		(0.96)	(0.99)	(0.56)		(0.46)	(0.50)	(0.25)
Private Credit		0.020	0.019	0.019		0.015	0.013	0.016
		(1.41)	(1.27)	(1.19)		(0.97)	(0.83)	(0.99)
Trade Openness		-0.002	0.000	0.003		**0.065	**0.072	*0.070
		(0.07)	(0.01)	(0.08)		(2.08)	(2.18)	(1.90)
Investment Profile		0.006	0.007	0.007		0.004	0.004	0.003
		(1.26)	(1.30)	(1.33)		(0.73)	(0.75)	(0.64)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Quality of Institutions		0.001	0.000	0.001		-0.002	-0.002	-0.002
		(0.12)	(0.07)	(0.15)		(0.37)	(0.33)	(0.30)
Democratic Accountability		0.005	0.004	0.001		0.008	0.006	0.006
		(0.74)	(0.62)	(0.21)		(0.94)	(0.69)	(0.75)
Year FE	Yes	Yes	-	-	Yes	Yes	-	-
Industry FE	Yes	Yes	-	-	Yes	Yes	-	-
Country FE	Yes	Yes	Yes	-	Yes	Yes	Yes	-
Industry × Year FE	-	-	Yes	Yes	-	-	Yes	Yes
Industry × Country FE	-	-	-	Yes	-	-	-	Yes
Adjusted R^2	0.104	0.110	0.138	0.309	0.092	0.101	0.131	0.315
Number of Observations	6488	6488	6488	6488	5590	5590	5590	5590
Number of Countries	46	46	46	46	43	43	43	43

Table 5. Volume of M&A

The table presents the estimates from OLS models explaining the volume of M&A. The dependent variable is Volume of M&A. The variables of interest are Union Density and Bargaining Coverage. Depending on specifications, the regressions control for industry-country-level and country-level characteristics. Inclusion of fixed effects (FE) is indicated at the end. All variables are defined in Table A1. Standard errors are adjusted for heteroskedasticity and double-clustered by industry-country and year. t-statistics are in parentheses. Significance at 10%, 5%, and 1% is indicated by *, **, and ***, respectively.

	1	2	3	4	5	6	7	8
Collective Bargaining								
Union Density	**0.078	**0.080	**0.081	**0.090				
	(2.14)	(2.08)	(2.01)	(2.03)				
Bargaining Coverage					*0.065	**0.082	**0.083	**0.092
					(1.91)	(2.44)	(2.27)	(2.33)
Industry-Country-Level Characteristics								
Total Assets		0.001	0.001	0.003		0.001	0.001	0.000
		(0.47)	(0.42)	(1.04)		(0.55)	(0.56)	(0.05)
Leverage		0.001	0.002	0.007		0.001	0.002	0.007
		(0.25)	(0.41)	(1.40)		(0.37)	(0.46)	(1.34)
Market-to-Book		***-0.201	***-0.250	***-0.236		***-0.176	**-0.218	**-0.205
		(3.43)	(3.21)	(2.99)		(2.78)	(2.58)	(2.25)
ROA		-0.03	-0.029	-0.023		-0.031	-0.037	-0.025
		(1.19)	(1.15)	(1.21)		(1.03)	(1.24)	(0.78)
Dividend Per Share		0.000	0.001	0.000		0.001	0.001	0.002
		(0.27)	(0.53)	(0.19)		(0.83)	(0.73)	(0.92)
Labor Intensity		-0.001	-0.001	-0.002		0.000	-0.001	0.000
		(0.60)	(0.72)	(1.33)		(0.33)	(0.40)	(0.14)
Herfindahl		***-0.020	***-0.020	0.000		***-0.019	**-0.018	-0.004
		(3.28)	(3.12)	(0.04)		(2.80)	(2.52)	(0.34)
Country-Level Characteristics								
GDP		0.026	0.022	0.03		0.067	0.065	0.075
		(0.74)	(0.64)	(0.77)		(1.45)	(1.37)	(1.51)
GDP Per Capita		-0.024	-0.02	-0.027		-0.075	-0.071	-0.083
		(0.63)	(0.52)	(0.64)		(1.51)	(1.43)	(1.51)
Recession		-0.001	-0.001	-0.001		-0.003	-0.003	-0.003
		(0.43)	(0.35)	(0.26)		(1.23)	(1.07)	(0.95)
Stock Market Capitalization		0.001	0.001	0.002		-0.002	-0.002	-0.001
		(0.32)	(0.48)	(0.49)		(0.31)	(0.23)	(0.13)
Private Credit		0.007	0.007	0.006		0.009	0.009	0.009
		(1.39)	(1.36)	(1.04)		(1.49)	(1.45)	(1.35)
Trade Openness		0.001	0.001	0.004		0.014	0.014	0.016
		(0.11)	(0.05)	(0.29)		(0.78)	(0.77)	(0.88)
Investment Profile		-0.001	-0.001	0.000		**-0.003	**-0.003	**-0.003
		(0.48)	(0.49)	(0.14)		(2.44)	(2.42)	(2.14)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Quality of Institutions		0.001	0.001	0.001		0.002	0.002	0.002
		(0.55)	(0.51)	(0.49)		(0.65)	(0.63)	(0.56)
Democratic Accountability		0.001	0.001	0.001		0.003	0.002	0.003
		(0.59)	(0.56)	(0.42)		(1.00)	(0.90)	(0.92)
Year FE	Yes	Yes	-	-	Yes	Yes	-	-
Industry FE	Yes	Yes	-	-	Yes	Yes	-	-
Country FE	Yes	Yes	Yes	-	Yes	Yes	Yes	-
Industry × Year FE	-	-	Yes	Yes	-	-	Yes	Yes
Industry × Country FE	-	-	-	Yes	-	-	-	Yes
Adjusted R^2	0.07	0.08	0.10	0.20	0.06	0.07	0.10	0.20
Number of Observations	6488	6488	6488	6488	5590	5590	5590	5590
Number of Countries	46	46	46	46	43	43	43	43

Table 6. Employment Protection Legislations
The table presents the estimates from OLS models explaining the frequency of M&A. The dependent variable is Frequency of M&A. The variables of interest are Union Density (resp. Bargaining Coverage), EPL and the interaction between EPL and Union Density (resp. Bargaing Coverage). The regressions control for industry-country-level and country-level characteristics. Inclusion of fixed effects (FE) is indicated at the end. All variables are defined in Table A1. Standard errors are adjusted for heteroskedasticity and double-clustered by industry-country and year. *t*-statistics are in parentheses. Significance at 10%, 5%, and 1% is indicated by *, **, and ***, respectively.

	1	2	3	4
Variables of Interest				
Union Density	***0.427	***0.252		
	(3.58)	(2.60)		
Union Density × EPL		**0.337		
		(2.29)		
Bargaining Coverage			**0.199	***0.193
			(2.47)	(2.68)
Bargaining Coverage × EPL				0.291
				(1.60)
EPL	*-0.054	***-0.167	-0.021	*-0.147
	(1.67)	(2.95)	(0.62)	(1.77)
Industry-Country-Level Characteristics	Yes	Yes	Yes	Yes
Country-Level Characteristics	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Adjusted R^2	0.072	0.075	0.071	0.073
Number of Observations	4895	4895	4746	4746
Number of Countries	28	28	28	28

Table 7. Sensitivity Tests
This table presents the estimation results of several sensitivity tests on the frequency of M&A. Panel A presents the country-level results, Panel B presents the results from an "horse race" between Union Density and Bargaining Coverage and results using measures of Union Density and Bargaining Coverage from different sources (i.e., OECD or ILO), Panel C presents the results using various subsamples, and Panel D presents the results for alternative definitions of dependent variables. In all panels the dependent variable is Frequency of M&A, except in Panel A in which Frequency of M&A is aggregated at the country level (i.e., the total number of M&A transaction per country-year divided by the number of listed firms per country-year). The variables of interest are Union Density and Bargaining Coverage. We include the same set of controls as in Table 4 for all models in all panels except in Panel A, in which we only include country-level characteristics. Inclusion of fixed effects (FE) is indicated at the end. All variables are defined in Table A1. Standard errors are adjusted for heteroscedasticity and double-clustered by industry-country and year for industry-level tests, and by country and year for country-level tests. *t*-statistics are in parentheses. Significance at 10%, 5%, and 1% is indicated by *, **, and ***, respectively.

Panel A - Country-Level Tests

	1	2	3	4
Collective Bargaining				
Union Density	**0.439	**0.414		
	(2.09)	(2.01)		
Bargaining Coverage			*0.432	*0.439
			(1.80)	(1.87)
Country-Level Characteristics	-	Yes	-	Yes
Year FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Adjusted R^2	0.268	0.266	0.272	0.269
Number of Observations	550	550	491	491
Number of Countries	46	46	43	43

Panel B - "Horse Race" and Alternative Data Sources

	1	2	3	4
	Horse Race	OECD Union Density	ILO Union Density	ILO Bargaining Coverage
Collective Bargaining				
Union Density	*0.300	***0.398	***0.190	
	(1.82)	(2.82)	(5.06)	
Bargaining Coverage	**0.286			**0.094
	(2.28)			(2.14)
Industry-Country-Level Characteristics	Yes	Yes	Yes	Yes
Country-Level Characteristics	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Adjusted R^2	0.088	0.064	0.092	0.071
Number of Observations	5566	3506	3732	3044
Number of Countries	43	28	46	42

56

	1	2	3	4	5	6	7	8	9	10
Collective Bargaining										
Union Density	***0.424	***0.348	***0.467	*0.439	***0.362					
	(3.30)	(2.78)	(3.70)	(1.71)	(3.12)					
Bargaining Coverage						***0.378	***0.417	***0.231	*4.319	***0.335
						(2.74)	(3.12)	(3.09)	(1.80)	(2.70)
Industry-Country-Level Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-Level Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
UK & US Drop	Yes	-	-	-	-	Yes	-	-	-	-
Scandinavian Countries Drop	-	Yes	-	-	-	-	Yes	-	-	-
Non-OECD Drop	-	-	Yes	-	-	-	-	Yes	-	-
OECD Drop	-	-	-	Yes	-	-	-	-	Yes	-
Financial Services Drop	-	-	-	-	Yes	-	-	-	-	Yes
Adjusted R^2	0.097	0.105	0.068	0.163	0.095	0.087	0.098	0.067	0.198	0.085
Number of Observations	6131	5939	4900	1616	5890	5232	5040	4750	854	5080
Number of Countries	44	43	28	18	46	41	40	28	15	43

57

Panel D - Alternative Definitions of Dependent Variables

	1	2	3	4	5	6	7	8
	Stake>10%	Bid for Control	Stake=100%	Including Failed Deals	Stake>10%	Bid for Control	Stake=100%	Including Failed Deals
Collective Bargaining								
Union Density	*0.115	***0.057	***0.053	***0.422				
	(1.94)	(3.38)	(3.05)	(3.02)				
Bargaining Coverage					**0.167	***0.065	**0.052	***0.397
					(2.49)	(3.60)	(2.23)	(2.86)
Industry-Country-Level Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-Level Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.082	0.061	0.082	0.094	0.085	0.063	0.088	0.085
Number of Observations	6488	6488	6488	6488	5590	5590	5590	5590
Number of Countries	46	46	46	46	43	43	43	43

Table 8. Cross-Sectional Heterogeneity - Labor Intensity
The table presents the results from OLS regressions of cross-sectional heterogeneity. The dependent variable is Frequency of M&A. The variable of interest is the interaction of Labor Intensity (i.e., natural logarithm of industry median of the number of employees) with Union Density (resp. Bargaining Coverage). In all models, we include the same set of control variables as in Table 4. Inclusion of fixed effects (FE) is indicated at the end. All variables are defined in Table A1. Standard errors are adjusted for heteroscedasticity and double-clustered by industry-country and year. *t*-statistics are in parentheses. Significance at 10%, 5%, and 1% is indicated by *, **, and ***, respectively.

	1	2	3	4	5	6	7	8
Variables of Interest								
Union Density	0.190	0.191	0.040	0.121				
	(1.31)	(1.27)	(0.22)	(0.78)				
Union Density × Labor Intensity	**0.024	**0.024	**0.043	**0.029				
	(1.98)	(2.05)	(2.07)	(2.16)				
Bargaining Coverage					0.176	0.178	0.134	0.166
					(1.14)	(1.10)	(0.63)	(0.99)
Bargaining Coverage × Labor Intensity					**0.027	**0.028	**0.039	**0.032
					(2.31)	(2.26)	(1.99)	(2.53)
Labor Intensity	-0.013	-0.013	-0.016	-0.014	-0.016	-0.017	-0.02	*-0.021
	(1.44)	(1.42)	(1.34)	(1.51)	(1.53)	(1.55)	(1.12)	(1.75)
Industry-Country-Level Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-Level Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	-	-	-	Yes	-	-	-
Industry FE	Yes	-	-	-	Yes	-	-	-
Country FE	Yes	Yes		Yes	Yes	Yes	-	Yes
Industry × Year FE	-	Yes	Yes	Yes	-	Yes	Yes	Yes
Industry × Country FE	-	-	Yes	-	-	-	Yes	-
UK & US Drop		-	-	Yes	-	-	-	Yes
Adjusted *R²*	0.102	0.104	0.237	0.102	0.089	0.088	0.223	0.088
Number of Observations	6488	6488	6488	6107	5590	5590	5590	5232
Number of Countries	46	46	46	44	43	43	43	41

Table 9. Target CAR

The table presents the estimates from OLS models explaining target CAR. The dependent variable is CAR (-1,+1). The variables of interest are Union Density and Bargaining Coverage. Depending on specifications, the regressions control for deal-level, firm-level, country-level and country-pair characteristics. Inclusion of fixed effects (FE) is indicated at the end. All variables are defined in Table A1. Standard errors are adjusted for heteroscedasticity and double-clustered by country and year. *t*-statistics are in parentheses. Significance at 10%, 5%, and 1% is indicated by *, **, and ***, respectively.

	1	2	3	4	5	6
Collective Bargaining						
Union Density	**0.625	**0.530	*0.655			
	(2.40)	(2.02)	(1.86)			
Bargaining Coverage				**0.266	**0.290	*0.243
				(1.98)	(2.18)	(1.75)
Deal- and Firm-Level Characteristics						
Deal Size	0.001	0.002	0.007	0.001	0.001	0.003
	(0.10)	(0.13)	(1.01)	(0.10)	(0.09)	(0.52)
Relative Deal Size	***0.119	***0.118	***0.079	***0.120	***0.120	***0.087
	(7.66)	(7.90)	(6.14)	(8.10)	(8.39)	(9.18)
Target Market Capitalization	-0.012	-0.013	-0.004	-0.012	-0.012	-0.004
	(0.81)	(0.85)	(1.37)	(0.73)	(0.75)	(0.75)
Cash Payment	***0.078	***0.079	***0.040	***0.078	***0.078	***0.037
	(14.55)	(13.53)	(4.99)	(14.36)	(12.96)	(4.63)
Financial Acquirer	***-0.042	***-0.042	**-0.013	***-0.042	***-0.042	**-0.013
	(4.62)	(4.30)	(2.09)	(4.72)	(4.53)	(2.02)
Toehold	***0.032	***0.032	***0.015	***0.033	***0.034	***0.015
	(10.11)	(8.95)	(3.50)	(16.62)	(11.31)	(4.20)
Friendly Deal	0.023	0.023	***0.013	0.023	0.024	*0.013
	(1.26)	(1.17)	(2.66)	(1.15)	(1.14)	(1.82)
Same Industry	0.009	0.009	***0.024	0.009	0.009	***0.026
	(1.18)	(1.20)	(3.31)	(1.16)	(1.16)	(3.23)
Country-Level Characteristics						
GDP		0.024	-0.091		*0.436	-0.217
		(0.09)	(0.32)		(1.68)	(0.79)
GDP Per Capita		0.040	0.131		-0.357	0.293
		(0.14)	(0.39)		(1.33)	(1.13)
Recession		***0.044	-0.012		**0.035	0.003
		(2.67)	(0.71)		(2.31)	(0.21)
Stock Market Capitalization		0.016	0.018		-0.006	*-0.037
		(0.65)	(0.69)		(0.22)	(1.74)
Private Credit		**-0.051	-0.026		***-0.089	-0.017
		(2.00)	(0.84)		(3.01)	(0.36)
Trade Openness		-0.102	*-0.078		-0.035	-0.007
		(1.42)	(1.84)		(0.32)	(0.06)
Investment Profile		***-0.016	-0.002		***-0.019	0.002
		(3.21)	(0.23)		(3.24)	(0.26)
Quality of Institutions		-0.008	***-0.013		-0.004	-0.009
		(0.94)	(2.76)		(0.47)	(0.93)
Democratic Accountability		-0.008	-0.015		0.010	-0.039
		(0.39)	(0.90)		(0.44)	(0.91)
Country-Pair Characteristics						
Exchange Rate Volatility		0.038	**-0.215		0.047	**-0.166
		(0.20)	(2.18)		(0.26)	(2.00)
Same Legal Origin		-0.022	***-0.021		-0.023	-0.013
		(1.14)	(2.66)		(1.19)	(1.61)
Cross-Border		-0.014	0.011		-0.016	0.008
		(0.55)	(1.24)		(0.64)	(0.81)
Additional Firm-Level Characteristics						
Total Assets			-0.005			-0.002
			(1.04)			(0.47)

Leverage			**0.002			0.001
			(1.97)			(1.17)
Market-to-Book			**-0.006			-0.005
			(2.04)			(1.46)
ROA			0.022			0.019
			(0.89)			(0.77)
Dividend Per Share			0.007			0.007
			(1.06)			(1.20)
Herfindahl			0.022			0.040
			(0.36)			(0.50)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.213	0.213	0.192	0.212	0.213	0.199
Number of Observations	6246	6246	2272	6143	6143	2119
Number of Countries	38	38	30	37	37	28

Table 10. Post-Takeover Workforce Restructuring

This table presents estimates of the effect of collective bargaining on the combined number of employees following takeovers. All deals are followed over a five-year window around the completion of the transaction, which allows to identify the dynamics of the total number of employees at the acquirer and the target in the years surrounding the takeover. The dependent variable is the natural logarithm of the number of employees of the acquirer and the target in year $t+x$, where t is the year of completion of the takeover, and $+x$ $(-x)$ is the number of years after (before) the takeover. The variables of interest are Post Takeover, Union Density (resp. Bargaining Coverage), and the interaction between Post Takeover and Union Density (resp. Bargaing Coverage). The regressions control for country-level characteristics. Inclusion of fixed effects (FE) is indicated at the end. All variables are defined in Table A1. Standard errors are adjusted for heteroscedasticity and double-clustered by country and year. t-statistics are in parentheses. Significance at 10%, 5%, and 1% is indicated by *, **, and ***, respectively.

	1	2	3
Variables of Interest			
Post Takeover	***-0.088	***-0.054	***-0.083
	(3.15)	(2.70)	(2.79)
Post Takeover × Union Density		*-0.186	
		(1.93)	
Post Takeover × Bargaining Coverage			*-0.088
			(1.81)
Union Density		-0.231	
		(0.64)	
Bargaining Coverage			-0.23
			(0.71)
Country-Level Characteristics	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Deal FE	Yes	Yes	Yes
Adjusted R^2	0.065	0.066	0.054
Number of Observations	26750	26617	25382
Number of Countries	46	46	43

62

Table 11. Alternative Explanations

The table presents the results from OLS models explaining the frequency of M&A. The dependent variable is Frequency of M&A. Columns (1)-(4) present results from "horse races" between Union Density (resp. Bargaining Coverage) and investor protection indices (i.e., Anti-Self-Dealing and Spamann). Columns (5) and (6) present the results from the differential effect of Union Density (resp. Collective Bargaining) across industries that differ in terms of R&D intensity (i.e., industry median of the ratio of R&D expenditures to total assets). Columns (7) and (8) present the results from the differential effect of Union Density (resp. Collective Bargaining) across recession periods (i.e., years in which GDP growth of a country is negative in two consecutive quarters). In all models, we include the same set of control variables as in Table 4. Inclusion of fixed effects (FE) is indicated at the end. All variables are defined in Table A1. Standard errors are adjusted for heteroscedasticity and double-clustered by industry-country and year. t-statistics are in parentheses. Significance at 10%, 5%, and 1% is indicated by *, **, and ***, respectively.

	1	2	3	4	5	6	7	8
	Investor Protection				R&D Intensity		Recession Periods	
Variables of Interest								
Union Density	**0.084		**0.103		**0.441		***0.397	
	(2.47)		(2.48)		(2.45)		(3.11)	
Bargaining Coverage		***0.066		*0.046		**0.310		**0.281
		(2.95)		(1.90)		(2.14)		(2.42)
Anti-Self-Dealing	0.033	**0.056						
	(1.42)	(2.13)						
Spamann			***0.024	*0.013				
			(3.19)	(1.93)				
Union Density × R&D Intensity					-0.103			
					(1.24)			
Bargaining Coverage × R&D Intensity						-0.049		
						(0.83)		
R&D Intensity					0.030	0.031		
					(0.75)	(0.78)		
Union Density × Recession							**0.048	
							(2.11)	
Bargaining Coverage × Recession								*0.058
								(1.85)
Recession	-0.022	*-0.026	-0.025	-0.032	-0.012	-0.009	**-0.039	***-0.053
	(1.49)	(1.79)	(1.33)	(1.54)	(0.80)	(0.51)	(2.38)	(2.84)
Industry-Country-Level Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-Level Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	-	-	-	-	Yes	Yes	Yes	Yes
Adjusted R^2	0.056	0.056	0.066	0.064	0.104	0.102	0.098	0.087
Number of Observations	6400	5502	5554	4760	4239	3796	6488	5590
Number of Countries	43	40	31	29	46	43	46	43

Table A1. Variables Definitions and Sources

Variable Name	Definition and Source
Dependent Variables	
Frequency of M&A	The total number of M&A transactions per industry-year divided by the number of listed firms per industry-year in a target country (*Sources:* SDC and Worldscope).
Volume of M&A	The sum of dollar value of M&A transactions per industry-year divided by total market capitalization of listed firms per industry-year in a target country (*Sources:* SDC and Worldscope).
CAR (-1,+1)	The cumulative abnormal return of target firms calculated over a 3-day window around the announcement date. 5-day and 11-day event windows are also used in robustness. Abnormal returns are calculated using the market model relative to a local equity market index. The value weighted index for US firms is obtained from CRSP, while for other countries local indices (proxies of market portfolio) are retrieved from Worldscope. The parameters of the market model are 200-days estimation period spread over (-236,-36) (*Sources:* CRSP, Compustat Global, and authors' calculations).
Offer Premium	Offer price relative to target market price four weeks prior to M&A announcement (*Source:* SDC).
Employment Protection	
Union Density	Net union memberships divided by all wage and salary earners in employment; it ranges from 0 to 1 and is time-varying (*Source:* ICTWSS).
Bargaining Coverage	Total number of employees covered by collective (wage) bargaining agreements divided by all wage and salary earners in employment with the right to bargaining, adjusted for the possibility that some sectors or occupations are excluded from the right to bargain (removing such groups from the employment count before dividing the number of covered employees over the total number of dependent workers in employment); it ranges from 0 to 1 and is time-varying (*Source:* ICTWSS).
EPL	Index measuring the strictness of regulations that an employer has to follow in order to dismiss a worker with a regular contract; it ranges from 0 to 5 and is time-varying (*Source:* OECD).
Deal- and Firm-Level Characteristics	
Deal Size	The natural logarithm of the dollar value of M&A deal (*Source:* SDC).
Relative Deal Size	The ratio of transaction value to the market capitalization of target firm 4 weeks prior to announcement date (*Source:* SDC).
Target Market Capitalization	The natural logarithm of market capitalization of target firm 4 weeks prior to announcement date (*Source:* SDC).
Cash Payment	Dummy variable equal to 1 if 100% of transaction value is paid in cash, and 0 otherwise (*Source:* SDC).
Financial Acquirer	Dummy variable equal to 1 if acquirer is a financial firm, and 0 otherwise (*Source:* SDC).
Toehold	Dummy variable equal to 1 if acquirer owns non-zero percentage shares in the target firm before the announcement of transaction, and 0 otherwise (*Source:* SDC).
Friendly Deal	Dummy variable equal to 1 if deal attitude is classified as "Friendly" by SDC, and 0 otherwise (*Source:* SDC).
Same Industry	Dummy variable equal to 1 if acquirer and target 2-digit SIC code is the same, and 0 otherwise (*Source:* SDC).
Industry-Country-Level Characteristics	
Total Assets	The industry median of dollar value of the natural logarithm of total assets (*Sources:* CRSP and Worldscope).
Leverage	The industry median of debt-to-equity ratio. It is calculated as long term debt minus cash and cash equivalents divided by book value of common equity (*Sources:* CRSP and Worldscope).
Market-to-Book	The industry median of market-to-book ratio. It is calculated as market value of common equity divided by book value of common equity (*Sources:* CRSP and Worldscope).
ROA	The industry median of return on assets. It is calculated as EBITDA divided by book value of total assets (*Sources:* CRSP and Worldscope).
Dividend Per Share	The industry median of dividend per share (*Sources:* CRSP and Worldscope).
Labor Intensity	The industry median of the natural logarithm of total number of employees (*Sources:* CRSP and Worldscope).

Herfindahl	The sum of squares of market share of individual firm in the same 12-FF industry. Market share is calculated as the dollar value of sales of a firm divided by the total dollar value of sales volume of the industry (Authors' calculation).
R&D Intensity	The industry median of the ratio of total R&D expenditures to total book assets (*Sources:* CRSP and Worldscope).

Country-Level Characteristics

GDP	The natural logarithm of Gross Domestic product (GDP) (*Source:* World Bank).
GDP Per Capita	Per capita GDP in US dollars (*Source:* World Bank).
Recession	Dummy variable equal to 1 if GDP growth is negative in two consecutive quarters within year for a country (*Source:* OECD)
Stock Market Capitalization	The ratio of total market capitalization of listed companies to GDP (*Source:* World Bank).
Private Credit	The ratio of private credit provided to private sector to GDP (*Source:* World Bank).
Trade Openness	The ratio of imports and exports of goods and services to GDP (*Source:* World Bank).
Investment Profile	Time-varying index measuring the government's attitude to inward investment. The investment profile is determined by summing the three following components: (1) risk of expropriation or contract viability; (2) payment delays; and (3) repatriation of profits. Each component is scored on a scale from 0 (very high risk) to 4 (very low risk) (*Source:* ICRG).
Quality of Institutions	Time-varying index measuring institutional quality of a country, which is calculated by summing the three following components: (1) corruption; (2) law and order; and (3) bureaucratic quality. High score indicates countries with higher institutional quality and vice versa (*Source:* ICRG).
Democratic Accountability	Time-varying index measuring government's responsiveness to its people. The less responsive government will fall peacefully in democratic society and possibly violently in non-democratic society. High score indicates higher democratic accountability and vice versa (*Source:* ICRG).
Anti-Self-Dealing	Time-invariant index measuring the amount of disclosure before and after the transaction has occurred, the need for approval by disinterested shareholders, and litigation governing a specific self-dealing transaction. High score indicates better protection of minority shareholders and vice versa (*Source:* Djankov et al., 2008).
Spamann	Corrected version of the anti-director rights index of Djankov et al. (2008), formed by adding 1: when (1) the country allows shareholders to mail their proxy vote; (2) shareholders are not required to deposit their shares prior to the general shareholders' meeting; (3) cumulative voting or proportional representation of minorities on the board of directors is allowed; (4) an oppressed minorities mechanism is in place; (5) the minimum percentage of share capital required that gives right a shareholder to call for an extraordinary shareholders' meeting is less than or equal to 10% (the sample median); or (6) shareholders have preemptive rights that can only be waived by a shareholders' meeting. This index ranges from 0 to 5 and is time-invariant. (*Source:* Spamann, 2010).

Country-Pair Characteristics

Exchange Rate Volatility	The standard deviation of exchange rates between acquirer and target countries from 36 months up to 1 month relative to the transaction announcement date (authors' calculation).
Same Legal Origin	Dummy variable equal to 1 if acquirer and target countries have the same legal origin, and 0 otherwise. (*Source:* Djankov et al., 2008).
Cross-Border	Dummy variable equal to 1 if acquirer and target are headquartered in two different countries, and 0 otherwise (*Source:* SDC).

Table A2. Alternative Estimation Methods and Dependent Variables – Takeover Activity

This table presents the estimation results of several sensitivity tests. Columns (1)-(8) present the estimates from Tobit models using various definitions of dependent variables. The dependent variables are: Frequency of M&A in columns (1) and (2), Volume of M&A in columns (3) and (4), Number of deals in columns (5) and (6), Deal value (in $ million) in columns (7) and (8). Columns (9)-(12) present the estimates from WLS models using Number of deals in columns (9) and (10) and Deal value (in $ million) in columns (11) and (12) as dependent variables. The specification "WLS" is weighted least squares in which the weight is the average number of listed firms in the country over the sample period. The variables of interest are Union Density and Bargaining Coverage. In all models, we control for industry-country-level and country-level characteristics. Inclusion of fixed effects (FE) is indicated at the end. All variables are defined in Table A1. Standard errors are adjusted for heteroscedasticity and double-clustered by industry-country and year. *t*-statistics are in parentheses. Significance at 10%, 5%, and 1% is indicated by *, **, and ***, respectively.

	1	2	3	4	5	6	7	8	9	10	11	12
	Frequency of M&A		Volume of M&A		ln(1+Number of Deals)		ln(1+ $ Deal Value)		ln(1+Number of Deals)		ln(1+ $ Deal Value)	
Collective Bargaining												
Union Density	***1.003		***0.296		***2.807		**8.003		***1.842		**5.194	
	(3.75)		(2.76)		(3.03)		(2.18)		(2.92)		(2.50)	
Bargaining Coverage		***0.648		***0.231		*1.099		**4.908		***1.534		***3.251
		(3.83)		(2.60)		(1.88)		(2.13)		(3.20)		(2.79)
Industry-Country-Level Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-Level Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Estimation Method	Tobit	Tobit	Tobit	Tobit	Tobit	Tobit	Tobit	Tobit	WLS	WLS	WLS	WLS
Log Likelihood	-2552.475	-2085.418	-486.788	-331.375	-5961.576	-5278.728	-9188.53	-8157.863	-	-	-	-
Pseudo *R²*	0.234	0.249	0.592	0.654	0.278	0.289	0.146	0.152	-	-	-	-
Adjusted *R²*	-	-	-	-	-	-	-	-	0.71	0.707	0.461	0.456
Number of Observations	6488	5590	6488	5590	6488	5798	6488	5798	6488	5798	6488	5798
Number of Countries	46	43	46	43	46	43	46	43	46	43	46	43

Table A3. Sensitivity Tests - Target CAR and Offer Premium

This table presents the estimation results of several sensitivity tests on target CAR. Panel A presents the results using CAR (-3,+3) and CAR (-5,+5) as dependent variables, Panel B presents the results for alternative definitions of dependent variables, Panel C presents results using various subsamples, and Panel D presents the results using Offer Premium as dependent variable. The dependent variable is CAR (-1,+1) in Panels B and C. The variables of interest are Union Density and Bargaining Coverage. We include the same set of control variables as in Table 9. Inclusion of fixed effects (FE) is indicated at the end. All variables are defined in Table A1. Standard errors are adjusted for heteroscedasticity and double-clustered by country and year. *t*-statistics are in parentheses. Significance at 10%, 5%, and 1% is indicated by *, **, and ***, respectively.

Panel A - Wider Event Windows

	1	2	3	4
	CAR (-3,+3)	CAR (-5,+5)	CAR (-3,+3)	CAR (-5,+5)
Collective Bargaining				
Union Density	*0.525	***0.842		
	(1.96)	(3.08)		
Bargaining Coverage			***0.490	***0.534
			(2.69)	(2.81)
Deal and Firm Characteristics	Yes	Yes	Yes	Yes
Country Characteristics	Yes	Yes	Yes	Yes
Country-pair Characteristics	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Adjusted R^2	0.217	0.227	0.244	0.256
Number of Observations	5351	4646	5272	4578
Number of Countries	36	35	33	32

Panel B - Alternative Definitions of Dependent Variables

	1	2	3	4	5	6
	All Deals	Stake= 5-49%	Stake=100%	All Deals	Stake= 5-49%	Stake=100%
Collective Bargaining						
Union Density	***0.485	*0.291	***1.103			
	(2.66)	(1.93)	(5.21)			
Bargaining Coverage				***0.291	***0.097	***0.608
				(3.74)	(3.96)	(2.68)
Deal- and Firm-Level Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Country-Level Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Country-Pair Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R^2	0.234	0.096	0.233	0.237	0.098	0.233
Number of Observations	11257	4065	4551	10855	3796	4530
Number of Countries	38	36	33	34	33	30

Panel C - Subsamples

	1	2	3	4	5	6	7	8
Collective Bargaining								
Union Density	***1.102	***1.087	***0.999	***1.191				
	(3.96)	(3.25)	(2.85)	(2.79)				
Bargaining Coverage					***0.317	**0.395	**0.470	**0.479
					(3.01)	(2.33)	(2.51)	(2.13)
Deal- and Firm-Level Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-Level Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-Pair Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
UK & US Drop	Yes	-	-	-	Yes	-	-	-
Scandinavian Countries Drop	-	Yes	-	-	-	Yes	-	-
Non-OECD Drop	-	-	Yes	-	-	-	Yes	-
Financial Services Drop	-	-	-	Yes	-	-	-	Yes
Adjusted R^2	0.219	0.238	0.236	0.240	0.21	0.237	0.236	0.239
Number of Observations	1220	5074	5095	3800	1194	5048	5094	3785
Number of Countries	34	33	28	36	31	29	28	33

Panel D - Offer Premium

	1	2
Collective Bargaining		
Union Density	**0.667	
	(2.04)	
Bargaining Coverage		**0.308
		(2.13)
Deal- and Firm-Level Characteristics	Yes	Yes
Country-Level Characteristics	Yes	Yes
Country-Pair Characteristics	Yes	Yes
Year FE	Yes	Yes
Industry FE	Yes	Yes
Country FE	Yes	Yes
Adjusted R^2	0.506	0.507
Number of Observations	5809	5716
Number of Countries	35	32