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Authors' List

Aziz Alimov, City University of Hong Kong

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Labor Market Regulations and Cross-Border Mergers*

Aziz Alimov

Department of Economics and Finance
City University of Hong Kong
Kowloon Tong, Hong Kong

Email: aaalimov@cityu.edu.hk
Tel:(852) 3442 2168

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This paper studies the role of country laws that protect employment in cross-border merger decisions and merger premiums. I find that cross-border mergers are more common in countries with stricter labor regulation. Cross-border deals typically involve targets from countries with more restrictive labor laws than those of their acquirers. Targets receive higher premiums if their acquirers are from countries with more flexible labor laws. The effects of labor laws are more pronounced in innovation-intensive sectors. The results are consistent with the hypothesis that stricter labor laws, by helping countries to generate comparative advantage in innovation, facilitate value-maximizing cross-border mergers.

JEL classifications: G15, G34, F21, J80, K31.
Keywords: Cross-Border Mergers, Labor Laws, Innovation, Law and finance.

1. Introduction

Cross-border mergers and acquisition (M&A) activity has rapidly increased over the last twenty years, in part due to the globalization of business and liberalization of national economies. The number and value of cross-border mergers grew from 1,678 deals with the transaction value of $40 billion in 1992 to 4,444 deals valued at $409 billion in 2010. In 2010, cross-border deals accounted for about one-third of the total number and one-half of the total transaction value of all completed deals worldwide[1]. The increased importance of cross-border deals has inspired a growing number of scholars to examine factors that affect cross-border deals. For instance, Rossi and Volpin (2004), Bris and Cabolis (2008) and Ferreira et al. (2010) document that legal protection of investors and the prevalence of foreign institutional investors affect the level of cross-border deal activity and the shareholder value effects of those deals. However, investors are not the only stakeholders that could potentially influence a firm's decision to merge with a foreign firm. Other important stakeholders and legal institutions that may play an important role in cross-border deals include firms' labor force and countries' labor market regulations. Labor regulations are likely to have an especially important role in cross-border transactions, which often result in substantial labor force restructuring in both the target and the acquirer. This study provides some of the first evidence on the impact of cross-country differences in labor regulation on the level and direction of cross-border M&As and the value effects of those deals.

Many countries, with substantial variation, offer job security to workers by legally restricting firms' ability to hire or fire workers or renegotiate their contracts at will. For example, all OECD countries establish the conditions under which an employer can dismiss a worker, administrative procedures for the dismissal process, and the monetary compensation that a dismissed employee is entitled to. A firm faces additional regulations in the case of collective dismissals. However, whether and how legal protection of labor affects cross-border M&A activity and merger value effects transactions is ambiguous. Drawing on existing literature, I develop and test two alternative hypotheses.

[1] Author's calculations using data from Thomson Financial SDC database on majority control deals.

The first is a merger impediment hypothesis, which builds on the long-standing belief among many economists that stricter labor regulation dampens firms' incentives to invest and grow, and thus impedes reallocation of resources across firms (e.g. Lazear 1990; Botero et al. 2004). Pagano and Volpin (2005) develop a model in which strict labor laws allow incumbent managers to use long-term wage contracts to thwart takeover attempts. The impediment hypothesis, therefore, posits that target countries' strict labor laws will discourage foreign acquirers from purchasing local firms. In addition, stricter labor rules may increase the risk of regulatory arbitrage, in which bidders attempt to escape from the home country regulations by choosing to expand through acquisitions of targets in countries with relatively more flexible labor laws. If such regulatory arbitrage leads to deals undertaken for wrong reasons ("race to the bottom"), then we would expect that deals that involve bidders from countries with more restrictive labor laws than those of their targets, on average, create less value.

The second is a merger facilitation hypothesis, which builds on the more recently advanced arguments that greater job security resulting from labor protection laws encourages workers to engage in innovative activities, thereby enhancing their skills and increasing their expected productivity (e.g. Wasmer 2006; Belot et al. 2007). Innovation activities, while value-increasing, have a high probability of failure. More stringent labor laws thus, by protecting workers from the risk of dismissal for short-run failures, promote innovation. Acharya et al. (2012) provide evidence suggesting that stronger labor protection leads to more innovation output, especially in the innovation-intensive industries. Tang (2012) finds that countries with more restrictive labor laws are more likely to export in skill-intensive industries. The collective evidence thus suggests that countries with more protective labor laws may have a comparative advantage in skill and innovation-intensive industries, which in turn affects the direction of merger activity across borders. More specifically, the facilitation hypothesis predicts that more restrictive labor laws, by creating a comparative edge in innovation, will encourage foreign acquirers to bid for local firms. In addition, those foreign bidders are more likely to come from countries with more flexible labor laws seeking to acquire the comparative advantage in innovation. Since deals between bidders from

countries with less restrictive labor laws than those of their targets are presumed to be undertaken for right reasons, we would expect such mergers to create more gains for shareholders.

To test these alternative hypotheses, I create a sample of 53,583 completed cross-border majority deals announced between 1991 and 2009 involving firms from 28 countries. My measure of the stringency of labor regulation is the composite index of employment protection legislation (EPL) developed by the Organization for Economic Cooperation and Development (OECD). The annual index measures the overall level in the strictness of regulations governing the recruitment and dismissal of workers on regular contracts. The labor regulation index displays a considerable cross-country and time-series variation.

The first set of results shows that, on average, stricter labor laws appear to encourage cross-border mergers: the strictness of the target country's labor regulation is positively associated with the probability that local firms will be targeted by foreign bidders. This effect is economically significant: a one standard-deviation change in the strictness of labor regulation (the difference between Ireland and France's EPL indices) increases the frequency of cross-border mergers relative to all deals in the target country in a given year by about 21%.

The second set of results shows that, on average, acquirers tend to come from countries with more flexible labor laws than those of their targets. A one standard deviation change in the difference in labor regulation for a given acquirer-target country-pair is associated with a 60% increase (on an annual basis) in the number of deals by acquirers from the country with more flexible and targets from the country with more restrictive laws.

Third, I find that, after controlling for the self-selection bias, the merger premiums in cross-border mergers are significantly larger in deals involving acquirers from countries with more flexible labor regulation than that of their targets. The economic significance is substantial here as well: a one-standard-deviation change in labor regulation for a given country-pair is associated with a 4.62% higher return for the shareholders of the target firm.

It is important to emphasize that all these findings are empirically robust to the inclusion of a variety of controls for the cross-country differences in the quality of legal institutions, economic development, political orientation of governments, country risk ratings, stock market and exchange rate returns, geographical proximity, language similarities, and other variables, which the previous literature have found to be important determinants of cross-border M&A activity. The regressions also include year and country fixed effects to control for time trends and time-invariant country characteristics. I further confirm that the main findings are robust to an alternative proxy for labor laws and controls for country-pair fixed effects. These controls should alleviate concerns that the levels and changes in labor laws may be correlated with other country characteristics that may affect the cross-border M&As.

Overall, the three sets of findings indicate that cross-country differences in labor regulation appear to facilitate value-maximizing cross-border M&A activity. By contrast, regulatory arbitrage considerations do not appear to be a motivating or value-relevant factor in cross-border deals. As such, the findings are broadly consistent with the merger facilitation view. As noted above, however, the premise for the facilitation view is that countries with more restrictive labor laws have an important comparative edge in innovation. Consequently, a critical implication of this hypothesis is that the role of the difference in labor regulation is more important among deals that occur in innovation-intensive sectors.

Accordingly, the next set of tests attempts to understand whether labor laws impact cross-border mergers through the innovation channel. I employ the methodology by Rajan and Zingales (1998) to evaluate heterogeneities in the effects of labor regulation on cross-border merger activity and premium across high and low innovation-intensive industries. Consistent with the merger facilitation view, I find that the labor regulation differences have significantly stronger impact on the cross-border merger volume and the merger premiums in innovation-intensive industries. By confirming the importance of innovation as the potential economic mechanism behind the effects of labor laws, these findings also help address concerns about identification. As well, the findings in this paper cast further doubt on the argument that stringent labor regulation can result in the regulatory arbitrage motivated cross-border merger activity.

2. Related empirical studies

This paper primary contributes to a growing body of research that examines the determinants and value consequences of cross-border M&A activity. Rossi and Volpin (2004) show that cross-country difference in investor protection laws is a motivating factor in cross-border mergers. Bris and Cabolis (2008) examine whether differences in investor protection are value-relevant and find that the merger premium in cross-border deals is higher relative to domestic deals if an acquirer is from a country with better investor protection. Ferreira et al. (2010) find that foreign institutional ownership is positively associated with the intensity of cross-border deals and shareholder returns, which suggest that foreign institutional investors build bridges between firms across borders. Erel, Liao, and Weisbach (2012) show that geographic proximity, the quality of accounting disclosure, bilateral trade flow, stock market returns and exchange rate returns are important determinants of cross-border merger decisions. Ahern et al. (2012) find that cultural differences affect cross-border merger volume and shareholder value effects. My paper contributes to this literature by showing that cross-country differences in labor regulation appear to be one of the motivating and value-relevant factors in cross-border mergers.

This paper also contributes to another growing strand of literature that examines the economic effects of labor market regulations. Lazear (1990) and Botero et al. (2004) show that countries with stricter labor regulations have higher unemployment. Besley and Burgess (2004) find that Indian states that implement stricter labor rules experience lower investment and economic growth. Atanassov and Kim (2009) find that the strength of countries' union and employment protection laws affects restructuring decisions and managerial turnover of poorly performing firms. Alimov (2012) shows that changes in labor regulations lead to more stringent terms on which firms can borrow from banks. Simintzi et al. (2012) show that increases in labor protection are associated with lower corporate financial leverage. Acharya et al. (2012) find that more stringent labor laws foster innovation output, especially in the more innovation-intensive sectors. To the best of my knowledge, this is the first study that explores how cross-country differences in labor regulation affect cross-border merger decisions and the shareholder value effects of these deals.

3. Data and Summary Statistics

3.1 Sample

Table 1 provides definitions of all variables and sources of data used in the paper. The initial sample includes all mergers and acquisitions announced between January 1, 1991 and December 31, 2009, and completed by the end of 2012. The M&A data are obtained from the Thomson Financial Securities (SDC) M&A Database. From the SDC database, I collect information on the various deal characteristics such as announcement date, transaction value, SIC codes and so on. In the analyses of the shareholder value effects of mergers, I use firm-level stock returns from CRSP and Datastream and firm-level financial information from Worldscope.

I include only M&As involving 28 countries for which OECD provides information on the strictness of labor protection. Following Erel et al. (2012) and other related M&A studies, I impose several data screens. I retain only deals that result in change of control of the target firm: the bidder owns less than 50% of the target prior to the deal and purchases at least 50% of the target in the deal. I exclude government entities, leveraged buyouts, mergers between financial firms, spin-offs, recapitalizations, self-tender offers, exchange offers, repurchases, and privatizations. Following Erel et al. (2012), I include transactions with both disclosed and undisclosed deal values.

After imposing these screens and eliminating duplicates, the final sample includes 191,414 completed mergers with a total disclosed transaction value of $13 trillion. 53,583 mergers are cross-deals with a total disclosed value of $4.2 trillion, which represent 28% of the total number and 33% of the total value of all completed deals. My sample size is comparable to that in Erel et al. (2012). Nearly 49% of the sample cross-border deals involve a public acquirer, 5% involve a public target, and only 3% of the cross-border deals are between a public acquirer and a public target.

3.2 Labor regulations

Central to my empirical investigation are the measures of country-level labor laws that of importance to firms considering cross-border acquisitions. My measure of the strictness of country labor

regulations comes from the Organization for Economic Co-operation and Development (OECD). The OECD constructs and publishes annual Employment Protection Legislation (EPL) Indicators for the 26 OECD member countries as well as Mexico and Turkey. The EPL index summarizes the strictness of regulations that an employer needs to follow when it wishes to dismiss a worker. The index are available for each year between 1985 and 2008, with the exception of Czech Republic, Hungary, Poland, and Slovak Republic for which the EPL is available starting in 1996.

The OECD constructs the employment protection indicators by quantifying the strictness of a comprehensive set of legal regulations governing hiring and firing employees on regular and temporary contracts. Based on the stringency of these regulations, the OECD has created the following three indicators that measure:

i) The overall difficulty of dismissal on economic or performance grounds;

ii) the administrative procedures required for the dismissal;

iii) the length of the advance notice period and the size of the severance payment.

These three indicators are aggregated into two composite EPL indices for regular workers and temporary workers. Following Lazear (1990) and other studies that have used the EPL index, I use the composite EPL index of workers on regular contracts. The EPL index ranges between 0 and 6, with higher numbers indicating more stringent labor regulations.

It is worth noting important advantages of this measure of national labor market regulations. First, the EPL index is an objective estimate of the rigidity of employment protection laws for 26 countries over more than two decades. Second, changes in the EPL index represent changes in national labor policies and regulations that are likely to be exogenous to individual firms.

3.3 Other country legal institutions and financial development measures

I include a rich set of country-level variables to control for differences in economic development, legal institutions, geography and culture across countries that have been used in related studies, such as Rossi and Volpin (2004), Ferreira et al. (2010) and Erel et al. (2012).

To control for country economic development and growth, I include the log of yearly GDP per capita and the annual growth in real GDP. To control for country financial development, I include two measures for the development of the equity and credit capital markets: market capitalization of all listed firms to GDP and total private credit to GDP ratios. To control for the level of openness of the economy, I include the foreign trade activity measured as the sum of exports and imports to GDP. To control for the economic ties between each country-pair, I also compute the bilateral trade flows between the target country and acquirer country. Finally, I control for local stock market and currency growth rates by including yearly stock market returns and exchange rate returns.

My primary measure of the quality of a country's legal institutions and law enforcement is the composite Country Governance Index from Kaufmann et al. (2009). The governance index is constructed from 276 individual variables and averages the following six governance subindicators: government effectiveness; political stability and absence of violence; regulatory quality; rule of law; control of corruption; and voice and accountability. To control for the differences in the quality of accounting standards, I include an index of the quality of the audit and accounting reporting from the World Economic Forum. The higher values of these indexes indicate better governance and accounting standards. I control for the geographic proximity and language similarity by including two binary variables indicating that the target and acquirer countries share a common border and the same official language.

Finally, I include two additional country-level variables that could be correlated with the level and changes in the countries' labor laws or overall investment climate. The first variable is the political orientation of the ruling party with respect to economic policy. According to political power theories, the right or left orientation of government affects economic decisions, including the attitude towards foreign acquisitions (e.g. Botero et al. 2004). For example, left-leaning governments tend to be more labor-friendly and could oppose cross-border acquisitions. I code the government orientation using information from the World Bank Database of Political Institutions, which every year classifies a government as being right-leaning (orientation=1), centrist (orientation=2), or left-leaning (orientation=3). The second variable

is the country composite risk ratings from the International Country Risk Guide (ICRG), which are available on a monthly basis since 1984. The composite risk index aggregates countries' political, financial and economic risk indices. The risk rating ranges from 0 to 50 with higher values indicating lower risk.

In the regressions, I also include country fixed effects that absorb the time-invariant country-level factors, such as legal origin.

3.4 Summary Statistics

Table 2 shows the level of overall and cross-border merger volume, average EPL scores, governance scores and economic development measures for each target country. Following Rossi and Volpin (2004), I define overall merger volume in the country as the number of all (public and private) firms targeted in all domestic and cross-border completed deals as a percentage of the total number of publicly traded firms. The cross-border merger volume or ratio for each country is defined as the percentage of completed deals that involves a foreign acquirer. The overall merger volume is highest in Finland (with 153% of listed firms targeted) and lowest in Korea (with only 5% of listed firms targeted). Firms in Mexico are among the most targeted by foreign acquirers, with the cross-border M&A ratio of 76%, while the U.S. has one of lowest percentage of acquisitions by foreign companies, with the cross-border ratio of 15%.

There is a substantial variation across countries in the degree of labor protection. The U.S. has the most flexible labor market with an EPL index of 0.17, while Portugal has the most rigid labor market with an EPL index of 4.34. I also find (not reported) a substantial time-series variation in the level of employment protection. 20 countries have either increased or decreased a level of employment protection during the sample period. Italy, Portugal, Greece Germany, and Spain relaxed their employment protection, while France and New Zealand tightened their employment protection regulations.

Table 3 presents a detailed matrix of the number of cross-border deals for each pair of countries, where target countries are in rows and acquirer countries are in columns. The table illustrates the diversity

and complexity of cross-border merger activity. Firms in all countries in the sample have been active participants in the cross-border deals. Not surprisingly, as the largest economy in the world, the U.S. has the highest numbers of both targets and acquirers, 8,643 targets and 11,595 acquirers.

4. Analysis of determinants of cross-border merger activity

4.1 Target Country-Level Analysis

I start my empirical analysis by investigating whether and how the strictness of labor regulation in a target country relates to the likelihood of local firms being targeted by foreign bidders. The impediment hypothesis predicts that, since stringent labor laws discourage reallocation of resources across borders, firms in countries with more restrictive labor laws are less likely to be targeted by foreign bidders. In contrast, the facilitation hypothesis predicts that, since stringent labor laws constitute a source of comparative advantage, firms in countries with stricter labor laws are more likely to be targeted by foreign bidders.

I test these alternative hypotheses by estimating the following multivariate regression:

$$Cross\ border\ M\&A\ ratio\ (target)_{i,t} = \alpha + \beta EPL_{i,t-1} + \gamma Controls_{i,t-1} + \varepsilon_{i,t} \qquad (1)$$

where the cross-border ratio is the number of cross-border deals as the percentage of mergers of country *i* in year *t* that involve a foreign acquirer relative to all mergers targeting firms of country *i* in year *t*. All specifications include year fixed effects to account for year-specific factors and later specifications also include country fixed effects. I report p-values computed using robust standard errors adjusted for within-country correlation by clustering at the country level (with exception of Tobit model).

The independent variables include the EPL index, my proxy for the strictness of a country's labor regulation, and various proxies for economic and financial development, and the quality of legal institutions in the target country. All variables are lagged one year so that they are in the information set of the merging firms.

Table 4 reports the results of six different specifications of Eq. (1). Column (1) estimates the effect of labor regulation along with the economic factors such as economic development, foreign trade

activity, stock market and exchange rate returns. The estimated coefficient on the EPL index is positive 0.04 and statistically significant at better than 5%. The results indicate that, after controlling for economic factors, more stringent labor regulation is positively associated with cross-border M&A activity in a given target country and year. Among economic factors, I find that the cross-border merger ratio is lower in wealthier countries and countries with higher economic growth and higher in more open countries (as measured by foreign trade to GDP ratio). The yearly stock market and currency movements do not affect the cross-border M&A activity. These results are consistent with Rossi and Volpin (2004).

In Columns (2) and (3), I examine the effect of labor regulation on cross-border merger activity by including additional controls for the quality of legal institutions, accounting standards, financial development, government political orientation and the overall risk rating of the target country. Importantly, the coefficient estimate on labor regulation remains positive and significant. Contrary to Rossi and Volpin (2004), I find that the quality of the target country's legal institutions and accounting standards has no relation to the likelihood that a completed deal in a given year is cross-border. One possible reason is that my sample mostly includes industrialized OECD countries that may have fewer governance problems than developing countries. The political orientation of governments as well as the target countries' overall risk ratings are not related to the cross-border M&A activity. The results also show that cross-border mergers are less common in countries with more developed credit markets.

Columns (4) through (6) include target-country fixed effects to control for any other unobservable but persistent country factors that may affect the cross-border M&A activity, such as legal origin and takeover laws. Because U.S. firms are the most active participants in the cross-border deals, Column (5) checks the robustness of the results by excluding cross-border deals that involve a US firm as target. Finally, Column (6) estimates a Tobit model to account for the truncation of the cross-border ratio between 0 and 1.The results in Columns (4) through (6) show that the level of labor protection in the target country is positively and statistically significantly related to the cross-border merger ratio. Moreover, the estimated effects of labor regulations from the regressions with the target country fixed effects indicate a substantial time-series association between the strictness of labor regulation and the

intensity of cross-border M&A activity in a given country: the volume of cross-border M&A deals (relative to all domestic deals) in the target countries increases following implementation of stricter labor protection rules.

To estimate the quantitative magnitude of the EPL estimates, I use the coefficient on the EPL estimated from the fixed effects model in Column (4) is 0.131 and the sample standard deviation of EPL is 0.83 points (roughly the distance between Ireland and France's EPL indices). Hence, a one standard deviation increase in the strictness of labor regulation is associated with a 0.108 or 10.8 percentage point increase (on an annual basis) in the probability that a deal is cross-border. The sample mean cross-border ratio of target countries is about .50, so this indicates that the cross-border M&A ratio is 21% higher for France than for Ireland. The results are therefore economically significant.

4.2 Country-Pairs Analysis

This section examines how cross-country differences in the strictness of labor regulation affect the direction of cross-border M&A deals. The impediment hypothesis predicts that labor regulation differences may result in regulatory arbitrage, where firms from countries with more stringent labor rules attempt to escape from these regulations by acquiring targets located in countries with more flexible labor rules. The alternative, merger facilitation, hypothesis predicts that since stricter labor laws create a comparative advantage, cross-border deals are more likely to involve acquirers from counties with more restrictive labor laws than those of their targets. To discriminate between the alternative hypotheses, I estimate the following regression:

$$Cross\text{-}border\ ratio\ (country\ pair)_{i,k,t} = = \alpha + \beta \Delta EPL_{i,k,t-1} + \gamma Controls_{i,k,t-1} + \varepsilon_{i,k,t} \qquad (2)$$

where Cross-border $ratio_{i,k,}$ is the number of cross-border deals in year t where the acquirer is from country k and the target is from country i ($i \neq k$) as a percentage of all domestic and cross-border deals in the target country in year t. Following Erel eta al. (2012), a particular country pair without a merger in a given year is assigned a value of zero if this country-pair had at least 5 mergers over the entire sample period. All regressions include calendar year fixed effects and target country fixed effects to

control for time-trends and country-specific persistent factors. All specifications report p-values computed using robust standard errors adjusted for clustering of observations at the target country level.

All independent variables represent the difference between the acquirer country and the target country in the year prior to the merger. So, $\Delta EPL_{i,k,t-1}$ refers to the difference in the strictness of labor regulation (as measured by the EPL index) between the acquirer and target country in the year prior to the merger. Control variables include differences in economic and financial development, stock market and currency returns, quality of legal institutions and accounting standards between a particular country pair. I also include differences in the political orientation of the governments and the risk ratings of the acquirer and target countries. Finally, to control for the strength of economic ties, geographic proximity and cultural similarity, I include the level of bilateral trade and two binary variables that indicate that a given country pair shares the same official language and has a common border.

Table 5 presents the results for five different specifications derived from Eq. (2). I start by examining the role of the difference in labor regulation on the bilateral merger activity between a given country pair after controlling for the difference in economic development and growth, stock market and currency returns. Column (1) shows that the estimated coefficient on the difference in labor regulation is negative −0.013 and statistically significant at better than 1%. This suggests that, on average, cross-border deals are more likely to involve acquirers from countries with less restrictive labor laws than those of their targets. This result is thus consistent with the merger facilitation hypothesis. Using the coefficient estimate from Column (1), I calculate that a one-standard deviation change in the difference of labor regulation between a pair of involved countries (1.19 points, or roughly the distance from Finland to Switzerland's regulations) is associated with a 60% increase (on an annual basis) in the frequency of bilateral cross-border merger activity[2]. The economic effects of labor regulation differences are therefore substantial.

[2] The sample mean country-pair cross-border merger ratio is 0.0258. Using the coefficient on the EPL index in Model (1) 0.013, the percentage change in the cross border ratio for a one standard deviation change in the EPL index is (0.013×1.185)/0.0258, or 59.7%.

Specifications in Columns (2) and (3) include the remaining control variables that may affect the level of merger activity between a particular country pair. Column (4) estimates a Tobit model to account for the truncation of the cross-border ratio between 0 and 1. All of these specifications generate similar results: the difference in labor regulation enters with a negative and highly significant coefficient suggesting that, on average, acquirers tend to come from countries with less restrictive labor laws than those of their targets.

I next test for any asymmetries as well as for any evidence of regulatory arbitrage in the estimated effects of the cross-country differences in labor regulation. Column (5) accomplishes this by splitting the difference in labor regulation into two binary variables that correspond to cases where the EPL index of the acquirer country is at least one point higher or lower than the EPL index of the target country. I find that the difference in labor regulation affect bilateral M&A volume only when acquirers come from a country with more flexible labor laws than the country of their targets. Holding other factors constant, the frequency of cross-borders mergers relative to all deals in the target country is 1.9 percentage points higher (on an annual basis) when the acquirer country has more flexible labor laws. In contrast, the coefficient on the indicator for cases where the acquirer country has stricter labor regulation than the target country is not different from zero. This suggests that the labor regulation arbitrage does not appear to be a motivating factor in my sample of cross-border mergers.

Among the control variables, I find that the bilateral M&A activity is higher when two countries have more mutual trade, share the same language and have a common border. In a given year, acquirers, on average, are more likely to come from countries that have higher GDP per capita and GDP growth, higher stock market returns, better accounting standards and more developed equity and debt capital markets. These results are consistent with findings in Erel et al. (2012).

In sum, the first two sets of results suggest that labor regulations that constrain the ability of employers to dismiss workers appear to play an important role in the cross-border merger decisions: target firms located in countries with stricter labor laws are more likely to attract foreign acquirers, especially, acquirers from relatively more flexible labor markets. Thus, the results are broadly consistent

for the merger facilitation hypothesis. I next analyze the effects of cross-country differences in labor regulation on the value created in cross-border M&A transactions.

4.3 Labor regulations and the valuation effects of cross-border mergers

This section studies how equity investors in target firms react to announcements of acquisitions by foreign firms. If, as predicted by the facilitation hypothesis, stricter labor regulation facilitates value-increasing cross-border mergers, I would expect to see more favorable stock market reaction to announcements of mergers involving targets from countries with more restrictive labor laws than their bidders.

Following Rossi and Volpin (2004) and Bris and Cabolis (2008), I measure the deal valuation effects with the merger premium. Following Bris and Cabolis (2008), the merger premium is computed as the buy-and-hold cumulative abnormal return around the announcement date for the target firms[3]. Abnormal returns are estimated relative to expected returns from a market model with the MSCI world index as the proxy for the market return and accumulated over the five-day period from day −2 to day +2 centered on deal announcement.

There are 577 cross-border mergers for which I have data on stock returns for the target, of which 275 mergers involve a non-U.S. target. To examine the impact of the difference in the labor regulation on merger premium, I estimate the following regression:

$$Premium_{a,i,k,t} = \alpha + \beta \Delta EPL_{i,k,t-1} + \gamma Controls_{i,k,t-1} + \delta Target_{i,t-1} + \varepsilon_{a,i,k,t} \qquad (3)$$

where $Premium_{a,i,k,t}$ is the cumulative buy and hold five-day abnormal return for the target firm *a* from a country *i* being acquired by a firm from country k at time t. The key independent variable of interest is the difference in labor regulation between the acquirer and target country pair in year-1. All

[3] Schwert (2000) finds that the total announcement abnormal returns in the target firm are a good proxy for the merger premium paid by the acquirer.

other control variables are the same as in Column (3) of Table 5 with one additional dummy variable for mostly cash financed deals.

Before estimating Eq. (3), however, I need to address a potential self-selection bias resulting from the non-random choice of firms to enter into an M&A transaction. That is, the sample includes cross-border deals that are undertaken only by firms that, on average, expect to realize positive synergy gains. I follow Ahern et al. (2012) and control for this self-selection bias by estimating a two-stage Heckman model. The first stage model uses a probit model to estimate the probability of the cross-border mergers using the same sample as in Table 5. The dependent variable equals to one if a given country-pair has any cross-border mergers in a particular year, and zero otherwise. The independent variables include all variables in column 3 of Table 5 with two additional instruments: the cross-country difference in corporate tax rates and dominant religion as instruments for the likelihood of cross-country mergers. Similar to the claim made in Ahern et al. (2012), I hold that while differences in religion and corporate taxes could affect the likelihood of cross-country mergers for cultural and political reasons, these differences are less likely to affect the merger premiums. Using the fitted values of the probit model, I calculate an inverse Mill's ratio or "Heckman's lambda" as a measure of the predicted probability of a cross-border merger for each country-pair. The second stage model then estimates Eq. (3) with "Heckman's lambda" as correction for the potential self-selection bias.

The mean and median merger premiums (measured with the five-day announcement return for the target firms) are 18.60% and 12.05%, both statistically significant from zero at 1%. The positive merger premiums and combined returns (not reported) suggest that cross-border mergers generate economic gains for both firms.

Table 6 shows the results of four regression specifications based on Eq. (3). All regressions include year and target country fixed effects. The p-values are computed using robust standard errors adjusted for clustering at the target country level.

Column (1) examines the effect of the difference in labor regulation controlling for economic, language, geographical, and legal differences and trade flows between a given country-pair as well as the

potential self-selection bias variable. I find that the difference in labor regulation variable enters with a negative and highly significant coefficient of −0.033 (p-value of 0.029). This finding suggests that shareholders of a target firm that is acquired by a company from a country with more (less) flexible labor laws, on average, receive a significantly higher (lower) premium. A one-standard-deviation change in the difference of labor regulation increases the average announcement return of the targets in cross-border mergers by 4.62 percentage points. Cross-country labor regulation differences thus relate to the merger valuation effects in an economically significant way.

Some of the country-level control variables also exert important influences on the merger premium. I find that a target firm receives a higher premium when an acquirer comes from a neighboring country and a lower premium when the acquirer country shares same language and has more trade activity with the target country.

Column (2) includes additional controls for financial characteristics of the target firm, such as firm size, growth opportunities, profitability and leverage. I also include a dummy variable for 100% cash financed mergers to control for the form of merger payment. The results here confirm the finding in Column (1); the coefficient on the labor regulation difference variable retains its magnitude and significance. Among the controls, the target firm's market-to-book ratio variable and a dummy variable for all cash financed deal enters with a negative, while the target's leverage variable enters with a positive coefficients.

Column (3) of Table 6 tests for any asymmetry in the effect of labor regulation differences by including two separate binary variables that correspond to cases where the acquirer comes from a country with a higher or lower level of the labor regulation index than that of the target. The results here are consistent with the findings in Column (5) of Table 5. The merger premium is related to the difference in labor protection only when the acquirer comes from a country that has more flexible labor laws. The coefficient estimate indicate that in deals involving an acquirer from a country with more flexible labor laws, shareholders of the target firm receive an 8 percentage point higher takeover premium. In contrast,

the difference in labor regulation is not related to the merger premium in deals where acquirers' countries have more stringent labor laws than the target countries.

Summing up to this point, I have examined how cross-country differences in labor regulation relate to the volume and shareholder value implications of cross-border M&A transactions. I uncover a new fact about the cross-border deals: more stringent labor laws in a target country appear to facilitate value-increasing acquisitions of local firms by foreign acquirers, especially acquirers from counties with more flexible labor laws. The three sets of results provide strong support for the merger facilitation hypothesis, so in the next section I probe it further.

4.4 Importance of innovation intensity

I now attempt to understand how the strictness of labor laws impact merger decisions by testing the underlying economic mechanism through which the difference in labor regulation influences the cross-border merger decisions and merger premiums. Specifically, the merger facilitation view posits that relatively more stringent labor regulations generate comparative advantage in innovation-intensive sectors. Under this view, therefore, I would expect to find a stronger impact of the differences in labor regulation on the cross-border deals and merger premiums in industries in which innovation activities play a relatively more important role. To this end, I separately examine the effects of labor regulation differences on the cross-border mergers that occur in industries that differ along their innovation intensity.

I use two commonly used proxies to measure the industry-level innovation intensity. The first proxy is industry research and development (R&D) intensity and the second proxy is industry patenting activity. Following the methodology by Rajan and Zingales (1998), both proxies are computed using the data for the U.S. firms. The choice of U.S. as a benchmark to compute innovation intensity is appealing for this study because the U.S. firms face relatively frictionless capital and labor markets (the EPL index for U.S. is 0.17). Hence, it is reasonable to expect that U.S. firms' R&D and innovation intensities are determined primarily by their technological characteristics. Other studies, such as Acharya and Subramanian (2009) and Brown et al. (2012), also use U.S. firms' data to calculate cross-country

measures of industry-level R&D and innovation intensity. R&D intensity is computed as the R&D to sales ratio for the median firm in each three-digit SIC industry in the U.S. over the period 1991 to 2007. Patenting intensity is computed as the total number of patents granted to the median firm by the U.S. Patent Office in each three-digit SIC industry over the period 1991 to 2007, as reported in the National Bureau of Economic Research (NBER) Patents File[4].

Three panels in Table 7 reports the estimates from seemingly unrelated regression systems for the cross-border merger volume in target countries, the volume of cross-border mergers between particular country pairs, and the merger premium separately for industries with above and below the sample median for R&D and patenting intensity (that is, high and low innovation samples). For brevity, I only report the coefficient estimates on the labor regulation variable and p-values for the differences across high and low innovation sample estimations.

Panel A compares the effects of strictness of labor regulation of the target country on the frequency of cross-border mergers in high versus low innovation-intensive industries. All control variables are the same as in Column (4) of table 4. The results show that the effect of labor regulation on the frequency of cross-border mergers is indeed stronger in industries with above-median R&D and patenting intensity. For example, the coefficient estimate on the EPL index is not significant in low patenting industries. In contrast, the coefficient on the EPL index is 0.11 and significant at better than 5% in high patenting industries.

Panel B compares the effects of the difference in labor regulation for particular country pairs on their bilateral merger activity in high versus low innovation industries. All controls are the same as in Column (4) of Table 5. I find that the estimated coefficients on the difference in labor regulation are more pronounced in the subsamples of mergers targeting firms in the R&D and patent-intensive industries. The economic magnitudes of the effects of labor regulation differences in high versus low innovation intensity

[4] I obtained similar results in three alternative specifications which: a) exclude deals that involve a U.S. firm as target; b) create innovation benchmarks at the 2-digit SIC industry level; and c) use patent citations to the patents to compute innovation intensity.

subsamples are significant. For example, based on results for high and low R&D industries, a one-standard deviation change in the difference in labor regulation corresponds to an increase of 13.7% in the average frequency of cross-border deals in low R&D industries, and an increase of 55% in the average frequency of cross-border deals in high R&D industries.

The results in Panel C also suggest that the merger premiums are only sensitive to the labor regulation difference among deals occurring in innovation-intensive industries. In stark contrast, the difference in labor regulation has no impact on the merger premium in subsamples of low innovation deals. All discussed differences across the samples are statistically significant.

Collectively, these findings suggest that labor regulation differences primarily affect the volume and value gains of cross-border mergers that occur in innovation-intensive industries. These results thus lend further support to the merger facilitation view: more stringent labor laws, by enhancing local firms' innovative efforts and creating an important comparative edge in innovation output for the home country, facilitate value-increasing cross-border mergers and acquisitions.

4.5 Additional Analyses

In this section, I conduct several additional tests. I first provide evidence on the effect of an alternative labor market institution. I then examine whether some components of the labor protection index are more important than others. Third, I examine whether the main findings are robust to controlling for a matched acquirer-target country-pair fixed effects and to clustering standard errors at the country-pair level.

4.5.1. Effect of union bargaining power

Apart from labor protection laws, another important labor market institution designed to protect workers' interests is labor unions. Since strong bargaining power of labor unions is often associated with a greater job security for the union members, we could expect the impact of union power on cross-border mergers to be similar to that of labor protection laws (e.g. Atanassov and Kim (2009)). Further, as illustrated by a recent merger case between American Airlines and US Airways, strong labor unions can

play an active role in merger decisions and post-merger integration[5]. Therefore, I use the strength of union power in a country as an additional measure of employment protection. Following Atanassov and Kim (2009), the strength of union power is measured by a country-level index of labor union regulation developed by Botero et al. (2004).

Table 8 reports the results. I present only the cross-border M&A volume between country-pairs regressions to save space. Target country-level cross-border M&A volume and the merger premium regressions result in similar conclusions.

Column (1) of Table 8 estimates the effect of the difference in strength of union laws on the yearly level of bilateral M&A activity for a given country-pair. Because the Botero et al. (2004) index of labor union regulation is time-invariant, the regression does not include target country fixed effects. The estimated coefficient on the difference in union power is negative and significant, which indicates that acquirers tend to be from countries where laws grant less power to unions than their targets' countries. Hence, the effects of the differences in union regulation on the M&A intensity between particular country pairs are similar to those of employment protection regulation.

4.5.2. Components of the labor protection index

As discussed in Section 3.2, the EPL index is the average of three different subindicators that measure: (i) the overall difficulty of dismissals; (ii) notice and severance pay; and (iii) administrative procedures required for dismissal process. As discussed by Blanchard (1998), these three dimensions of employment protection. Since these components of the EPL index may play different economic roles, the question is whether some of these regulations are more important for cross-border deals than others. Columns (2) to (4) of Table 8 examine the effects of the differences in three subindicators on the level of

[5] An article in The Dallas News (Feb. 14, 2013) describes a key role that the unions of the companies played in the merger. Available from http://www.dallasnews.com/business/airline-industry/20130214-union-driven-american-airlines-us-airways-merger-stands-out-in-industry.ece

bilateral M&A activity separately. The results show that the cross-country differences in all three components of the EPL index have a similar impact on the bilateral M&A volume.

4.5.3. Country-pair fixed effects

A potential concern with the results obtained by estimating Eq. (2) is that, instead of being affected by the labor regulation difference, the intensity of bilateral mergers between a particular country-pair might be affected by unobservable but time-invariant factors specific to those two countries. To alleviate this concern, Column (5) of Table 8 estimates Eq. (2) with a matched acquirer and target country pair fixed effects. Reported p-values are computed using robust standard errors clustered at the country pair level. The results show that the coefficient estimate on the difference in the EPL index continues to be negative and significant at the 1% level.

5. Conclusion

This paper examines the impact of cross-country differences in regulations protecting employment on the level and direction of international merger activity and the valuation effects of the mergers. I test two competing hypotheses. The first hypothesis suggests that more stringent labor laws discourage cross-border deal activity in a target country and may even result in regulatory arbitrage where firms from countries with stricter labor rules purchase firms in countries with relatively more flexible labor rules. Such potentially "race-to-the-bottom" mergers are expected to create lower gains for the merging firms. In contrast, the second hypothesis suggests that stringent labor laws constitute a source of countries' comparative advantage in innovation activities. Hence, stricter labor laws facilitate the value-increasing cross-border deals, especially in the innovation-intensive sectors of the economy.

My analysis provides results consistent with the merger facilitation hypothesis. I find firms in countries with stricter labor laws are more likely to be acquired by foreign acquirers, especially acquirers from countries with more flexible labor laws. The merger premium, my proxy for the merger valuation effect, is higher if the acquirer comes from a country with more flexible and the target is from a country

with more rigid labor regulations. I further document that the difference in labor regulation has the greatest impact on cross-border M&A decisions and merger premiums in innovation-intensive sectors. Taken together, the findings suggest that the stringency of labor laws, by helping target countries to generate comparative advantage in innovation-intensive sectors, can play a facilitating role in value-increasing cross-border corporate mergers and acquisitions.

Overall, my results suggest labor laws do appear to influence the way firms make cross-border merger and acquisitions decisions. It is important to stress, however, that the findings in this paper do not necessarily suggest that stricter labor regulations can improve the efficiency of other types of corporate decisions or enhance overall firm value.

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Table 1 Variable Descriptions and Data Source

Variable	Description and Data Source
Merger Volume	Number of all (public and private) firms targeted in cross-border deals as a percentage of the total number of public traded firms (SDC and WDI).
Cross-border M&A ratio	Number of cross-border majority deals with a foreign acquiring firm as a percentage of the number of domestic and cross-border deals that target a country's firms in a given year (SDC).
Cross-border M&A pair	Number of deals in which the target is from country *i* and the acquirer is from country *k* ($i \neq k$) as a percentage of the total number of deals with target firms in the target country i in year t
Employment protection legislation index	An average of three job security subindicators in year t: 1*)* difficulty of dismissal for economic or performance reasons; *2)* procedural requirements; *iii)* notice and severance pay provisions (OECD). A higher value indicates more stringent regulation.
Protection of labor unions	A country-level time-invariant index developed by Botero et al. (2004)) that measures the strength of legal protection of labor unions.
GDP per capital	Real gross domestic product per capita in US dollars in year t (WDI).
GDP growth	Real growth rate of gross domestic product in US dollars in year t (WDI).
Market return	Local stock market index return in year t (IMF International Financial Statistics(IFS)).
Exchange rate returns	Exchange rate (in U.S. dollar) growth in year t (IFS).
Trade to GDP	(Exports + imports of goods and services) by GDP in year t (WDI).
Governance index	An average of six governance indicators: political stability; voice and accountability; government effectiveness; regulatory quality; control of corruption, and rule of law. (Kaufmann et al. (2009)).
Accounting standards	Index of the quality of the accounting reporting (World Economic Forum)
Stock market development	Total stock market capitalization divided by GDP in year t (WDI)
Credit market development	Total amount of private loans divided by GDP in year t (WDI)
Same language	Binary variable indicating that target and acquirer countries share the same official language (World Factbook).
Same border	Binary variable indicating that target and acquirer countries share the border (World Factbook).
Bilateral trade	Value of imports by target country *i* from acquirer country *k* as a percentage of total imports by target country *i* in year t (OECD).
Political orientation of governments	The political orientation of the ruling party with respect to economic policy. The variable equals 1, 2, or 3 if the World Bank classifies government as right-leaning, centrist or left-leaning. (World Bank Database of Political Institutions).
Country composite risk rating	country composite risk ratings from the International Country Risk Guide (ICRG). The composite risk index aggregates countries' political, financial and economic risk indices. The risk rating ranges from 0 to 50 with higher values indicating lower risk
Merger Premium	Cumulative abnormal returns around the deal announcement for target firms. Abnormal returns are estimated relative to expectations from a market model using a MSCI world market index. All international returns are obtained from DataStream and the returns for U.S. firms are obtained from CRSP.

Industry R&D intensity	R&D to sales ratio for the median U.S. firm in each three-digit SIC industry over 1991 to 2007. Each firm's R&D intensity is estimated as the time-series median over 1991 to 2007. (Compustat).
Industry Patent Intensity	The total number of patents granted to the median U.S. firm in each three-digit SIC industry over 1991 to 2007 Each firm's patent intensity is estimated as the time-series median over 1991 to 2007. (NBER).
Heckman's Lambda	Self-selection variable from the probit model predicting the probability of cross-border merger in year t.

Table 2 Cross-border merger activity and country characteristics by target country.
This table presents the sample means of the variables used in this paper by target country. All variables are described in Table 1. The sample period is from 1991 to 2009.

Target Country	Merger Volume	Cross border ratio	EPL index	GDP per capita	Market return	Trade to GDP	Governance index
Australia	0.297	0.281	1.3	27,498	0.09	0.38	1.55
Austria	0.560	0.627	2.76	30,962	0.06	0.87	1.63
Belgium	0.525	0.668	1.7	29,373	0.07	1.42	1.33
Canada	0.327	0.346	1.25	27,986	0.09	0.68	1.62
Czech Rep	0.784	0.763	3.28	9,668	0.15	1.12	0.83
Denmark	0.501	0.512	1.65	38,199	0.11	0.82	1.79
Finland	1.534	0.354	2.36	30,632	0.15	0.69	1.82
France	0.710	0.401	2.39	28,117	0.05	0.5	1.19
Germany	0.982	0.451	2.73	29,384	0.09	0.64	1.52
Greece	0.086	0.201	2.29	16,023	0.01	0.53	0.71
Hungary	0.534	0.689	1.92	7,143	0.19	1.17	0.87
Ireland Rep	0.980	0.619	1.6	30,786	0.08	1.48	1.51
Italy	0.742	0.463	1.77	24,814	0.03	0.47	0.76
Japan	0.140	0.052	1.87	34,584	-0.01	0.22	1.06
Mexico	0.289	0.759	2.25	5,858	0.22	0.53	-0.14
Netherlands	1.013	0.515	3.04	30,929	0.08	1.23	1.73
New Zealand	0.527	0.508	1.51	19,801	0.05	0.58	1.75
Norway	0.539	0.509	2.25	48,667	0.11	0.72	1.7
Poland	0.314	0.559	2.06	5,917	0.11	0.61	0.66
Portugal	0.469	0.518	4.34	13,970	0.06	0.65	1.19
Slovak Rep	0.049	0.843	2.42	7,819	0.08	1.32	0.61
South Korea	0.050	0.199	2.73	12,533	0.03	0.72	0.6
Spain	0.235	0.422	2.95	19,653	0.08	0.5	1.1
Sweden	0.740	0.473	2.87	34,424	0.13	0.78	1.71
Switzerland	0.544	0.521	1.16	46,326	0.1	0.8	1.71
Turkey	0.070	0.599	2.6	4,981	0.33	0.44	-0.21
United Kingdom	0.583	0.311	1.02	27,450	0.06	0.55	1.54
United States	0.696	0.148	0.17	34,324	0.08	0.24	1.35

Table 3 Number of Cross-Border Mergers by Country Pair.

This table reports the number of deals for a particular acquirer and target country pair. The columns represent the countries of the acquiring firms while the rows represent countries of the target firms. The sample period is from 1991 to 2009.

Target Country	**Acquiring Country**																										
	AU	AS	BL	CA	CZ	DN	FN	FR	DE	GR	HU	IR	IT	JP	MX	NL	NZ	NO	PL	PO	SR	SK	SP	SW	SZ	TU	UK	US
Australia (AU)	0	3	9	122	0	14	10	46	39	0	0	9	9	29	2	40	172	9	0	1	0	6	6	32	35	2	321	624
Austria (AS)	4	0	13	17	1	9	11	22	222	3	3	4	26	8	1	21	0	5	3	1	0	0	4	20	42	1	33	69
Belgium (BL)	9	12	0	16	0	17	12	190	82	4	0	14	20	11	0	213	1	8	2	3	1	1	8	40	19	1	116	175
Canada (CA)	63	6	8	0	0	15	14	90	48	3	0	10	17	25	4	44	8	17	0	0	0	6	9	26	43	0	223	2581
Czech Rep (CZ)	1	39	13	6	0	7	4	36	83	1	4	3	10	5	0	29	0	7	12	0	10	1	9	24	21	0	48	67
Denmark (DN)	4	10	14	10	0	0	42	35	101	1	0	9	7	7	0	47	0	112	2	0	0	0	8	204	30	0	89	152
Finland (FN)	8	7	9	18	0	58	0	25	48	0	1	5	8	5	0	29	0	50	0	0	0	0	13	279	29	1	43	113
France (FR)	17	28	243	110	0	44	39	0	376	8	1	20	167	41	1	208	1	28	2	8	0	2	107	117	141	0	571	884
Germany (DE)	39	239	114	76	10	110	113	405	0	10	3	25	121	66	4	375	4	40	10	8	0	11	50	163	373	4	585	1329
Greece (GR)	1	2	3	4	0	2	0	8	6	0	0	0	4	0	0	7	0	1	0	1	0	0	3	3	2	0	12	14
Hungary HU)	1	26	5	3	2	0	8	24	43	2	0	3	7	0	0	21	0	6	7	0	2	0	3	7	9	1	20	40
Ireland (IR)	6	1	4	8	0	6	1	20	18	2	0	0	4	4	0	12	1	5	1	2	0	0	3	9	7	0	276	177
Italy (IT)	10	34	36	18	0	23	25	202	166	10	3	7	0	15	0	83	1	8	0	2	0	1	55	50	63	1	179	374
Japan (JP)	3	0	6	5	0	1	2	11	13	4	0	1	2	0	0	11	0	0	0	0	0	14	3	8	3	0	23	137
Mexico MX)	4	2	4	154	0	8	2	21	16	2	0	3	7	5	0	14	4	1	0	0	0	1	40	7	6	0	20	295
Netherlands (NL)	19	18	139	44	1	39	29	121	217	3	1	44	34	23	1	0	3	27	4	2	0	0	25	68	64	2	352	412
New Zealand (NZ)	283	0	1	24	0	4	2	6	2	0	0	0	0	9	0	10	0	2	0	1	0	1	0	3	7	0	52	117
Norway (NO)	3	4	9	10	0	93	50	25	36	1	0	5	7	2	2	28	0	0	0	1	0	1	4	227	18	0	106	140
Poland (PL)	1	17	11	12	8	22	22	44	54	3	4	5	10	4	0	35	0	13	0	4	0	3	18	29	9	0	48	52
Portugal (P0)	3	0	13	5	0	8	0	35	17	0	2	1	11	3	0	13	0	3	0	0	0	1	84	9	14	0	41	32
Slovak Rep (SR)	0	13	3	3	12	3	7	9	14	0	1	2	3	0	0	7	0	2	1	0	0	0	1	5	2	0	11	9
South Korea (SK)	2	2	4	7	0	3	1	21	19	0	0	0	0	29	0	7	0	1	0	0	0	0	2	7	7	0	21	109
Spain (SP)	13	10	36	19	0	34	11	237	116	12	1	6	96	16	9	119	0	10	6	55	1	0	0	45	30	0	208	239
Sweden (SW)	8	15	21	36	1	178	200	61	107	3	0	10	14	11	0	66	0	202	2	0	0	0	4	0	35	1	196	283
Switzerland (SZ)	8	51	35	24	0	24	20	116	328	0	0	9	37	10	0	53	0	6	3	0	0	0	9	42	0	0	97	251
Turkey (TU)	2	11	4	11	1	4	3	29	25	9	3	2	11	2	0	15	0	2	3	0	0	0	5	2	6	0	24	24
United Kingdom (UK)	155	38	87	268	4	102	56	415	394	17	3	371	95	87	0	265	15	104	3	9	0	8	54	208	114	0	0	2897
United States (US)	331	42	106	2750	0	99	115	519	554	8	5	229	120	363	71	326	26	77	4	7	0	59	83	236	258	5	2250	0

Table 4. Cross-border mergers as a proportion of all deals in target country and year.
The table shows results from OLS and Tobit regressions on a sample of target countries in cross-border M&A. The dependent variable is the cross-border ratio measured as the total number of majority cross-border mergers in the target country and calendar year, divided by the total number of all majority deals in the target country in that year. Robust p-values adjusted for country clustering (with exception of Tobit model) are in parentheses. The sample period is from 1991 to 2009.
*, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Cross border M&A ratio of target country					
	OLS	OLS	OLS	OLS	OLS	Tobit
	(1)	(2)	(3)	(4)	(5)	(6)
Employment Protection Index$_{target}$	0.040**	0.039**	0.031**	0.131**	0.132**	0.123**
	[0.036]	[0.041]	[0.041]	[0.040]	[0.037]	[0.049]
Log GDP per capita$_{target}$	-0.116***	-0.083	-0.023	0.08	0.082	0.099
	[0.003]	[0.104]	[0.597]	[0.315]	[0.314]	[0.194]
GDP growth$_{target}$	-0.981**	-0.996**	-1.209**	-0.708*	-0.731*	-0.488
	[0.021]	[0.021]	[0.010]	[0.080]	[0.080]	[0.186]
Exchange rate return$_{target}$	-0.074	-0.049	-0.067	-0.175	-0.17	-0.158
	[0.578]	[0.711]	[0.639]	[0.201]	[0.240]	[0.175]
Market return$_{target}$	-0.028	-0.028	-0.036	-0.046	-0.043	-0.043
	[0.427]	[0.443]	[0.262]	[0.141]	[0.173]	[0.138]
(Export+Import)/GDP$_{target}$	0.307***	0.324***	0.294***	0.191	0.226*	0.164
	[0.000]	[0.000]	[0.000]	[0.135]	[0.082]	[0.183]
Governance index$_{target}$		-0.051	-0.065	-0.039	-0.024	0.01
		[0.400]	[0.329]	[0.736]	[0.838]	[0.930]
Accounting standards$_{target}$		0.018	0.001	-0.097	-0.111	-0.096
		[0.700]	[0.985]	[0.467]	[0.404]	[0.798]
Market capitalization to GDP$_{target}$			-0.02	0.02	0.015	0.025
			[0.738]	[0.581]	[0.666]	[0.489]
Private credit to GDP$_{target}$			-0.090***	-0.058	-0.063	-0.067
			[0.002]	[0.231]	[0.221]	[0.165]
Government orientation$_{target}$			-0.013	-0.001	0.001	-0.001
			[0.274]	[0.943]	[0.920]	[0.939]
Country risk rating$_{target}$			-0.001	-0.007	-0.006	-0.007
			[0.813]	[0.201]	[0.326]	[0.165]
Constant	1.385***	1.117**	0.696*	-0.556	-0.599	-0.249
	[0.001]	[0.022]	[0.083]	[0.496]	[0.475]	[0.766]
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Target country fixed effects	No	No	No	Yes	Yes	Yes
Observations	495	495	490	490	471	490
R-squared	0.514	0.519	0.558	0.719	0.684	

Table 5 Country-pairs analysis of the incidence of cross-border mergers

This table presents results from OLS and Tobit regressions. The dependent variable is the number of cross-border deals between target firms from country i and acquirer firms from country k as a percentage of the number of all completed deals in the target country i. ΔX_{k-i} is notation for the differences in the independent variables between the acquirer country (k) and the target country (i) in year t-1. Refer to Table 1 for definitions of variables. Robust p-values adjusted for clustering at target country-level(with exception of Tobit model) are in parentheses. The sample period is from 1991 to 2009. *, **, *** indicate significance at the 10%, 5%, and 1% levels.

	Cross border ratio between acquirer-target country pair				
	OLS	OLS	OLS	Tobit	OLS
	(1)	(2)	(3)	(4)	(5)
Δ Employment Protection Index$_{k-i}$	-0.013***	-0.016***	-0.014***	-0.013***	
	[0.000]	[0.000]	[0.000]	[0.000]	
EPL of acquirer > EPL target					0.003
					[0.234]
EPL of acquirer < EPL target					0.019***
					[0.000]
Δ GDP per capita$_{k-i}$	0.004	-0.001	0	0.092*	0.007*
	[0.159]	[0.794]	[0.928]	[0.089]	[0.090]
Δ GDP growth$_{k-i}$	0.072**	0.092***	0.140***	-0.005	0.170***
	[0.017]	[0.002]	[0.000]	[0.352]	[0.000]
Bilateral trade		0.125*	0.118*	0.113***	0.127*
		[0.071]	[0.073]	[0.002]	[0.067]
Δ Exchange rate return$_{k-i}$		0.001	0.009	0.006	0.006
		[0.926]	[0.225]	[0.412]	[0.492]
Δ Stock Market return$_{k-i}$		0.003**	0.003***	0.005**	0.004***
		[0.041]	[0.009]	[0.050]	[0.003]
Same language		0.006	0.005	0.016**	0.01
		[0.385]	[0.490]	[0.029]	[0.115]
Same border		0.030**	0.031***	0.041***	0.027**
		[0.013]	[0.009]	[0.000]	[0.016]
Δ Governance index$_{k-i}$		0.005	0.011**	0.002	0.009**
		[0.273]	[0.018]	[0.764]	[0.042]
Δ Accounting standards$_{k-i}$		0.013	0.012	-0.370***	0.005
		[0.155]	[0.179]	[0.000]	[0.568]
Δ Market capitalization to GDP$_{k-i}$			0.005**	0.001	0.008***
			[0.015]	[0.523]	[0.000]
Δ Private credit to GDP$_{k-i}$			0.006***	0.002	0.007***
			[0.008]	[0.337]	[0.003]
Δ Government orientation$_{k-i}$			0.002***	0	0.001***
			[0.001]	[0.873]	[0.008]
Δ Country risk rating$_{k-i}$			-0.001***	0.001***	-0.001***
			[0.006]	[0.009]	[0.004]
Constant	0.029***	0.017***	0.015	-0.015	
	[0.000]	[0.000]	[0.152]	[0.268]	
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Target Country fixed effects	No	No	Yes	Yes	Yes
Observations	8261	7520	7390	7390	7783
R-squared	0.116	0.291	0.303		0.431

Table 6 Determinants of the merger premium in cross-border M&As

The table shows results from OLS regressions of cumulative abnormal returns for targets in cross-border deals. The dependent variable is cumulative abnormal return (CAR) for targets over the days t=-2 to t= +2 around the announcement day. CARs are estimated from a market model using a MSCI world market index. ΔX_{k-i} is notation for the differences in the independent variables between the acquirer country (k) and the target country (i) in year t-1. Refer to Table 1 for definitions of variables. Robust p-values adjusted for clustering at target country-level are shown in parentheses. The sample period is from 1991 to 2009. *, **, *** indicate significance at the 10%, 5%, and 1% levels.

	(1)	**(2)**	**(3)**
Δ Employment Protection Index$_{k-i}$	-0.033**	-0.029**	
	[0.019]	[0.040]	
Indicator (Acquirer EPL > Target EPL)			0.013
			[0.585]
Indicator (Acquirer EPL < Target EPL)			0.083**
			[0.040]
Δ GDP per capita$_{k-i}$	-0.015	-0.004	0.013
	[0.567]	[0.908]	[0.724]
Δ GDP growth$_{k-i}$	-0.26	-0.352	-0.192
	[0.643]	[0.692]	[0.824]
Bilateral trade	-0.301***	-0.304***	-0.230***
	[0.000]	[0.002]	[0.006]
Δ Exchange rate return$_{k-i}$	0.067	-0.02	0.001
	[0.686]	[0.947]	[0.998]
Δ Stock market return$_{k-i}$	0.064	0.091	0.084
	[0.192]	[0.165]	[0.192]
Same language	-0.083***	-0.073**	-0.047
	[0.008]	[0.046]	[0.102]
Same border	0.056***	0.060**	0.054*
	[0.007]	[0.050]	[0.064]
Δ Governance index$_{k-i}$	0.035	-0.014	-0.013
	[0.365]	[0.734]	[0.744]
Heckman Lambda	0.024	0.013	0.021
	[0.615]	[0.829]	[0.719]
Δ Government orientation$_{k-i}$		-0.001	0
		[0.873]	[0.978]
Δ Country risk rating$_{k-i}$		0.004	0.005
		[0.303]	[0.204]
Log(market cap) $_{target}$		-0.007	-0.008
		[0.248]	[0.235]
Market to-book assets $_{target}$		-0.008***	-0.008***
		[0.001]	[0.000]
Return on Assets $_{target}$		-0.004	-0.005
		[0.620]	[0.555]
Leverage $_{target}$		0.006**	0.007***
		[0.015]	[0.007]
Cash financed deal dummy		-0.079**	-0.078**
		[0.035]	[0.027]
Constant	0.225***	0.237***	0.148**
	[0.002]	[0.002]	[0.015]
Year fixed effects	Yes	Yes	Yes
Target country fixed effects	Yes	Yes	Yes
Observations	577	482	482
R-squared	0.187	0.187	0.188

Table 7 Impact of labor protection laws on cross-border deals by importance of innovation intensity

Panel A summarizes the results from regressions of cross-border M&A ratio on the level of labor protection in target country, and a set of controls, separately for high versus low innovation sectors. Panel B summarizes the results from regressions of cross-border M&A ratio between particular country pairs on the difference in the level of labor protection between the countries, and a set of controls, separately for high versus low innovation sectors. Panel C summarizes the results from regressions of cumulative abnormal returns for targets in cross-border deals on the difference in the level of labor protection between acquirer and target country, and a set of controls, separately for high versus low innovation sectors. High (low) innovation sectors are defined as industries that have either the R&D to sales ratio or the total number of granted patents above (below) the sample median. The dependent variable in each panel is indicated in the first row of the Panel. To conserve space, the controls used in the regressions are not reported. Robust p-values adjusted for target country clustering are in parentheses. The sample period is from 1991 to 2009. *, **, *** indicate significance at the 10%, 5%, and 1% levels.

Panel A	**Dependent variable: Cross border M&A ratio of target country**			
	Low R&D	High R&D	Low Patent	High Patent
Employment Protection Index	0.049**	0.097*	0.028	0.108**
	[0.043]	[0.086]	[0.264]	[0.044]
p-value for difference		0.0295		0.0056
Control variables as in Column 5 of Table 4				
Year fixed effects	Yes	Yes	Yes	Yes
Target country fixed effects	Yes	Yes	Yes	Yes

Panel B	**Dependent variable: Cross border M&A ratio of acquirer-target country pair**			
	Low R&D	High R&D	Low Patent	High Patent
ΔEmployment Protection Index$_{k-i}$	-0.004**	-0.014***	-0.006***	-0.012***
	[0.031]	[0.000]	[0.001]	[0.000]
p-value for difference		0.0205		0.0065
Control variables as in Column 4 of Table 5				
Year fixed effects	Yes	Yes	Yes	Yes
Country-pair fixed effects	Yes	Yes	Yes	Yes

Panel C	**Dependent variable: Target's CARs over (-2, +2) days around deals**			
	Low R&D	High R&D	Low Patent	High Patent
ΔEmployment Protection Index$_{k-i}$	-0.038	-0.027*	-0.055	-0.054*
	[0.491]	[0.098]	[0.341]	[0.073]
p-value difference		0.0181		0.0157
Control variables as in Column 4 of Table 6				
Year fixed effects	Yes	Yes	Yes	Yes
Target country fixed effects	Yes	Yes	Yes	Yes

Table 8 Additional tests

This table reports the results from regressions of cross-border M&A ratio between country pairs on the differences in the EPL index, the three components of the EPL index and union regulation and controls. ΔX_{k-i} is notation for the differences in the independent variables between the acquirer country (k) and the target country (i) in year t-1. Refer to Table 1 for definitions of variables. Robust p-values (in parentheses) are adjusted for target country clustering in Columns (1) to (4) and matched country-pair clustering in Column (5). The sample period is from 1991 to 2009. *, **, *** indicate significance at the 10%, 5%, and 1% levels.

	Cross border ratio of acquirer-target country pair				
	(1)	(2)	(3)	(4)	(5)
ΔProtection of labor unions$_{k-i}$	-0.023***				
	[0.000]				
ΔDifficulty of dismissal$_{k-i}$		-0.011***			
		[0.000]			
ΔAdmin. Procedures$_{k-i}$			-0.005***		
			[0.001]		
ΔNotice and severance pay$_{k-i}$				-0.009***	
				[0.000]	
ΔEmployment Protection Index$_{k-i}$					-0.006***
					[0.001]
Bilateral trade	0.114*	0.118*	0.132*	0.127*	-0.036*
	[0.066]	[0.078]	[0.067]	[0.069]	[0.052]
ΔGDP per capita$_{k-i}$	0.006**	0.003	-0.003	-0.005	-0.007**
	[0.034]	[0.237]	[0.442]	[0.173]	[0.043]
ΔGDP growth$_{k-i}$	0.077*	0.131***	0.140***	0.092***	0.058**
	[0.067]	[0.000]	[0.000]	[0.002]	[0.019]
ΔExchange rate return$_{k-i}$	0.009	-0.005	0	0.003	0.015**
	[0.443]	[0.426]	[0.990]	[0.613]	[0.016]
ΔMarket return$_{k-i}$	0.003*	0.003*	0.002	0.003*	0.003*
	[0.060]	[0.065]	[0.208]	[0.066]	[0.085]
Same language	0.014**	0.007	0.009	0.011	
	[0.026]	[0.309]	[0.208]	[0.106]	
Same border	0.021**	0.029**	0.026**	0.026**	
	[0.031]	[0.015]	[0.025]	[0.020]	
ΔGovernance index$_{k-i}$	-0.003	-0.002	0.006	0.004	
	[0.325]	[0.697]	[0.273]	[0.389]	
ΔAccounting standards$_{k-i}$	0.012**	0.013	0.01	0.004	
	[0.039]	[0.165]	[0.284]	[0.702]	
Δ Market capitalization to GDP$_{k-i}$	0.006**	0.003	0.008***	0.010***	0.001
	[0.025]	[0.140]	[0.000]	[0.000]	[0.722]
ΔPrivate credit to GDP$_{k-i}$	0.005**	0.006***	0.007***	0.007***	0.002
	[0.016]	[0.010]	[0.007]	[0.008]	[0.447]
Constant	0.018***	0.020***	0.018***	0.017***	0.030***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Target country fixed effects	No	Yes	Yes	Yes	No
Country-pair fixed effects	No	No	No	No	Yes
Observations	7691	7390	7390	7390	7390
R-squared	0.294	0.296	0.269	0.275	0.638