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The Interplay between Network and Institution: Intergovernmental Network and Antitrust and Merger Laws on Cross-border Acquisitions, 1990-2012*

Gru Han

The Department of Sociology, Harvard University, Cambridge, MA 02138, USA

Abstract

Networks and institutions are the two major social structures that economic sociologists have presented as providing governance to market exchanges. Although these two pillars of economic sociology have inspired many empirical studies, most of the research examines only one or the other separately, resulting in not much being known about how the two are interrelated. This study empirically investigates how networks and institutions interplay in governing market exchanges. To do so, it examines a type of transaction that faces a particularly high level of uncertainty—acquiring a foreign firm—and two state policies that institutionalize the transaction—antitrust and merger laws. Using fixed-effects models on cross-border acquisitions in country-pairs, this study finds that the relationship between networks and institutions is substitutive when the institution is widely perceived as legitimate. Market participants rely less on networks when antitrust laws are present in the partner country. However, when there is a normative ambiguity surrounding the institution, the relationship is complementary. Market participants rely more on networks when merger controls are present in the partner country.

Key Words: Social Networks, Institutions, Globalization, IGO, Cross-border merger

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International economic transactions are an intriguing topic for economic sociologists. Social fabrics, which economic sociology believes to embed market exchanges, seem to get sparse and tenuous in intercountry space. Laws, social networks, and business norms historically have been developed within national borders, and they become much less dense in-between (Fligstein 2005; Kahler and Lake 2003; Sassen 1996). Thus, intercountry space is said to be an “institutional abyss,” meaning that actors face a lack of social embeddedness and higher levels of uncertainty (Alcacer and Ingram 2013). This being so, then what sociological factors fill in the institutional abyss to provide governance to ever-increasing international transactions?

Two groups of sociologists have offered answers to this question. First, network theorists argue that connections through intergovernmental organizations (IGOs) facilitate transactions among countries by establishing trust. Putting aside the IGOs which focus on economic matters such as the WTO or World Bank, the IGOs that solely focus on cultural purposes, such as the Nordic Children’s Film Council, enhance the cultural affinity and visibility between citizens of member countries, which ultimately leads to trust, and thereby facilitates economic transactions (Ingram, Robinson, and Busch 2005). Indeed, the proponents of this view have demonstrated that IGO networks facilitate bilateral trade (Ingram et al. 2005; Kwon 2012; Zhou 2010) and foreign direct investment (Alcacer and Ingram 2013). This argument is an extension to the global level of economic sociology’s insight that, when facing high levels of uncertainty, market participants rely heavily on trust formed by relationships (Blau 1964; Granovetter 1985; Kollock 1994).

Second, institutional sociologists argue that state policies provide the governance for international transactions (Bandelj 2009; Scharpf 1996; Stone Sweet and Fligstein 2002). A large part of the uncertainty of international transactions lies in the obscurity and ambiguity of the rules and procedures surrounding transactions (Evans 2003; Frankel 2000). This uncertainty gets

reduced when governments implement formal institutions that codify the legitimate practices of transactions. Institutional sociologists have presented empirical evidence: Fligstein and Stone Sweet (2002) find that one of the driving forces behind the EU market integration was European governments collectively legislating the rules of trade. Bandelj (2009) finds that former Soviet countries had increased volumes of foreign direct investment (FDI) as the government established policies on FDI.

Although these two sociological pillars- *networks* and *institutions*- have received much scholarly attention, we know surprisingly little about the *interplay* between the two. This is true not only in the realm of international transactions but also in economic sociology in general (Beckert 2010; Nee and Ingram 1998; Nee and Swedberg 2005). The scholars focusing on either factor recognize that the two are intertwined. For example, institutional scholars, not only sociologists but also economists including North (1990), Ellickson (1991), and Ostrom (1990), note that social networks provide invisible and informal enforcement so that most potential conflicts among actors are resolved before formal institutions get involved. Also, network analysts acknowledge that network embeddedness, as proposed by Granovetter (1985), is only a part of a larger picture of market embeddedness in various formal and informal social fabrics including the state, laws, and customs as proposed much earlier by Polanyi (1944, 1957). Whether a network tie is trustworthy sometimes depends on institutional arrangements and their enforcement (Nee and Ingram 1998). Despite both theoretical camps' consensus that a better account of economic life is provided by incorporating both points of view, there has been little attempt to empirically investigate how networks and institutions *interplay* in governing market exchanges (but see Alcacer and Ingram 2013).

In this research, I explore the interplay between networks and institutions, focusing on how their effects on market exchanges are dependent upon each other. To effectively assess the governing effects of networks and institutions, I have selected a market transaction that has a particularly high level of uncertainty: acquiring a foreign firm—namely, cross-border mergers and acquisitions defined by purchasing controlling shares of 51% or more of a company abroad (hereafter CBA). I examine the interplay between IGO connections between countries and two governmental policies that provide institutional frameworks of mergers: antitrust and merger laws. These laws were first developed in the U.S. to regulate mergers but have now diffused widely across the globe.

I argue that networks and institutions are substitutive and complementary depending on whether an institution is perceived as legitimate. Firstly, the substitutive quality is shown from my finding that IGO networks have a facilitating effect on CBAs, but this effect gets *smaller* when a target country of CBA adopts antitrust laws. This interplay originates from the legitimacy of the law. Financial communities have a strong consensus that antitrust laws are a must-have in any modern market economy since they are a declaration that the adopter country is pursuing market competition as the principle of its economy (Kronthaler 2007; Palim 1998). When a formal institution indicates that the adopter country is conforming to the global norm, its transaction partners rely less on networks to cope with uncertainty.

However, the complementary relationship is revealed when there is ambiguity or ambivalence on the legitimacy of the formal institution: the IGO network's facilitating effect on CBA gets *larger* when a target country adopts merger controls. Unlike antitrust laws, merger controls are surrounded by normative ambiguity. Some appreciate their adoption based on the fact that the regulation is becoming more prevalent across the globe, and, thus, an adopter

country is synchronizing with the world culture. However, many others are concerned that there is too much room for arbitrariness in merger controls when a local government determines which deal is anti-competitive—thus should be disapproved of—and which deal is not—thus should be approved (Palim 1998). Financial commentators worry that national governments might use merger controls against foreign investors to prevent “the leak of national wealth” (Kronthaler 2007; Palim 1998). Given this concern, transaction partners rely more on networks when their opponents adopt merger controls, which suggests that lack of legitimacy is compensated by relationship-based trust. IGO connectivity provides investors with a certain amount of faith that a national government will not abuse its merger controls against them.

In addition to investigating the interplay between networks and institutions, another contribution of this study is its examination of IGO networks’ effects on transactions that face higher border barriers than those studied by previous research. Thus far, network theorists have analyzed two types of international transactions: bilateral trade (Ingram et al. 2005; Kwon 2012; Zhou 2010) and foreign direct investment (Alcacer and Ingram 2013). These studies showed that IGO connectivity helps to overcome border barriers. Even so, I argue that CBAs face higher border barriers than trade and FDI because they frequently incur political reactions based on nationalistic fears that ownership of domestic corporations is being transferred to foreign hands (Dinc and Erel 2013; Fiebig 2000). Unlike FDI, which is almost always welcomed with tax breaks and subsidies (Amerighi and De Feo 2014), CBAs tend to go through greater public scrutiny in investee countries. By showing that IGO networks facilitate CBAs, this study expands the scope of transactions for which network perspectives are valid. In the following section, I review the rapidly increasing CBA worldwide.

Cross-Border Mergers and Acquisitions

CBAs have been among the fastest globalizing markets over the last three decades. As shown in Figure 1, the transaction volume of CBAs was US\$ 168 billion in 1990, but, after a steady and rapid increase, it peaked at US\$ 1,219 billion in the year 2000—a 620% increase. After a dip in the mid-2000s, it reached its second-highest level, at US\$ 997 billion, in 2007. In terms of the share of CBAs in total mergers and acquisitions, in 2011, about 35% of all mergers and acquisitions that occurred on the planet were cross-border ones, up from a little over 20% before the 1990s.

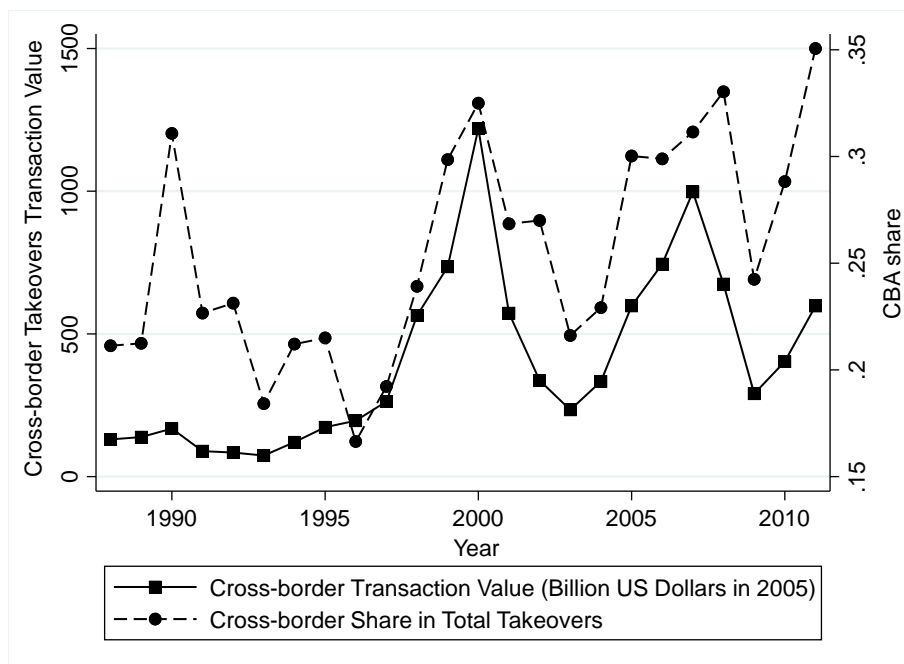


Figure 1. Cross-border M&A Transaction Volume as in 2005 Dollars and as Share of Total Deals including Domestic Takeovers from 1988 to 2011

It is not the case that the increase in volume has only occurred among advanced economies. The number of countries involved, not only the targets but also the acquirers, has been growing. Fewer than 40 countries were acquirers of CBA deals in 1990, but in 2020, over 80 countries were involved in transactions as acquirers. During the same period, the number of

target countries has also doubled from 50 to more than 100. These trends all indicate that corporate-asset markets have been integrated at the global level. What sociological explanations do we have for the growth of such international transactions?

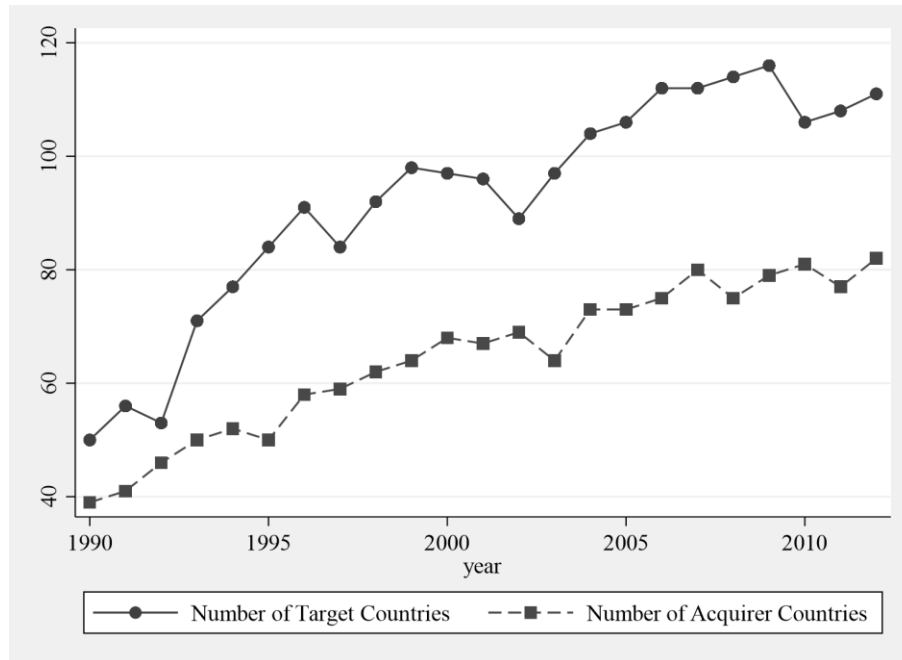


Figure 2. The Number of Acquirer and Target Countries

Global Economic Transactions and Intergovernmental Organizations

Economic sociologists have shown that economic exchanges do not occur in a social vacuum. The market is not a standalone reality that operates separately from society but is instead a social construction; market exchanges are bound to be shaped by social fabric such as cultural values, social norms, governmental policies, and networks (Granovetter 1985; Burt 1992; Zelizer 1994; Fligstein 2001). This principle of economic sociology helps us to better understand market exchanges by examining their social contexts.

However, the social contexts that are thought to “embed” market transactions have their roots and jurisdictions mainly inside national borders. For example, states play a central role in backing up the formal institutions behind economic transactions as an ultimate enforcer of law

and contracts (Scott 1995), but states' sovereignty resides within their borders. Between borders, the market does not have an ultimate governmental body to hard-enforce contracts. Cultures and norms provide the cognitive scripts of expected actions between exchanging partners (Scott 1987) and set the boundaries of what can be exchanged and how things can be exchanged (Zelizer 1994). However, national cultures are historically developed within nations, resulting in significant discrepancies in norms and cultural scripts between different countries (Frankel 2000). Social fabrics seem to be strong and dense inside borders but tenuous and sparse in the intercountry space (Alcacer and Ingram 2013).

Still, economic exchanges in this international space have been steadily increasing in the era of economic globalization, not only goods and services but also capital in the form of investments such as FDI and CBAs. This raises a theoretical challenge for the embeddedness perspective to unveil what social contexts are behind the global integration of markets. One group of sociologists who have offered a possible answer is network theorists. They propose that network ties between countries have been getting denser over time through IGO connections and that those ties facilitate economic exchanges. Empirical analyses have shown that IGO networks increase bilateral trade (Ingram et al. 2005; Kwon 2012; Zhou 2010) and foreign direct investment (Alcacer and Ingram 2013). This is a fresh point of view considering that existing studies—mostly from economics—have explained the international economic transactions with “hard” structural factors rather than social factors. For example, Dicken (2003) explains international trade in terms of the development of transportation and communication technology. The classic gravity model in economics explains trade with geographical distances and sizes of economies (Isard 1954).

The way IGO connectivity facilitates exchanges is twofold. First, it reduces transaction costs by setting up institutional arrangements for transactions (Ingram et al. 2005). For example, the WTO promotes trade agreements among member states and provides a dispute-settlement process. This resembles domestic institutions, such as governments and courts, which reduce transaction costs by backing up contracts with legal force—although the enforcement is not as strong as state apparatuses. Second, IGO connectivity establishes relationships among countries that foster affinity and trust (Ingram et al. 2005). This effect is shown by the finding that the IGOs solely focusing on socio-cultural purposes also increase trade and FDI (Alcacer and Ingram 2013; Ingram et al. 2005) because they “increase awareness, sympathy, empathy, and even trust between the citizens of different countries” (Ingram et al. 2005). Trust and affinity are powerful vehicles that facilitate transactions, especially when market participants face high levels of uncertainty (Blau 1964; Kollock 1994; Lévi-Strauss 1969).

In light of this research, how would IGO connectivity affect CBAs? For CBAs, IGOs do not provide significant institutional arrangements to reduce transaction costs. To date, discussions and efforts toward building an international antitrust-and-merger regime through IGOs like the WTO have not been successful (Anderson et al. 2018; Fiebig 2000). The primary difficulty lies in the fact that while individual countries agree that an international antitrust regime would be economically efficient, they are unenthusiastic in relinquishing their sovereignty over antitrust decisions, especially merger-approval decisions. Large antitrust or merger cases have political impact, and politicians do not want to give up their stake in the decisions (Coate, Higgins, and Mc Chesney 1990). Thus, even within IGOs that experienced a high degree of international market integration through institutional arrangements such as the European Community, individual countries have vastly different and uncoordinated merger

review systems, incurring significant legal costs for potentially merging companies (Fiebig 2000).

However, IGOs' relationship-building effects on CBAs should be at least equal to that of trade and FDI. This is because a CBA requires a higher level of trust to overcome border barriers than trade and FDI. Trade is a fairly accessible mode of international transactions since a trader does not need to operate a business in a foreign country. On the contrary, an FDI investor needs to be involved in the operation of a new business in a foreign country, dealing with different governmental rules, employment practices, and cultures.

CBAs face even higher border effects than FDI mainly because of local governments' nationalistic sentiments against foreign acquirers. It is well-documented that there is fierce competition for FDI among local governments (Elkins and Simmons 2000), and they try to attract FDI with subsidies, tax breaks, and other preferential benefits (Amerighi and De Feo 2014). On the contrary, CBAs are not always welcomed. Foreign investors' acquisitions of domestic companies often raise public concerns over "leaking national wealth," and provokes nationalistic sentiments against the acquirers (Dinc and Erel 2013). Also, after a merger, there remains a concern whether foreign-owned firms will be treated the same as domestic-owned ones (Mariniello 2013; Sakoui and Gelles 2013; Tucker and Waldmeir 2008).

Thus, if IGO networks have trust-building effects, CBA transactions are the ones that would dramatically show their effects since they require high levels of trust in the host governments.

Hypothesis 1. Two countries will have a higher volume of CBAs when they are more closely connected through IGO networks.

Antitrust Laws and Merger Controls on Cross-Border Acquisition

The formal institutions that provide legal frameworks for mergers and acquisitions in many countries are antitrust laws and merger control. The ethos of antitrust laws is to promote market competition—the central concept of capitalism—by banning corporate activities that are believed to harm or limit competition. It is rooted in the perception that the concentration of economic power inevitably damages consumer welfare. Currently, over 120 countries have antitrust laws, but the set of prohibited activities is highly standardized: price-fixing, market allocation, price discrimination, abuses of dominant market power, setting up market entry barriers, application of dissimilar conditions to equivalent transactions, and concerted practices (Posner 2009).

The first antitrust law was legislated in the U.S., the Sherman Act of 1890, to break then-widespread cartels and monopolies in prominent industries such as railroads, oil, steel, and banking. The base of the legislation was the concern that businesses that were too powerful, like Standard Oil and Carnegie Steel, would endanger American democracy. Up until World War II, the concept of banning cartels and monopolies was not widespread even among advanced economies. Many countries did not strictly forbid cartels, and some governments even encouraged them to stabilize their economies (Wells 2002). After WWII, the U.S. started to push other industrialized countries, especially Germany and Japan, to legislate antitrust laws. As a result, antitrust laws became prevalent among advanced economies, but they were mostly contained within a small circle of fewer than 30 countries.

The late 1980s was the watershed for the liberal market economy with historical events such as the dissolution of the Soviet Union and the unification of West and East Germany.

Market competition began to prevail as the dominant principle for organizing economies, and antitrust laws spread across the globe as a crucial part of this larger trend. The EU required antitrust legislation for potential member states; governmental forums were established to discuss proper enforcement of antitrust laws; international organizations such as the World Bank and IMF advocated the adoption of antitrust laws. As a result, over 80 governments adopted antitrust laws during the 1990s and 2000s. As with various types of other policies that diffused across the globe, late adopters of the laws did not invent their own versions but imported the standardized versions of the laws from the U.S. and EU, resulting in a significant level of homogeneity across countries (Kovacic 1998; Kronthaler and Stephan 2007; Wells 2002). 120 years after the first law has been adopted, more than 120 countries have adopted antitrust laws that look significantly similar to antitrust laws of the U.S.

Merger control is a subset of an antitrust regime specifically focusing on screening the M&As that potentially lessen or impede market competition. Merger control sets up a merger review process: it determines which merger proposals should go through the review process – mostly defined by the size of revenues and assets, designates a governmental body responsible for the review process, and the length of the review process. The review is finished when the agency comes up with its decision on approval or denial of the proposed M&A based on its predicted anticompetitive consequences. If the agency determines that the proposed deal would significantly reduce the market competition, it disapproves of the deal. In most merger controls, a deal cannot be completed without getting approval from this review.

The diffusion of antitrust laws and merger control is visualized in Figure 3. The two types of laws have had a gradual spread until the late 1980s and, after that, the diffusion rate accelerates rapidly. This swift diffusion coincides with the period of my study, between 1990 and

2012. It allows me to effectively assess the effects of the formal institutions in a fixed-effects model setting because the data have high levels of within-unit variances.

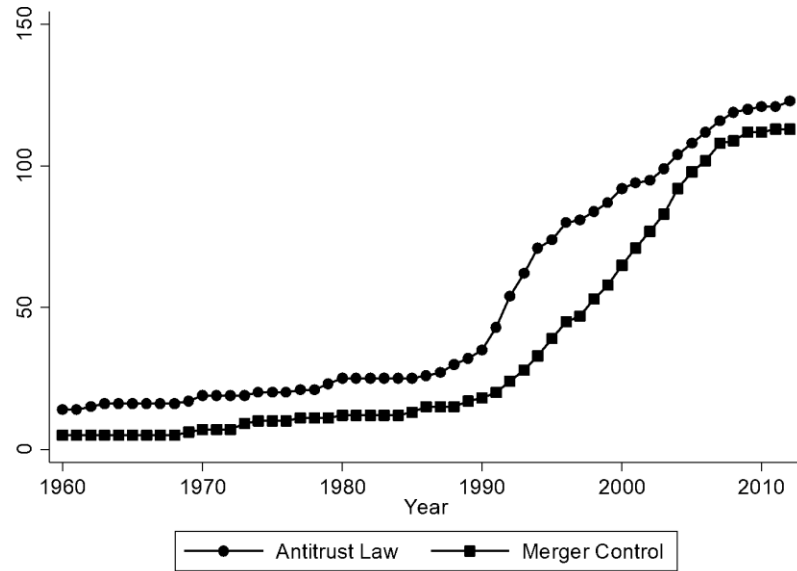


Figure 3. Cumulative Number of Countries that Adopted Antitrust Law and Merger Control

IGO Networks and Antitrust and Merger Laws

I argue that the intercountry *trust* based on networks can be substituted by legitimacy provided by domestic formal institutions. When a state adopts a formal institution that is widely seen as legitimate, its potential transaction partners face less of a need to rely on trust built through their inter-country relationships. Conversely, if a state adopts a formal institution that appears illegitimate, its potential partners face a greater need for network-mediated trust when investing in that country.

Organizational scholars have developed rich theories on legitimacy. Legitimacy is “a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions.”

(Suchman 1995) Legitimacy brings resources to organizations and is critical to their survival (Aldrich and Fiol 1994; Lounsbury and Glynn 2001; Rosa et al. 1999). Organizations pursue congruence between their structures and practices and the norms in the larger social system they are a part of to gain legitimacy (Dowling and Pfeffer 1975; Meyer and Rowan 1977).

Likewise, states are part of a “world polity” that has a distinct set of global norms and cultures (Boli and Thomas 1997). World society is not so much anarchic nor governed only by materialistic interests, but rather resembles a polity with shared normative and cultural principles among its constituents (e.g., human rights, political freedom, environment, free trade, accessible education) which in turn shape the structures and policies of individual states (Boli and Thomas 1997; Meyer et al. 1997). Various kinds of modern norms such as mass schooling (Meyer et al. 1977), human rights (Boli and Thomas 1997; Boyle and Preves 2000), and the political system of democracy (Torfason and Ingram 2010; Wejnert 2005) have spread across the globe as domestic organizational practices that reflect global social norms. States pursue legitimacy by adopting policies that are congruent with these norms (Holzinger and Knill 2005).

The orientation toward the free market swept the globe from the 1980s through the vast deregulation movements of the Reagan Administration in the U.S. and the Thatcher Administration in the U.K. (Gilpin 2018). The fall of the Berlin Wall in 1989 and the collapse of the Soviet Union in 1990 were regarded as the historical events that symbolize the triumph of the free market as the dominant economic principle. Antitrust laws, often called “competition laws” in the modern era, encapsulate this orientation, and unsurprisingly, the adoption of antitrust laws signals that the adopter country conforms to this global norm.

The legitimacy that countries achieve through the adoption of antitrust laws is especially beneficial for the investments with particularly high uncertainty like CBAs. Significant concerns

over investing in foreign countries are based upon the scenarios that the local market is not operated in a fair way, such that the government might have a surreptitiously shared interest with powerful domestic companies or intervenes in market competition in unpredictable ways (Brus 1989; Deese and Olson 1983; Gerber 2010). The adoption of antitrust laws signals that the target country's government is, at least on the surface, against anti-competitive practices or unlawful state interventions. The legitimacy of antitrust is likely to overlap with the IGO network's trust-building effects, meaning that when a target country appears legitimate, with a declared orientation toward market principles, foreign investors may be willing to make investments in that country even when they do not have a close relationship through IGO ties.

Hypothesis 2. IGO networks' positive effects on CBAs will be smaller when a target country adopts antitrust laws.

On the other hand, merger controls, unlike antitrust laws, hardly have a global norm or consensus formed around them. They are generally regarded as a modern financial apparatus that institutionalizes corporate mergers and acquisitions. As shown in Figure 3, this apparatus has diffused across the globe rapidly during the 1990s and 2000s, resulting in more than 100 merger control current regimes worldwide. However, financial communities do not always welcome newly-adopted merger controls. The major reason lies in that the merger review confers too much power to local governments. A merger review is essentially a prediction of the consequences of a proposed merger. Each governmental agency has its own formula for calculating the effects of mergers, which generates high legal uncertainty for the merging parties. For example, if a review agency tests the effect of a proposed merger based on 'market share',

the merging parties would prepare the proposal based on their own calculation of the resulting market share. However, the review agency might define the relevant product and geographic market differently, which could result in a totally different outcome. Even if they perfectly agree on the definition of the market, if a merger is expected to beget a market share that is “too high” compared to societal benefits such as consumer welfare by efficiency gains, it is deemed anti-competitive and disapproved. However, there hardly is a clear-cut standard on how high is too high (Fisher 2005). Each merger review regime has its own standard, which leaves much room for the discretion of merger controls-adopting governments.

Because of this potential arbitrariness, investors worry that merger controls could be abused by governments to prevent their “national champions” from being acquired by foreign companies or by selectively approving deals that benefit the interest of companies to which they have connections (Dinc and Erel 2013; Kronthaler 2007; Palim 1998). The fact that merger control can be abused by “bad” governments increases the salience of trust. IGO networks’ trust-building capacity can allay the apprehension that the local government will use merger controls in an unfair manner. Thus, I predict that IGO co-membership and merger control will be complementary rather than substitutive.

Hypothesis 3. IGO networks’ positive effects on CBAs will be greater when a target country adopts merger controls.

Alcacer and Ingram (2013) did a pioneering analysis on the interaction between IGO connectedness and the levels of democracy in FDI target countries. They found that the FDI-facilitating effect of economic IGOs is diminished and that the effect of social-cultural IGOs is

increased when the target country has a higher level of democracy. This finding has been the most illuminating revelation about the interplay between networks and institutions. For sure, democracy captures domestic institutional aspects that provide foreign investors the assurance that the local government will not expropriate their investments. However, there needs to be a step further toward analyzing more specific and detailed levels of institutions than general political systems. Governments with similar levels of democracy legislate various types of institutions that govern the same transaction, and it is possible that different institutions have the polar opposite ways of interacting with networks, as I hypothesize. Building upon their research, I attempt to shed light on institutions at a more precise level while controlling for levels of democracy in the target countries.

Data and Method

I test the hypotheses using longitudinal data from 1990 to 2012. The unit of analysis is a dyad-year, and a dyad consists of an acquirer country and a target country of a CBA transaction. My dataset on CBA is a directed one that distinguishes the dyad where Country A is the acquirer and Country B is the target from the dyad where Country A is the target and Country B is the acquirer. I analyze the volume of CBA transactions between countries using fixed-effects models to control for any unobserved heterogeneity.

The data on cross-border acquisitions is collected from the Thomson Reuters SDC Platinum database, which has extensive information on M&As across the globe, beginning in 1985. SDC's data before 1990 are less reliable in terms of coverage, thus I use data from 1990 to prevent any bias. This database provides information on the nationalities of the acquirer and the target companies for each deal, which allows me to aggregate the number of deals for country

pairs. IGO network data comes from the Correlates of War database, which is the primary data source for research that analyzes IGO networks (Alcacer and Ingram 2013; Bonikowski 2010; Ingram et al. 2005; Lim and Tsutsui 2011; Torfason and Ingram 2010).

There is no single database that covers antitrust and merger laws at the global scale. Thus, I collected the data from multiple sources. First, the antitrust adoption years are based on four sources: the Competition Law Database from the World Bank; *Competition Regimes in the World*, issued by the Centre for Competition, Investment & Economic Regulation of the Consumer Unity and Trust Society (CUTS); Kronthaler's data (2007); and Anticartel Enforcement Worldwide. I was able to maximize the country-coverage by combining these four datasets. For merger control adoption years, I used *Worldwide Merger Notification Requirements*, by the law firm White & Case. This dataset contains the widest coverage of 215 countries. It not only provides information on the adoption years of merger controls, but also on whether the notification requirement is pre- or post-completion of the deal and mandatory or voluntary, and the length of the review phases.

Dependent variable

My dependent variable is the volume of mergers and acquisitions measured by the number of deals. I distinguish the flow of M&As by creating two dyads for each country pair. For example, if in 1995 there were 10 M&A deals where companies from the United States bought South Korean companies and 5 deals where Korean companies bought US companies, the United States (acquirer country) – South Korea (target country) dyad has the value of 10 as the dependent variable, and South Korea (acquirer country) – United States (target country) dyad has the value of 5.

Independent variables

The key independent variables are IGO connectedness and the adoption of antitrust law and merger control. First, IGO connectedness is measured by the number of co-memberships in IGOs between the acquirer and target country. For example, if the US is a member of 10 IGOs that Canada is also a member of, the two U.S. – Canada dyads, one with the US as the acquirer and Canada as the target and the other one in the reverse order, both have the value of ten for the IGO connectedness variable. Second, the antitrust and merger control variables are binary with a value of zero before adoption and a value of one after.

Control variable

I control closeness between countries with bilateral investment treaties (BITs) and bilateral trade. To control for financial factors, I include differences in exchange rates. The higher the currency power of the acquirer country compared to the target country, the cheaper the actual price the acquirer has to pay for the acquisition. Other control variables are per-capita GDP and the populations of acquirer and target countries. Major political factors are also controlled: the level of democracy and the liberalization of movement of capital and people in target countries. Democracy is measured by the Polity 2 variable from the Polity IV Project, which is widely used as an indicator of institutional democracy (Marshall, Gurr, and Jaggers 2012). Liberalization of the movement of capital and people was taken from the Fraser Institute's Economic Freedom of the World Data (Gwartney, Lawson, and Hall, 2015). Descriptive statistics of all variables are presented in Table 1.

Table 1. Descriptive Statistics

Variable	Mean	SD
Number of CBA Transactions	1.96	10.55
IGO Comembership	50.99	15.18
Target_Antitrust(lagged)	0.77	0.42
Acquirer_Antitrust(lagged)	0.82	0.38
Target_Merger Control(lagged)	0.60	0.49
Acquirer_Merger Control(lagged)	0.65	0.48
Acquirer_GDPpercapita(ln)	3.46	4.59
Target_GDPpercapita(ln)	3.45	4.58
Acquirer_Population(ln)	17.03	1.48
Target_Population(ln)	17.07	1.39
Trade(ln)	6.78	2.60
Target_Democracy	7.38	4.48
Currency Differenece (PPP of Acquirer - PPP of Target)	0.11	0.48
Target_Liberalization of the movement of capital and people	6.18	2.54
BITs	0.42	0.49

Methods

I use a fixed-effects Poisson regression to model the number of takeover deals between acquirer and target countries. I chose the fixed-effects model, assuming that there are dyad-specific time-invariant unobservable characteristics that affect quantities of deals and the adoption of antitrust and merger control. These might be a geographical distance between two countries, a colonial history, a language difference, or a cultural difference.

The dependent variable (the number of takeover deals) takes non-negative integer values. Hence, OLS regression would violate the assumptions of homoscedastic and normally distributed errors. A Poisson regression model can be a proper solution for modeling a count variable

(Hausman, Hall, and Griliches 1984; Henderson and Cockburn 1996). An alternative method to Poisson is negative binomial models, which take into account that the value of zero in the dependent variable is qualitatively different from non-zeros. This makes sense in my data set because it is reasonable to assume that the dyads that have zero transactions (such as the U.S. and North Korea) for the entire period of the study are qualitatively different from dyads that have some transactions (such as U.S. and China). But dyads with no deals during the whole period are dropped from my fixed-effect models because of zero variance in the dependent variable. My sample dyads are the ones that, in some years, might have no transactions, but they have at least one transaction during the period. Within these dyads, I assume that the zeros and non-zeros are not qualitatively different and that there is no need to use the negative binomial models.

I lag the law variables by one year. I assume that antitrust and merger control will not have effects immediately from the year of adoption. It will take time for the news that a country has adopted the laws to spread among investors and be taken into consideration when making investment decisions. The one-year lag of the law variable is the default across all models.

The basic Poisson model at the dyadic-year level can be written as follows:

$$f(y_{ijt}|\lambda_{ijt}) = \frac{\exp(-\lambda_{ijt})\lambda_{ijt}^{y_{ijt}}}{y_{ijt}!}$$

where y_{ijt} is the number of takeover deals from country i to country j at time t , and the λ_{ijt} is the parameter of the Poisson distribution that equals the mean and the variance of the number of takeovers. It is assumed that:

$$\ln(\lambda_{ijt}) = \beta_0 + \beta_1 law_{it-1} + \beta_2 law_{jt-1} + \beta_3 IGO_{ijt} + \beta_4 (IGO_{ijt} * law_{jt-1}) + \beta_4 X_{ijt}$$

where law_{it} identifies if the acquirer country has the law and law_{jt} if the target country has the law. IGO_{ijt} is the number of shared IGO memberships between country i and country j . $IGO_{ijt} * law_{jt-1}$ denotes the interaction term between IGO and the law variables to capture the changing effects of IGO connectivity depending on the existence of the laws in the target country. X_{ijt} is a vector of other independent variables for the country pair ij at time t including BITs, trade, GDP per capita for acquirer and target countries, the exchange rate difference, liberalization of movement of capital and people, and target country democracy. β s are parameter vectors for those variables. I run the models with dyad fixed effects and year fixed effects.

Results

Table 2 reports the results of the Poisson regressions predicting the number of takeovers for dyad-years. All models have dyad fixed effects to control the dyad-specific characteristics and year fixed effects to capture temporal fluctuations.

Table 2. Poisson Estimates on Cross-border Acquisitions with Dyad and Year Fixed-Effects

Variables	Model 1	Model 2	Model 3
IGO Comembership		0.008*** (0.002)	0.011*** (0.003)
Target_Antitrust(lagged)		0.218*** (0.035)	0.504*** (0.119)
Acquirer_Antitrust(lagged)		0.011 (0.041)	0.009 (0.041)
Target_Merger Control(lagged)		-0.051** (0.022)	-0.213*** (0.077)
Acquirer_Merger Control(lagged)		0.003 (0.023)	0.003 (0.023)

IGO* Antitrust(target)			-0.005** (0.002)
IGO* Merger Control(target)			0.002** (0.001)
BITs	0.356*** (0.054)	0.327*** (0.055)	0.330*** (0.055)
Trade (logged)	0.428*** (0.019)	0.401*** (0.020)	0.399*** (0.020)
Acquirer_GDPpercapita(ln)	0.880*** (0.094)	0.886*** (0.095)	0.892*** (0.095)
Target_GDPpercapita(ln)	-1.033*** (0.105)	-0.923*** (0.109)	-0.934*** (0.110)
Acquirer_Population(ln)	1.915*** (0.129)	1.831*** (0.130)	1.841*** (0.132)
Target_Population(ln)	1.716*** (0.140)	1.593*** (0.141)	1.558*** (0.145)
Target_Democracy	0.022*** (0.006)	0.019*** (0.006)	0.019*** (0.006)
Target_Liberalization of the movement of capital and people	0.010** (0.005)	0.003 (0.005)	0.003 (0.005)
Currency Differenece (PPP of Acquirer - PPP of Target)	-0.152*** (0.032)	-0.151*** (0.033)	-0.151*** (0.033)
Dyad Fixed Effects	Y	Y	Y
Year Fixed Effects	Y	Y	Y
Observations	34,805	34,805	34,805
Number of dyid	2,044	2,044	2,044

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Model 1 includes control variables for cross-border deals. The closeness measures have strong positive significant effects on CBAs. First, BITs have a strong positive effect as expected. The coefficient, based on the multiplicative nature of the Poisson regression, indicates the effect of one unit-change in the explanatory variable on the ceteris paribus rate of the dependent variable. Having a BIT between two countries increases the volume of CBAs by 43% [$\exp(.356)=1.43$]. Another closeness measure, bilateral trade between acquirer and target countries, is positively associated with CBAs. Country-pairs that have a higher volume of a

traditional type of economic exchanges have more M&A transactions between them. The coefficients for the financial variables are consistent with existing studies. As a target country's currency is valued higher than that of the acquirer country's, the number of deals decreases.¹

Similarly, political factors show effects compatible with existing theories. Democracy in the target country has positive effects on CBAs, and the liberalization of the movement of capital and people also has positive effects.

Model 2 adds IGO connectivity and law variables, and Model 3 adds the interaction terms between them. Consistent with Hypothesis 1, IGO connectivity increases cross-border deals between countries. The effect size is moderate. One additional shared IGO membership between an acquirer and a target country increases CBAs between the two countries by 0.1% [$\exp(.008)=1.001$]. The effect seems small, but the mean value of the IGO co-membership is 52.22, which can increase the deals by 5%. This result supports Hypothesis 1. IGO connectivity increases international transactions, as in the cases of bilateral trade and FDI. In the same model, the target country's antitrust laws show a strong positive effect on CBA. The adoption of antitrust laws in the target country increases CBAs by 24% [$\exp(.218)=1.243$]. Acquirer antitrust does not have statistically significant effects. In contrast, the adoption of merger control in target countries slightly reduces CBAs by 5%.

Model 3 tests Hypotheses 2 and 3. As predicted by Hypothesis 2, the interaction effect between IGO connectivity and antitrust in target countries has a negative coefficient. IGOs' positive effect on CBAs is reduced when the target country adopts antitrust laws, indicating the

¹ I use purchasing power parity (PPP) to measure the currency valuation. A positive value of currency difference means that the common hypothetical currency, often referred to as the "international dollar", has more purchasing power in the acquirer country than the target country, meaning that the general price level is higher in the target country. Because the price level is higher in the target country than the acquirer country, transactions are reduced.

two factors are substitutive in the way that they fill in the institutional abyss. Network studies have shown that lack of institutional arrangements to back up economic transactions in inter-country space can be overcome by IGO connectivity among countries (Alcacer and Ingram 2013; Ingram et al. 2005). This result demonstrates that there is another factor that plays a similar role: an internationally spreading regulation that conforms to a global norm. Globally diffused legal institutions can facilitate economic transactions (Han 2020). When a target country adopts antitrust laws, it achieves a certain level of legitimacy, and potential acquirers have less need to rely on their relationship with that country to make investment decisions. Hypothesis 2 is supported by this result.

Hypothesis 3 predicts a positive interaction effect between the IGO connectivity and merger control, which would indicate a complementary or a synergetic relationship between the two factors. Model 3 shows a positive coefficient for the interaction, indicating that IGOs' positive effect on CBAs gets larger when a target country adopts merger controls. Since there is no established global norm concerning merger controls, the adoption of merger controls does not necessarily bring legitimacy to the adopter country. Rather, merger controls carry the risk that a target government may use legal measures against an acquirer company. With the increased uncertainty by newly adopted merger controls, the IGO network's trust-building ability seems to be more valuable. For dyads of which the target country has merger control, IGO ties' facilitating effects on CBA get larger. This result supports Hypothesis 3.

Robustness checks

The main analyses above only include the dyads with at least one deal throughout the research period since fixed-effects models drop the units that have no change in the dependent variable during the period. Out of all the possible combinations of country-pairs, 79% do not

have any CBA transactions during the period, which is understandable considering that the high border-barrier effects the transaction faces. The rationale behind this sample selection is that the dyads without any transactions are qualitatively different from the dyads with some transactions, and it is unreasonable to analyze the *volume* of transactions for a sample that pools the two groups in one bucket.

However, this raises the concern that my key variables might be effective in predicting the volume of CBA *only* among the dyads with the transactions. For example, if IGO networks can only predict the number of deals among the dyads that somehow have CBAs, but not the existence of the CBA deals themselves, it would be hard to claim that the IGO is one of the driving forces behind CBA market integration.

To test this concern, I ran random effects logistic regressions on CBA as presented in Table 3. The dependent variable is the time-varying binary variable that takes the value of zero for no transactions and one for any transaction. This analysis includes all dyads, including the dyads that have no deals. Random effects modeling allows me to include time-invariant covariates such as distance between the countries, colonial history, and common languages. In both models, IGO comembership maintains strong positive coefficients for predicting CBA transactions. Dyads with larger numbers of IGO comembership have a greater chance of having CBA transactions. The coefficients of interaction terms between IGO connectivity and antitrust and merger control maintain the same directions. The interaction term between IGO and antitrust is negative, and that between IGO and merger control is positive. But both of the variables have relatively large standard errors. Thus, one must use caution when expanding the findings on the substitution and synergy effect between IGO and domestic institutions to the realm of binary measurement of CBA.

Table 3. Random Effects Logistic Regression on CBA, 1990-2005

Variables	Model 4	Model 5
IGO Comembership	0.061*** (0.003)	0.064*** (0.005)
Target_Antitrust(lagged)	0.436*** (0.087)	0.861** (0.295)
Acquirer_Antitrust(lagged)	0.281** (0.097)	0.279** (0.097)
IGO*Target Antitrust		-0.009 (0.006)
Target_Merger Control(lagged)	-0.109 (0.071)	-0.528* (0.226)
Acquirer_Merger Control(lagged)	0.106 (0.077)	0.108 (0.077)
IGO*Target Merger Control		0.008 (0.004)
Acquirer_GDPpercapita(ln)	0.271*** (0.036)	0.272*** (0.036)
Target_GDPpercapita(ln)	-0.241*** (0.036)	-0.242*** (0.036)
Acquirer_Population(ln)	-0.114*** (0.026)	-0.116*** (0.027)
Target_Population(ln)	-0.139*** (0.032)	-0.140*** (0.033)
Distance(ln)	-0.023 (0.044)	-0.020 (0.044)
Colonial History between Acquirer and Target	0.522*** (0.132)	0.523*** (0.133)
Common Language	0.447*** (0.096)	0.443*** (0.097)
Target_Democracy	0.047*** (0.008)	0.046*** (0.008)
Target_Liberalization of the movement of capital and people	0.063*** (0.015)	0.065*** (0.015)
Currency Differenece (PPP of Acquirer - PPP of Target)	1.538*** (0.090)	1.534*** (0.090)
Target_Tariff	-0.009 (0.006)	-0.009 (0.006)
Acquirer_English Legal Origin	1.393*** (0.075)	1.394*** (0.075)

Target_English Legal Origin	0.404*** (0.079)	0.405*** (0.080)
Trade (logged)	0.826*** (0.026)	0.827*** (0.026)
Year Fixed Effects	YES	YES
Constant	-8.043*** (0.731)	-8.132*** (0.738)
Observations	103,063	103,063
Number of dyads	10,769	10,769

Robust standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05

The second robustness check in Table 4 is to test whether the interactions between the IGO connectivity and the laws still hold when I include the interactions between IGO and other social factors. This examines whether antitrust and merger control are really what moderates IGO's trust effects, or whether other social factors could serve a similar role. There are social factors that can generally lower the border barriers and substitute IGO's effects such as colonial ties, target democracy, common legal origin, common language, BITs, and trade. I include the interaction terms between IGO and these social factors in addition to the interaction terms between IGO and the laws.

From Model 6 to 12, the social factors generally have negative coefficients except for trade, which suggests that they tend to substitute IGOs' facilitating effects on CBA. However, many of these coefficients do not reach statistical significance. The factors that have statistical significance are colonial ties, common legal origin, and democracy. Generally, democracy goes along with modern governance structures such as the market economy, established property rights, and political freedom. When these structures are well developed in a target country, IGO trust's value is reduced, which is similar to the negative interaction with a target's antitrust laws.

Colonial ties and same legal origins seem to lower the border for international mergers and thus substitute IGO connectivity.

Throughout the models, the interaction terms between IGO and antitrust and merger control maintained their signs and statistical significance, but when I include all of the interactions in one model, in Model 13, antitrust interaction is only marginally significant, and merger control loses its significance. Based on these results, the interaction terms' effects in the main model should be taken cautiously.

Table 4. Poisson Estimates on Cross-border Acquisitions with Dyad and Year Fixed-Effects and with Interactions between IGO and Other Social Factors

Variables	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12	Model 13
IGO Comembership	0.013*** (0.003)	0.009* (0.005)	0.015*** (0.003)	0.013*** (0.003)	0.015*** (0.003)	0.012 (0.011)	0.020*** (0.005)	0.026** (0.013)
IGO* Antitrust(target)	-0.005** (0.002)	-0.005** (0.002)	-0.005** (0.002)	-0.005** (0.002)	-0.005** (0.002)	-0.005** (0.002)	-0.004** (0.002)	-0.004* (0.002)
IGO* Merger Control(target)	0.002** (0.001)	0.002* (0.001)	0.002** (0.001)	0.002** (0.001)	0.003** (0.001)	0.002** (0.001)	0.003** (0.001)	0.002 (0.001)
IGO * BITs	-0.004 (0.003)							-0.003 (0.003)
IGO * Trade		0.0005 (0.0005)						0.001 (0.001)
IGO * Colonial Tie			-0.014*** (0.004)					-0.014*** (0.004)
IGO * Common Language				-0.004 (0.004)				0.004 (0.005)
IGO * Common Legal Origin					-0.008** (0.003)			-0.008* (0.004)
IGO * Distance						-0.000 (0.001)		-0.000 (0.001)
IGO * Target Democracy							-0.001** (0.000)	-0.001** (0.000)
Target_Antitrust(lagged)	0.505*** (0.119)	0.499*** (0.119)	0.502*** (0.119)	0.505*** (0.119)	0.488*** (0.119)	0.504*** (0.119)	0.438*** (0.122)	0.410*** (0.123)
Acquirer_Antitrust(lagged)	0.007 (0.041)	0.010 (0.041)	0.007 (0.041)	0.009 (0.041)	0.006 (0.041)	0.008 (0.041)	0.005 (0.041)	0.001 (0.041)
Target_Merger Control(lagged)	-0.204*** (0.077)	-0.192** (0.082)	-0.201*** (0.077)	-0.218*** (0.077)	-0.220*** (0.077)	-0.213*** (0.077)	-0.224*** (0.077)	-0.177** (0.083)
Acquirer_Merger Control(lagged)	0.002 (0.023)	0.001 (0.023)	-0.001 (0.023)	0.003 (0.023)	0.004 (0.023)	0.002 (0.023)	0.002 (0.023)	-0.002 (0.023)
BITs	0.535***	0.333***	0.330***	0.330***	0.334***	0.330***	0.328***	0.508***

	(0.182)	(0.055)	(0.054)	(0.055)	(0.055)	(0.055)	(0.055)	(0.186)
Trade (logged)	0.403***	0.379***	0.390***	0.400***	0.402***	0.399***	0.395***	0.358***
	(0.020)	(0.034)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.036)
Acquirer_GDPpercapita(ln)	0.893***	0.896***	0.888***	0.888***	0.883***	0.892***	0.902***	0.902***
	(0.095)	(0.095)	(0.095)	(0.095)	(0.095)	(0.095)	(0.095)	(0.096)
Target_GDPpercapita(ln)	-0.933***	-0.937***	-0.928***	-0.942***	-0.948***	-0.935***	-0.932***	-0.938***
	(0.110)	(0.110)	(0.110)	(0.110)	(0.110)	(0.110)	(0.110)	(0.110)
Acquirer_Population(ln)	1.829***	1.869***	1.857***	1.863***	1.866***	1.842***	1.831***	1.888***
	(0.132)	(0.137)	(0.132)	(0.134)	(0.133)	(0.133)	(0.132)	(0.141)
Target_Population(ln)	1.521***	1.568***	1.597***	1.596***	1.610***	1.560***	1.506***	1.549***
	(0.149)	(0.146)	(0.146)	(0.150)	(0.147)	(0.149)	(0.147)	(0.158)
Target_Democracy	0.019***	0.019***	0.019***	0.019***	0.018***	0.019***	0.070***	0.073***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.024)	(0.024)
Target_Liberalization	0.003	0.003	0.003	0.002	0.003	0.003	0.003	0.005
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Currency Differenece	-0.151***	-0.152***	-0.151***	-0.151***	-0.151***	-0.151***	-0.150***	-0.151***
	(0.033)	(0.033)	(0.033)	(0.033)	(0.033)	(0.033)	(0.033)	(0.033)
Observations	34,805	34,805	34,805	34,805	34,805	34,805	34,805	34,805
Number of dyid	2,044	2,044	2,044	2,044	2,044	2,044	2,044	2,044

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Conclusion

I tested IGO networks' facilitating effects on international economic transactions that face a tougher border-barrier effect than existing research. Existing studies have found that IGO networks are conducive to increased trade and FDI (Alcacer and Ingram 2013; Ingram et al. 2005; Zhou 2010), but there is another type of transaction where market participants face tougher barriers of national borders: CBAs. Nationalist sentiments, different cultures and practices of domestic employees, and uncertain legal procedures all function as barriers to CBAs. My results show that IGO connectivity helps overcome these barriers and promotes CBAs robustly.

These facilitating effects of IGO networks validate the role of trust in international economic transactions. Since it is generally accepted that attempts at institutional coordination surrounding CBAs through IGOs have not been successful (Fiebig 2000), I infer that IGO networks' positive effects on CBAs stem mainly from the inter-country trust and affinity that it builds. In fact, empirical research finds that frequent interactions between countries increase the

cultural similarity over time (Bonikowski 2010), and IGO connectivity is one of the strong factors for increased cultural affinity, along with trade, telephone calls, and other types of interactions.

My analyses also address the interdependence between networks and formal institutions in their effects on market exchanges. My results suggest that institutions can substitute for the facilitating effects of networks when they conform to the global norm. IGOs' positive effect is diminished when the target country adopts antitrust laws. By adopting antitrust laws, local governments can demonstrate that they are jumping onto the global bandwagon of the market economy. When a local government takes this stance, the IGO network becomes less effective.

This result shows that legitimacy can substitute for trust. This finding contributes to economic sociology not only because there are few studies that examine the interplay between trust and legitimacy, but also because there are few studies that examine the effects of legitimacy in the first place. Trust and legitimacy are at the core of economic sociologists' contributions to understanding economic life. The economic realm is not shaped purely by monetary incentives, as neo-classical economists imagine, but it is also formed through social relations and symbolic meanings such as culture, norm, and legitimacy. Trust has been much studied in terms of its economic consequences, spanning from personal performance (Burt 1992; Granovetter 1974), organizational benefits (Podolny 1993) to structures of businesses (Powell 1990) by network theorists and proponents of social capital. However, the consequences of legitimacy have not received much scholarly interest, with only a couple of exceptions. Zuckerman (1999) shows that companies are penalized in their stock prices when they are perceived as illegitimate by stock analysts. Dobbin and Jung (2010) find that corporate board diversity negatively affects stock prices. These studies directly or indirectly assess the economic consequences of legitimacy, but

they are rare compared to the studies on the diffusion of practices and policies. For country-level analyses, scholars have demonstrated numerous policies have spread across the globe, such as neoliberal policies (Henisz, Zelner, and Guillén 2005; Simmons and Elkins 2004), political institutions (Wejnert 2005; Wimmer and Feinstein 2010), criminal regulation (Frank, Camp, and Boutcher 2010), and sports (Kaufman and Patterson 2005). However, few studies examine the consequences of the legitimacy that countries achieve by adopting these policies. My results complement this line of research by showing that legitimacy increases economic transaction and serves as a substitute for trust.

On the contrary, when a newly adopted policy does not bring legitimacy because the world society does not have a settled norm surrounding it, it does not substitute for trust, but rather it strengthens the benefits of trust. This is demonstrated by my finding that IGO networks' positive effects on CBA are larger when a target country has merger controls. Due to a risk of being abused by local governments, merger controls do not necessarily confer legitimacy to adopters but oftentimes incur concerns from financial communities. The results show that merger controls increase CBAs only when country-pairs have stronger relationships. This corroborates my argument on the substitutive relationship between trust and legitimacy. Trust is not substituted simply because a target country adopts a widespread policy. When global society is divided on how the policy should be understood, that is, when there are ambivalent norms surrounding a policy, its adoption does not substitute for trust. It is only when a country adopts a policy that is deemed legitimate by global society that its adoption substitutes for trust.

It is worth noting that the effects of the interaction terms between IGO connectivity and the two laws, especially the one with the merger control, had large standard errors in certain models. In the models with a large number of interaction terms that are 1) between IGO

connectivity and other social factors, and 2) between the laws and other closeness measures than IGO, the interaction term with merger control did not have statistical significance. This might be due to the fact that, in a fixed-effects setting, certain countries do not have enough time between antitrust and merger control. These cases would not have enough data points to compare the volume of CBAs before and after a merger control, and this might generate large standard errors. A potential direction of future research would be to solve this limitation by improving the data coverage by having more countries with the time points before merger control.

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