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ABSTRACT. Drawing on and extending institutional logics and resource dependence theories, this paper posits that for cross-sector partnerships to survive, organizations need to share compatible institutional logics, but depend less on each other's resources. Asymmetrical cross-sector partnerships may lead to a breakup if organizations are forced to operate under incompatible institutional logics. The findings of this study show that the challenges posed by incompatible logics of partners could be mitigated by the degree of resource interdependence between organizations. Capturing the effects of context and transactions on the actors' strategic behavior, the findings, based on dataset of project-level partnership ties between 1312 organizations in the carbon-offset market, support these hypotheses. The paper concludes by discussing implications of organizations' responses to keep acting under or reinterpreting existing institutional logics in asymmetrical cross-sector relationships.

Keywords: Cross-sector partnerships, Resource dependence, Nonprofit organizations
Institutional complexity, Carbon market

INTRODUCTION

Organizations are increasingly partnering across sectors to solve various societal and environmental problems such as health, education, environmental degradation, climate change, and poverty alleviation (Teegen, Doh and Vachani, 2004; Selsky and Parker, 2005; Yaziji and Doh, 2009). Cross-sector partnerships are initiatives where organizations from different sectors, i.e. for-profit and non-profit sectors, enter into a collaboration to achieve a common objective (Selsky and Parker, 2005). When resources in one sector are insufficient to solve these problems, a cross-sector partnership may be a viable option (Austin and Seitanidi, 2012; Kivleniece and Quelin, 2012). However, cross-sector partnerships have often led to conflict-laden relationships and are frequently susceptible to failure (Selsky and Parker, 2005; Prashant and Harbir, 2009).

Research examining difficulties in the maintenance of cross-sector partnerships has identified several factors that influence the survival of partnerships, including the frequency of contact between partners, the organizations' level of commitment to socially responsible behavior, and the existence of a personalized, reciprocal bond between organizations (Drumwright, Cunningham and Berger, 2004; Le Ber and Branzei, 2010). Such partnerships also face problems similar to those of alliances between firms, such as opportunistic behavior of partners, poor communication and coordination, and differences in management structures (Park and Ungson, 2001). Nonetheless, we still know relatively little about the determinants of failure that are more specific to cross-sector partnerships. In this paper, we argue that a distinctive source of failure of cross-sector partnerships is associated with how compatible the partners are regarding their cultural backgrounds and the objectives they seek. Organizations in cross-sector partnerships usually pursue different and potentially conflicting objectives (Austin, 2000). The different objectives that cross-sector partners pursue are not only a result of organizational-level

decisions, but also of broader cultural templates, or institutional logics, which infuse organizations with specific values (Thornton, Ocasio and Lounsbury, 2012). That is, "organizational members, by being part of social and occupational groups, enact, within organizations, broader institutional logics that define what actors understand to be the appropriate goals, as well as the appropriate means to achieve these goals" (Pache and Santos, 2010: 459).

We propose that employing the institutional logics perspective will shed light on factors that might undermine the survival of cross-sector partnerships. Institutional logics have been defined as "socially constructed, historical patterns of material practices, assumptions, values, beliefs, and rules by which individuals produce and reproduce their material subsistence, organize time and space, and provide meaning to their social reality" (Thornton and Ocasio, 1999: 804). Cross-sector partnerships bring together organizations that are embedded in multiple, often competing and overlapping institutional logics – a situation referred to as institutional complexity (Greenwood et al., 2011). An excessive rivalry between institutional logics can cause conflict and instability; however, few studies have examined the impact of incompatible institutional logics on the survival of cross-sector partnerships (Vurro, Dacin and Perrini, 2010).

While cross-sector partnerships might suffer from an incompatibility of logics, we argue that a sole focus on this incompatibility does not provide the full picture in explaining partnership survival. Partnerships tend to be initiated from a need to exchange critical resources to tackle societal and environmental problems (Austin and Seitanidi, 2012). The need to acquire resources has a solid footing in the inter-organizational relationship literature (Pfeffer and Salancik, 1978; Casciaro and Piskorski, 2005). Studies have explored the role of interdependence and its influence on inter-organizational partnership dynamics (Oliver, 1991;

Beckman, Haunschild and Phillips, 2004; Prashant and Harbir, 2009). Since different organizations in a partnership share resources and depend on each other, they have the interest to continue the partnership even if they face obstacles (Gulati and Sytch, 2007; Wry, Cobb and Aldrich, 2013). This interdependence raises the issue of how organizations in a cross-sector partnership deal with the tension between the need to exchange resources, on the one hand, and cooperate with organizations whose behaviors are guided by different institutional logics, on the other (Wry et al., 2013). This study addresses this underexplored issue by investigating the combined impact of institutional complexity and resource dependency on the survival of cross-sector partnerships.

As an empirical setting, we selected the carbon-offset market – the Clean Development Mechanism (CDM) – that operates under the Kyoto Protocol. CDM allows organizations from industrialized countries to reduce greenhouse gas (GHG) emissions by taking part in projects in developing countries. A CDM project tends to be organized as a cross-sector partnership (Pinkse and Kolk, 2012), bringing together for-profit organizations, NGOs and/or governments from different countries in different constellations. The CDM market provides a suitable empirical setting for testing our hypotheses on the influence of incompatible logics and resource interdependency on partnership survival because the partnering organizations have rather distinctive views on the purpose of projects. Nonetheless, partners have a clear incentive to collaborate and bridge differences as they share the need of showing that projects are legitimate to get them financed (Pinkse and Kolk, 2012). To test our hypotheses, we compiled an original dataset consisting of partnerships between 1312 organizations from 59 countries working on 1500 carbon-offset projects during the observation years 2005 to 2010.

Theoretically, this paper offers a new understanding of factors that might destabilize cross-sector partnerships by highlighting two potential sources of tension: an incompatibility of institutional logics and the level and kind of organizational interdependence. The study's findings suggest that incompatible institutional logics negatively affect the survival of cross-sector partnerships, but interdependence between them moderates this relationship. Building on Casciaro and Piskorski (2005), we study the effects of two components of interdependence: mutual dependence and power imbalance. While mutual dependence positively moderates the relationship between incompatible logics and partnership survival, we found the opposite for power imbalance between partners as it intensifies the adverse impact of incompatible logics on partnership survival. This study further contributes to the growing body of research on institutional complexity (Greenwood et al., 2011) by bringing resource dependence to the forefront of the analysis (Wry et al., 2013). Research investigating organizational responses to conflicting institutional demands tends to turn a blind eye to the role of resource interdependence (Reay and Hinings, 2005; Townley, 2002; Dunn and Jones 2010; Battilana and Dorado, 2010; Wry et al., 2013). Empirically, this study is among the few that investigate the impact of competing institutional logics by focusing on the survival of cross-sector partnerships. By integrating elements from institutional logics and resource dependence theory, the study provides new insights into understanding what factors undermine cross-sector partnerships.

THEORY AND HYPOTHESES

Incompatible Institutional Logics in Cross-Sector Partnerships

Cross-sector partnerships constitute a subject of growing importance in management research (Austin and Seitanidi, 2012; Prashant and Harbir, 2009; Reed and Reed, 2009). These

partnerships tend to utilize the for-profit sector's capacity in wealth creation to address social issues such as environmental sustainability, economic development, health, education, and poverty alleviation (Teegen et al., 2004; Selsky and Parker, 2005; Yaziji and Doh, 2009). As resources in the non-profit sector (comprising governments and non-governmental organizations) are insufficient to respond to such issues, the for-profit sector is increasingly called upon to share financial and informational resources (Rangan et al., 2006; Pinkse and Kolk, 2012). For-profit organizations (FPOs) are motivated to contribute to social issues and engage with non-profit organizations (NPOs), responding to societal pressure to go beyond profit maximization and shareholder value and pursue broader social benefits for their stakeholders (Marquis et al., 2007).

Previous studies have identified mechanisms through which value is created and sustained in cross-sector partnerships (Le Ber and Branzei, 2010; Kivleniece and Quelin, 2012). Nonetheless, there are indications that cross-sector partnerships are fragile (Teegen et al., 2004; Drumwright et al., 2004). A distinctive tension in cross-sector partnerships is that the practices of for-profit and non-profit organizations tend to bear the imprint of different institutional logics (Vurro et al., 2010). Institutional logics guide organizational behavior by providing specific scripts for action, establishing core principles for organizing activities, and channeling interests (Thornton et al., 2012). However, cross-sector partnerships bring together logics that are not necessarily compatible. Compatibility of logics refers to the extent to which logics provide congruous prescriptions for action (Besharov and Smith, 2014; Greenwood et al., 2011). As Besharov and Smith argue (2014: 369), "logics are more compatible when they provide consistent and reinforcing prescriptions for actions and belief." Incompatible logics can thus be a source of conflict between organizations in cross-sector partnerships (Vurro et al., 2010) and threaten performance, ultimately leading to partnership dissolution.

Previous studies indicate that an important incompatibility in cross-sector partnerships relates to the clash between a public good logic and a market logic (Mars and Lounsbury, 2009; Battilana and Dorado, 2010). Cross-sector partnerships tend to be set up to provide a public good of addressing a social or environmental problem. However, partners also have their private interests as they wish to appropriate part of the value that is created in the partnership (Di Domenico, Tracey and Haugh, 2009; Hahn and Pinkse, 2014; Kivleniece and Quelin, 2012; Rangan et al., 2006). The market logic and ensuing need to appropriate private benefits from cross-sector partnership collaboration are most obviously present in FPOs (i.e., private firms and publicly-listed state-owned firms) because maximizing shareholder value is their primary purpose. It has been argued that this purpose also has a legal dimension. FPOs have a fiduciary duty to shareholders to prioritize their interests over those of other stakeholders (Friedman, 1970; Jensen, 2001). While this narrow shareholder view has been contested, it is still pervasive in the for-profit sector (Reinhardt, Stavins and Vietor, 2008). In a partnership context, Kivleniece and Quelin (2012: 277) argued, for example, that "[f]irms are expected to seek and capture not only financial returns (rent) from exploiting an underlying business opportunity but also a range of intangible assets and institutional benefits, such as access to public knowledge sources, enhanced organizational skills and routines, and reputation or legitimacy spillovers from an engagement in domains of public interest." In contrast, the public good logic tends to be more closely associated with NPOs (i.e., governments and non-governmental organizations), as their main aim is to "strive to maximize public benefits (indicated, say, as region-level GDP per capita and sustainable development) for their constituents" (Rangan et al., 2006: 741). NPOs will have fewer issues with not being able to appropriate a partnership's benefits accruing to society. The legal mandate of government agencies is to pursue multiple social welfare

objectives besides the economic dimension (La Porta et al., 1999), while NGOs' legal accountability is inherent in the nature of their organizations and the causes and people they serve (Candler and Dumont, 2010), including clients, experts, staff, donors, regulators, members, the general public and the media (Brown and Moore, 2001).

We expect cross-sector partnerships to suffer from a lack of compatibility between the market logic and the public good logic, which could threaten partnership survival. We assume that organizations from each sector will be driven by a dominant logic (Reay and Hinings, 2009). From an institutional point of view, organizations are not monolithic and have to balance competing institutional demands (Pache and Santos, 2010). Moreover, the distinction between sectors is becoming more blurred: government functions are being delegated to the private sector (Kivleniece and Quelin, 2012); firms move towards the public sector by being hybrid organizations (Pache and Santos, 2010; Battilana and Dorado, 2010); and NGOs increasingly follow the social enterprise model, using for-profit tactics to increase impact (Teegen et al., 2004). Nonetheless, we expect the clash between the public good and market logics to be substantial in cross-sector partnerships. Most FPOs and NPOs are still worlds apart in terms of the logics that guide their behavior; they usually have little knowledge about each other's operations, culture, and values and have different expectations from engaging in a partnership (Drumwright et al., 2004). Previous research indicates that such differences between FPOs and NPOs affect their exchange relationship and can make collaboration challenging (Teegen et al., 2004; Drumwright et al., 2004). An incompatibility of logics between partners would thus have an adverse impact on partnership survival.

Hypothesis 1: The higher the level of incompatibility between the institutional logics present in a cross-sector partnership, the higher the hazard of dissolution of the partnership.

Resource Dependencies in Cross-Sector Partnerships

While incompatible logics pose challenges for cross-sector partnerships, we expect this effect to be mitigated by the degree of resource interdependence between organizations. Notwithstanding the influence of logics, resource dependence theory argues instead that organizational practices tend to follow more rational patterns of decision-making (Oliver, 1991; Binder, 2007). According to resource dependence theory, organizations engage in partnerships to access resources to achieve objectives that they are unable to achieve on their own (Pfeffer and Salancik, 1978). Interdependence is defined as the degree of partners' need for each other's resources to achieve their respective goals. Organizations establish partnerships to obtain resources (physical and/or symbolic) that are not available from their own environments (Katila, Rosenberger and Eisenhardt, 2008). The literature on cross-sector partnerships has noted various opportunities for sharing organizational resources. FPOs have deep financial pockets and commercial skills, but NPOs have expertise regarding the generation and distribution of public goods and have negotiation and facilitation skills. While NPOs look for financial or human resources in partnerships (Brown and Kalegaonkar, 2002; Sagawa and Segal, 2000), FPOs seek social reputation and legitimacy instead (Austin, 2000; Dacin et al., 2007). Intuitively, we would expect interdependence to lessen the adverse impact of incompatible logics on partnership survival. The more cross-sector partners depend on each other for

resources, the more they share an interest to keep the partnership alive, even if this involves dealing with conflicts from incompatible logics (Wry et al., 2013).

Drawing on recent work in resource dependence theory (Casciaro and Piskorski, 2005; Gulati and Sytch, 2007), we distinguish between a balance and size effect of interdependence to provide a more nuanced picture of its moderating role. The balance effect refers to power differentials between two organizations in a partnership. When the dependence relation is not purely symmetric, one of the partners wields more power (Casciaro and Piskorski, 2005). The size effect refers to the magnitude of the dependencies. High interdependence occurs when resources of both partners are essential for achieving the goals of the partnership. Low interdependence refers to a situation where partners' resources are desired, but not crucial for the partnership's success, or easily replaceable. To disentangle the balance and size effect, in their reformulation of resource dependence theory, Casciaro and Piskorski (2005) introduced two dimensions of resource dependence. The first dimension, 'power imbalance', is the extent to which partners depend critically on the other or have alternative options available to access similar resources. The second dimension, 'mutual dependence', captures bilateral dependencies regardless of whether the partners' dependencies are balanced or imbalanced.

Regarding the moderating effect of power imbalance, as the interdependence might entail an asymmetric power relation (Casciaro and Piskorski, 2005), the more powerful partner would attempt to exercise its power over the other by imposing its institutional logic. This situation has been referred to as a 'substitution of logics' where one of the logics gains dominance over the other (Reay and Hinings, 2005; Townley, 2002). A substitution scenario means the triumph of the institutional logic of the powerful organization and the eradication of the logic of the other. The latter will accept the dominance of the competing logic only because it needs the former's

resources to achieve an objective. We expect that whether organizations see a power imbalance as a reason to dissolve the partnership depends on the degree to which they fear 'mission drift' to occur (Moore, 2000; Margolis and Walsh, 2003). If engaging in a cross-sector partnership could entail a full substitution of logics, the risk for an organization of failing to stay true to its mission would be too high. For example, FPOs might be reluctant to participate in cross-sector partnerships that do not create economic value, because involvement in such 'purely' social activities may yield results other than shareholder value (Margolis and Walsh, 2003). NPOs might also fear that by establishing a partnership with business, they move away from their fundamental values such as ensuring the respect for human rights and lose legitimacy in the eye of their supporters (Rondinelli and London, 2003). Institutional logics run deep into the organizations' culture, such that any incongruent change in logics is resisted, and partnership failure may be opted for, instead of compromising on the logics. Despite the need for resources, organizations may prefer to give up a partnership that threatens their dominant logic. The more the logics of partners are incompatible, the more likely they will see a power imbalance as a reason to abandon the partnership. Therefore, we expect power imbalance to aggravate the impact of incompatible logics on the survival of cross-sector partnerships.

Hypothesis 2: The higher the power imbalance between cross-sector partners, the higher the impact will be of incompatible logics on the hazard of dissolution of a partnership.

Regarding the moderating effect of mutual dependence, we expect the opposite to occur. When the value created by cross-sector partners by working together is high – a situation of

mutual dependence (Casciaro and Piskorski, 2005) – partners have reasons to keep working together, a scenario referred to as a 'co-existence of logics' (Kraatz and Block, 2008; Dunn and Jones 2010; Reay and Hinings, 2009). In the case of highly incompatible institutional logics, partners challenge and confront each other's assumptions, norms and values, and practices, but the need for critical resources leads them to adapt, even if they oppose each other's logic (DiMaggio and Powell, 1983). Although highly incompatible logics will cause tension in the partnership, high mutual dependence provides enough incentives to organizations to find solutions that reconcile the different logics. If all partners attempt to emphasize their autonomy on norms, values, and organizational practices, the success of the partnership will not be sustainable (Kaplan, 2008); success requires ongoing compromise (Croteau and Hicks, 2003).

We expect that whether organizations see mutual dependence as a reason to sustain the partnership depends on the degree to which they consider the partnership as strategically important (Austin, 2000; Rondinelli and London, 2003). In strategically important partnerships, partners make higher resource commitments, leading to higher mutual dependence and a considerable effort to reconcile competing logics. Previous studies have discussed mechanisms that cross-sector partners use to mutually adjust their organizational routines and expectations (Wang, Choi, and Li 2008; Katila et al., 2008; Seitanidi and Crane, 2009). For instance, organizational members innovatively devise new organizational practices and actively reinterpret the situation to frame it in their legitimate terms. Therefore, we expect mutual dependence to alleviate the adverse impact of incompatible logics on the survival of cross-sector partnerships.

Hypothesis 3: The higher the mutual dependence between cross-sector partners, the lower the impact will be of incompatible logics on the hazard of dissolution of a partnership.

METHOD

Sample and Data

We selected the carbon-offset market that operates under the Kyoto Protocol's Clean Development Mechanism (CDM) as our empirical setting. CDM is a project-based market that provides organizations with a cost-efficient way of meeting sustainable development targets (Kolk and Mulder, 2011). Under CDM, organizations enter into partnerships to reduce GHG emissions generated by investments in projects commissioned in a developing country. Some of these projects last for 30 years. Currently, China and India are the major target countries for CDM projects. The uncertainty and institutionalization of the emissions trading regime and the existence of cross-sector partnerships between developed and developing countries' organizations in this market make it an interesting empirical context to explore the interplay between different institutional logics and resource dependencies. Moreover, there are fundamentally different views on the purpose of CDM. While some see it as a cost-efficient way to reduce emissions, others view it as a mechanism to foster sustainable development (Olsen and Fenhann, 2008).

The carbon-offset project-level data was obtained from the Institute for Global Environmental Strategies[1] and triangulated with the official CDM database[2] as well as project documents downloaded from this database. Information about the sample organizations was obtained from Mint Global – a proprietary database[3] of firm information. For Chinese

organizations, we used official statistical data published annually by the National Bureau of Statistics of China[4]. We also obtained information from project documents and publicly available information on the Internet.

We focused on those CDM projects, which earned carbon emission reduction credits (CERs) during the 2005-2010 observation period. To establish when project participants started or joined a project, we first referred to the original Project Design Document (PDD), which mentions the organizations working on that project. The moment the PDD was submitted to the United National Framework Convention on Climate Change (UNFCCC) secretariat was taken as the date that partners officially became project participants. If a partner joined later and PDDs did not mention it, we checked when the Designated National Authority (DNA), whose approval is necessary, issued its authorization. We took this as the organization's joining date. Following Pattison et al. (2013), we then tracked the relationships of these actors with each other (first-tier network) and their immediate partners (second-tier network), whose relationships with others (third-tier network) were also included in our sample. The process was continued until we only found redundant ties or loops with other organizations in the dataset. This data collection resulted in a quasi-cohesive network of partnerships where organizations had more ties within the network than outside.

The resulting sample consisted of 1312 organizations from 59 countries (representing 39% of the population of organizations whose projects were registered in the CDM database). The sample organizations were working on 1500 carbon-offset projects. Varying for each year, the majority was either Chinese or Indian and in terms of the industry either from electrical services or the cement industry. Indian organizations' concentration in the sample decreased from 21% in 2005 to 10% in 2010 (see Table I for detailed statistics), while the concentration of Chinese

organizations increased. After reaching 30% in 2008, the share of Chinese organizations dropped to about 19% in 2010, but still maintained a relatively larger share than Indian organizations. The partnership ties between the sample organizations varied each year during the observation years, reaching a maximum of 9041 project-level ties or 2899 cross-sector project-level ties. Cross-sector partnership ties at the organizational level peaked at 1174 ties in 2009, after which the number of ties dropped, thus indicating a process of tie dissolution. Most organizations in the sample were for-profits, i.e. private and publicly listed state-owned firms, the latter of which held a comparatively low proportion of renewable energy projects (see Table I for sample statistics).

INSERT TABLE I ABOUT HERE

Dependent Variable

The dependent variable in our study is the dissolution of partnership ties at the project level. Through official modality of communication documents, organizations convey information about any changes such as a withdrawal from a project. To establish when an organization withdrew from a project and dissolved a tie, we took the date when this information was submitted to the UNFCCC. Following previous approaches (Park and Russo, 1996; Polidoro, Ahuja and Mitchell, 2011), a dummy variable - *dissolution* - was coded for each tie-dissolution at the project level. The dummy was coded 1 if a tie was dissolved in that year and 0 otherwise.

Independent Variables

Incompatibility between institutional logics. To measure incompatibility of institutional logics, we first considered a CDM project's dominant logic by establishing the type of technology it was based on, i.e. renewable or non-renewable. Notwithstanding the efforts made

to reduce GHG emissions, we argue that organizations whose CDM projects focus on non-renewable technologies are still locked into the fossil-fuel paradigm. While they try to reduce emissions, they fail to do this in a way that would transform the economy by moving away from fossil fuels (Geels, 2010). Their incentive to participate in CDM projects is more closely aligned with the market logic of maximizing private benefits from obtaining CERs at the lowest cost possible, either for financial gain or to comply with regulatory pressure in their home country. CDM projects that focus on renewable technologies not only reduce GHG emissions, but also aim to transform the economy towards a higher uptake of sustainable sources of energy (Olsen and Fenhann, 2008). This transformation is not only technological in nature but also institutional, as it requires changes in "practices, policy, and cultural meanings" (Geels, 2010: 494). Hence, organizations that invest relatively more in renewable energy projects are more closely aligned with a public good logic as part of the benefit does not accrue to them but to the broader society.

In line with existing literature, CDM projects that were based on biomass, biogas, hydropower, wind power, and other renewable energy technologies were classified as renewable energy projects (Olsen and Fenhann 2008). All other projects were classified as non-renewable. We coded renewable projects as 0 and non-renewable projects as 1, and for each organization counted the number of projects in each category. Then, we computed the year-wise proportion of renewable projects by dividing the number of renewable projects by the total number of projects of each organization. To compute our main predictor – *incompatibility* – the difference in proportion of renewable energy projects of each organization in a dyad was computed and denoted as I_r:

$$I_r = |R(i) - R(j)|$$

$$\text{where} \quad R = \frac{Number\ of\ renewable\ energy\ projects}{Total\ number\ of\ projects}$$

The value was taken as a proxy for the difference in partners' institutional logics. The variable can take values from 0 to 1, where 0 represents highly compatible institutional logics and 1 represents highly incompatible logics.

To ensure the validity of the proxy for the incompatibility of institutional logics, we computed two additional variables – *CER revenues* and *sustainable development* – and examined the association with our proxy. As noted, we argue that CDM projects using non-renewable technologies are more closely aligned with the market logic, because organizations engaged in these projects seek to maximize their private benefits from obtaining CERs (Kolk and Mulder, 2011; Ashraf, Meschi and Spencer, 2014). Conversely, organizations engaged in renewable energy projects seem willing to forego some of these private benefits. If the proxy is valid, therefore, the revenues organizations generate from obtaining CERs should be negatively associated with the number of renewable energy projects. We computed *CER revenues* by multiplying CERs of each organization with the carbon price. Given that CER prices were not available until 2008 when its trading started via energy exchanges, and to have carbon prices from a single source (Bluenext – European Emissions Exchange) for the observation years 2005 to 2010, we used spot European Union Allowance (EUA) prices as a proxy for CER prices as the former was mostly used as a base price for the latter. We found that organizations' renewable energy projects have a low and negative correlation with CER revenues ($rho = -0.22$, $p<0.01$).

In addition, we argue that renewable energy projects are more closely aligned with a public good logic, because they aim to contribute to the broader sustainable development agenda (Geels, 2010). Accordingly, efforts to address sustainable development in CDM projects should be positively associated with the number of renewable energy projects. To measure sustainable development, we computed a *sustainable development index* by content-analyzing the collected

1353 CDM project documents to identify the meanings that actors assign to particular practices (Reay and Jones, 2015). Using NVivo, we classified stated CDM projects' benefits into twelve categories: employment creation; welfare or improvement of local living conditions; learning or facilitation of education; reduction of health risks; growth and economic development; improved access to energy; reduction in the use of balance of payment; technology transfer; air quality improvement; water quality improvement; avoiding soil pollution; and conservation and protection and management of resources.[5] A Cohen's Kappa of 0.82 suggests sufficient inter-coder reliability (Neuendorf, 2002). Following Olsen and Fenhann (2008), we then dichotomized the categories based on whether a project had the said benefit or not. To compute a project's sustainable development scores, we aggregated the twelve categories' scores[6] and generated the normalized index (cf. Barnett and Salomon, 2012):

$$S_i = \frac{\sum_{i=1}^{m}\sum_{i=1}^{n}\tau_{i,n}}{m^i},$$

where S_i = *i*th organization's sustainable development index, τ_n = *n*th dimension, and *m* = total projects of organizations *i*. We found that organizations' renewable energy projects are positively correlated with the CDM projects' normalized index of sustainable development benefits (rho = 0.34, $p<0.01$). The correlation statistics for CER revenues and sustainable development benefits with renewable energy projects thus both validate our proxy for the incompatibility of logics.

Resource Dependence. There is a resource dependency between CDM project partners as they depend on each other's complementary skills and resources. For organizations operating in developing countries, the incentives for reducing emissions are to gain access to technology from developed countries' partners, legitimacy in local and international markets, and a first-mover advantage in becoming climate-change resilient. For developed countries' organizations, the

incentives are to earn CERs to comply with climate regulations in their home country, to obtain a favorable position in the carbon market, and to have new avenues to diversify their investment portfolio (Kolk and Mulder, 2011; Ashraf, et al., 2014).

We computed resource dependencies by capturing the "dependence resulting from the magnitude of exchange [and] fraction of business done with a partner" (Gulati and Sytch, 2007: 44). We took into account that such dependencies play out at the industry level and are contingent on the availability of alternatives (Pfeffer and Salancik, 1978; Gulati, 1995) and operationalized inter-industry dependence as the extent to which industries exchange with one another (Casciaro and Piskorski, 2005). Since many organizations in the CDM market were operating as investment vehicles of large groups and information about such vehicles was not available, we used parent organization's industries – four digit US standard industrial classifications (USSIC) codes – to compute inter-industry exchange in the full dataset. The main indicator to assess whether partners have met their objectives from the exchange relationships within the CDM market is the number of CERs earned from working together. While we did not have information about the direction of this inter-industry flow (in terms of purchase and sales), it makes sense to use the magnitude of earned CERs as a reflection of the extent of one industry's dependence on the other.

We developed two variables, one for mutual dependence and one for power imbalance between partners (Casciaro and Piskorksi 2005, Gulati and Sytch, 2007). To operationalize these variables, we first computed the magnitude of exchange of industry i with j (P_{ij}), which is high to the extent that industry i earns CERs by working with industry j. To convert this exchange measure into the dependence of organizations in industry i on those in industry j ($C_{j \to i}$), we multiplied it by the Herfindahl concentration ratio in industry j (H_j), because an industry's

concentration level reflects the number of alternative partners available. We defined the dependence of organizations in industry *i* on organizations in industry *j* as

$$C_{j\to i} = (P_{ij})(H_j)$$

where $P_{ij} = \frac{\sum_{n=1}^{q} Z_{ij}}{\sum_{n=1}^{p} Z_i}$; Z*ij* is the amount of CERs earned by *i* and *j* working together on *q* number of projects; and Z_i is the total amount of CERs of industry *i* earned by working on *p* number of projects. The H index is measured as $\sum_{a=1}^{N} m_a^2$, where *m* is the market share of organization *a* in its relevant industry. When H_j is low, industry *j* is less concentrated and will have more alternative partners available, which reduces the dependence of organizations in industry *i* on those in *j*. Likewise, dependence of organizations in industry *j* on organizations in industry *i* is defined as

$$C_{i\to j} = (P_{ji})(H_i),$$

To compute the power imbalance dimension of the dependence relationship (Casciaro and Piskorksi, 2005), which captures whether organizations in industry *i* depend more on those in industry *j* or vice versa, we took the difference[7] of $C_{j\to i}$ and $C_{i\to j}$:

$$\text{Power imbalance} = C_{j\to i} - C_{i\to j}$$

To compute the mutual dependence dimension of the dependence relationship, which captures the overall magnitude of exchange between organizations in both industries, we added up $C_{j\to i}$ and $C_{i\to j}$:

$$\text{Mutual dependence} = C_{j\to i} + C_{i\to j}$$

To explain the two resource dependence variables intuitively, suppose organizations in industry *i* generate 80% of their CERs by working with organizations in industry *j*, while organizations in industry *j* earn 30% of their CERs by working with organizations in industry *i*. As noted, resource dependencies are not only based on differences in organizations' CERs but

also on the availability of alternative partners. If there are relatively many organizations that operate in industry *i* (e.g., H_i = 0.5), while industry *j* is more concentrated (e.g., H_j = 0.7), the power imbalance[7] between organizations in both industries is 0.41 [(0.8 x 0.7) – (0.3 x 0.5)] and their mutual dependence is 0.71 [(0.8 x 0.7) + (0.3 x 0.5)]. In other words, the magnitude of CER exchange leads to a higher dependence of industry *i* on industry *j*, which is aggravated by the relatively high concentration of industry *j*. Conversely, industry *j* depends less on industry *i* in terms of CER transactions, and it has more alternative trading partners due to industry *i*'s lower concentration level. Hence, there is a considerable imbalance in power which can be a source of tension and lead to a breakup. Nonetheless, the substantial mutual dependence between both partners can be a bonding mechanism for a continued relationship.

Control variables

Social network variables. To control for alternative explanations of partnership dissolution, we analyzed several aspects of organizations' social networks. First, we controlled for asymmetries in network position. Organizations in a central position have a higher status because they have easier access to information and resources in the network (Bothner et al., 2012; Polidoro et al., 2011; Gulati and Gargiulo, 1999). Their higher status makes these organizations attractive to others to have them as partners. The asymmetry in network position will give organizations in a less central position an interest to sustain the relation with more central ones and thus increase the chance of partnership survival. To take this into account, we computed network position based on Bonacich's (1987) centrality measure (Gulati and Gargiulo, 1999; Polidoro et al., 2011), according to which central organizations are those who are linked to highly connected organizations or "who are highly regarded by highly regarded others"

(Bothner, Smith and White, 2010: 950). Following Ferriani, Cattani, and Baden-Fuller (2009), we constructed and then transformed two-mode matrices (actors-by-projects) into one-mode[8] adjacency matrices (actors-by-actors) for each observation year. Using one-mode matrices and UCINET 6 (Borgatti, Everett, and Freeman, 2002), we computed the normalized Bonacich centrality[9] measure and took the absolute difference to compute position asymmetry between two partners.

In addition, we controlled for *network constraint* asymmetry between partners. An organization's network is constraining if "partners are connected to each other" (Greve, Baum, Mitsuhashi, and Rowley, 2010: 312). In a constrained network partners can share tacit knowledge, but in a network with structural holes partners can access diverse and new information. Burt (2005) demonstrated that structural holes across constrained groups are beneficial in terms of access to diverse information. Constraint asymmetry is likely to increase partnership survival because the partnership is a bonding mechanism for organizations to bridge structural holes (Burt, 2005). To control for this asymmetry's influence, we computed Burt's (1992) network constraint measure for each organization in a dyad based on one-mode matrices (actors-by-actors) using UCINET 6 (Borgatti et al., 2002), and then took the absolute difference to compute network constraint asymmetry between two partners.

It could also be that partners' compatibility is a result of "social boundaries around cliques" (Zuckerman, Kim, Ukanwa, and von Rittmann, 2003: 1047) of intermediaries who may act as conduits of institutional logics. In the CDM market, designated operating entities (DOEs) that provide consultancy, legal and auditing services (Kolk and Mulder, 2011) could play a role in stimulating isomorphism (DiMaggio and Powell, 1983) and positively influencing partnership survival. To control for this, we computed *clique concentration* as $hd_p = \sum_d^D \frac{W_{pd}^2}{N_p}$, where p

represents a dyad, d denotes DOEs, W_{pd} is the number of projects audited by d on which p collaborated, and N_p is the total number of projects on which p worked (Zuckerman et al., 2003). To account for the propensity of actors to form partnerships because of having ties in the past, we computed *relational embeddedness* which indicates "the extent to which a pair of organizations (dyad) had direct contact with each other"[10] in the year previous to the observation year (Gulati & Gargiulo, 1999: 25). Previous ties are expected to breed trust and thus enhance partnership survival.

Other control variables. Although we took partnerships between FPOs and NPOs as cross-sector partnerships, we also reckoned with more detailed types of partnership ties by making a distinction between the following categories: private firms and listed state-owned firms (PVT); non-listed government owned and controlled enterprises (SOE); governments (GOV); and NGOs. For this purpose we constructed a categorical variable for the *type of partnership* ties. This variable takes the value 1 for a PVT-NGO partnership tie; 2 for a PVT-SOE tie; 3 for a PVT-GOV tie; 4 for a NGO-SOE tie; 5 for a NGO-GOV tie; 6 for a SOE-GOV tie; 7 for a PVT-PVT tie; 8 for an NGO-NGO tie; 9 for an SOE-SOE tie; and 10 for a GOV-GOV tie. We also controlled for *project size* asymmetry (difference in the sum of average scale of projects in each organization's project portfolio), *project experience* asymmetry (difference of total number of projects of partners), and *registration rate* asymmetry (difference in the rate of success to register CDM projects with UNFCCC, computed by dividing the number of partners' registered projects out of total projects their portfolio). The latter was used to compute the inverse Mill's ratio to control for selectivity bias. We also computed *resource commitment* asymmetry (difference in partners' ratio of projects in which investment was made to import project-specific

technologies) and used this variable to test for potential endogeneity of mutual dependence due to a hold-up problem (Williamson, 1979).

Furthermore, to take into account that partnership dissolution might stem from geographic differences (Reuer and Lahiri, 2014; Mindruta et al., 2016), we controlled for *country-level effects* by computing a categorical variable that captures partnerships between different countries (Polidoro et al., 2011). It takes the value 1 for partnerships between organizations from China and any country other than India; 2 for organizations belonging to India and any country other than China; 3 for organizations belonging to India and China; 4 for organizations both belonging to China; 5 for organizations both belonging to India; and 6 for organizations belonging neither to China nor India. We also took into account whether partnerships were between developing and developed country organizations, or not. We computed a categorical variable *developing-developed* which takes the value 1 if a tie exists between developing and developed country organizations; 2 between two developing country organizations; and 3 between two developed country organizations. We used the UNFCCC classification of non-annex I parties as developing countries and the remainder as developed countries. We also computed a dummy variable for the *cross-border tie*, which takes the value 1 if partners in a dyad belong to different countries (regardless of the UNFCCC developed/developing countries classification), and 0 if they have the same country-of-origin.

Model estimation

We used event history analysis to estimate the effects of incompatible institutional logics and interdependence among partners on the dissolution of partnerships because our unit of analysis was tie-dissolution at the project level. We used this type of analysis to account for the

fact that organizations' withdrawal from projects might lead to a dissolution of a partnership tie for that project only, as well as repeated dissolution events between the same set of organizations during the observation years. The method is appropriate because it takes into account censoring and different entry timings of subjects in the study (Polidoro et al., 2011). Survival analysis models the hazard rate of an event, defined as the conditional probability of the event occurring at time *t* given no occurrence until time *t*-1 (Kalbfleisch and Prentice, 2011). We chose the accelerated failure time lognormal model for our analysis, as it assumes a flexible baseline function, varying with time. This flexibility allowed us to incorporate monotonic and non-monotonic baseline functions, which is appropriate in our case due to the uncertainty in the CDM market and the two trading periods of the EU emissions trading scheme within our observation years (Betz and Sato, 2006). In accelerated failure time models, the dependent variable – duration of partnership until dissolution – is log-linearly related to other independent variables:

$$\ln (T)=\beta_0 +\beta_i X_{i,k} +\alpha\mu,$$

where β_0 is the constant, β_i is the effect of independent variables on the dependent variable, and $\alpha\mu$ is the scale parameter of distribution (Park and Russo, 1996). In these models, a positive sign is interpreted as an increase and a negative sign as a decrease in survival time of the partnership. An increase in survival time decreases the hazard of dissolution while a decrease in survival time increases the hazard of dissolution. These survival times are linked with the hazard of dissolution (Park and Russo, 1996: 884) in lognormal distribution as

$$h(t) = \frac{(exp-([(log(t)-\beta o)]^2)/2\alpha^2)}{(\sqrt{2\pi})\alpha t[1-\varphi((\log(t)-\beta o)/\alpha},$$

where φ is the cumulative distribution function for log normal distribution.

Our sample was not randomly selected. To account for potential selection bias, we controlled for organizations' propensity to form partnerships (Polidoro et al., 2011). We

followed a Heckman two-step procedure by including second-stage variables[11] in the selection equation, using registration rate as an instrument variable. We considered registration rate as an instrument because it affects the propensity to form CDM project partnerships, but not the dissolution of such partnerships. The first milestone in the CDM project cycle is to register a project with UNFCCC. Organizations with a successful track record in this regard would make them sought-after partners. We expect that organizations' differential success rate to register CDM projects would affect the formation of partnerships between project participants. However, after the formation such asymmetric competencies of partners would not affect the continuation of the partnership for potential registration of future projects. After going through the whole cycle of project registration, such asymmetric competency would be redundant given the explicit nature of project registration knowledge (Kolk and Mulder, 2011). Therefore, we do not expect registration rate to affect partnership dissolution. Furthermore, our tests show that the instrument variable (registration rate) did not affect the survival time or hazard of partnership dissolution (Hamilton and Nickerson, 2003).[12]

We computed the inverse Mill's ratio using a Probit model ($\chi 2 = 2100$, $p < 0.01$), which predicted an organization's probability of forming a partnership with a success rate of 69.40% (see Table II). The resulting inverse Mill's ratios were used as one of the regressors in all the models. We estimated the models step-wise: we estimated model 1 with control variables, introduced *incompatibility* with controls in model 2*,* followed by *power imbalance* and *mutual dependence* along with the interaction effects in models 3 and 4, respectively. The robust standard errors, adjusted for clustering at the dyads of cross-sector partners were computed (Polidoro et al., 2011), as it allows for non-independence of observations and corrects for group-wise heteroskedasticity (Greene, 2003). To account for the fact that actors' ties might have

already been dissolved but were acknowledged only after being communicated officially to the UNFCCC, we followed Greve et al. (2010) by lagging all the predictors.

INSERT TABLE II ABOUT HERE

RESULTS

There were significant correlations between the variables (see Table III). However, the variance inflation factors (VIF) of all the variables were found to be less than 6, suggesting that there was no issue of multicollinearity. In the following, we explain the results of our models (see Table IV).

INSERT TABLES III AND IV ABOUT HERE

As Table IV shows, the fitness of model 2 (AIC=2484) is better than base model 1 (AIC=2500). These results support hypothesis 1 that incompatibility (β= -0.276, $p < 0.01$) decreases the survival time and increases the hazard of dissolution among cross-sector partners, ceteris paribus. In Model 3, the interaction[13] of power imbalance and incompatibility (β= -0.044, p = 0.03) is statistically significant, suggesting a moderation effect of power imbalance. To analyze the impact of varying degrees of power imbalance with varying levels of incompatibility, the interaction plot was drawn (see Figure 1) at one standard deviation above and below the mean for ease of interpretation. The interaction plot suggests that, as incompatibility increases, a higher power imbalance between cross-sector partners decreases the survival time and increases the hazard of the partnership's dissolution. Low power imbalance between partners increases the survival time and decreases the hazard of dissolution, which supports hypothesis 2.

INSERT FIGURE 1 AND 2 ABOUT HERE

In Model 4, the interaction of mutual dependence and incompatibility (β= 0.073, p = 0.02) is statistically significant. The interaction plot (see Figure 2) shows that, as incompatibility increases, it increases the survival time for more mutually dependent partners, while it decreases for less mutually dependent partners. This points out that the hazard of dissolution is high for partners with low mutual dependence in comparison to those with high mutual dependence. This finding lends support to hypothesis 3 that with an increase in mutual dependence the impact of incompatible logics on the hazard of dissolution will be lower.

The results (model 5) show that there is no three-way interaction effect between incompatibility, power imbalance and mutual dependence (β= 0.004, p > 0.1). Looking at the controls, models 2 to 5 show that network position and constraint asymmetries positively affect partnership survival time, as expected. Furthermore, the results show that project size asymmetry and relational embeddedness negatively affect the survival time of the partnership. The negative effects of project size asymmetry suggest that organizations are more likely to form and sustain partnerships with those who share similar project size portfolios. The effects of relational embeddedness are more counterintuitive. The findings suggest that organizations prefer to seek and maintain new relationships in the carbon market instead of relying on partners from the past.[14] Compared to the base category, i.e. partnerships between organizations from China and other countries, the results show positive effects of country-level dummies on survival time. Relative to intra-border ties, cross-border ties positively affect the survival time, and this relation is statistically significant ($p < 0.01$) in all the models.

Robustness Checks

To check for robustness of our results and rule out the possibility of unobserved heterogeneity, particularly considering the fact that we did not have information about the specific contractual terms and conditions between the partners that can be a source of bias in our estimates, we ran frailty models (see models 6 to 9) based on gamma distribution with log-normal baseline. The estimates of the frailty component (θ) with lognormal baseline models are near zeros, suggesting that unobserved heterogeneity is not a concern in our models (2 to 5) and our results are robust to these specifications. Furthermore, considering that mutual dependence may also be considered as endogenous due to mutual hold-up, following Tchetgen and colleagues (2015), we estimated models that regressed mutual dependence against survival regression variables plus inverse Mill's ratio and used resource commitment asymmetry[15] as an instrument. The computed residuals were then used in the survival regression as one of the predictors. The results remained consistent.

Post-Hoc Analysis

To gain a more fine-grained insight into our hypothesized relationships, we first probed partners' differential sensitivity to power asymmetries. We found that when NPOs depend on FPOs, incompatibility increases the hazard of dissolution (β=-0.344, $p < 0.01$). Power imbalance (β=-0.077, $p < 0.1$) augments this relationship, whereas mutual dependence (β=0.098, $p < 0.1$) decreases the hazard of partnership dissolution. However, these effects are not statistically significant when FPOs depend on NPOs. This makes sense intuitively as we expect NPOs to be more heavily depending on resources from FPOs than vice versa, because FPOs tend to have a larger resource endowment overall.

While we focused on cross-sector partnerships between FPOs and NPOs in our main analysis, our sample also contained projects that consisted either of FPOs or NPOs only. Since both categories are aggregates of a diverse set of organizations – i.e., FPOs consist of private firms as well as publicly-listed state-owned firms, while NPOs are made up of non-governmental organizations and governments – we also expected an incompatibility of logics in intra-sector partnerships, i.e. FPO-FPO partnerships and NPO-NPO partnerships. While both non-governmental organizations and governments are considered NPOs, for example, their respective behaviors are not fully guided by the same institutional logics. Moreover, with the blurring of the sectoral boundaries (Kivleniece and Quelin, 2012; Pache and Santos, 2010; Teegen et al., 2004), the public good and market logics do not always follow clear demarcation lines between the sectors. Within sectors, organizations will show different shades of grey with regard to their imprinted logics. In pursuing CDM projects, private firms could follow different logics, for example. While we argued that firms tend to approach CDM projects from a market logic, e.g. to obtain CERs for the private benefit of an additional revenue stream, there might be firms that approach them from a public good logic instead when they consider their engagement in the carbon market as an expression of their social responsibility.

Hence, we also probed whether incompatibility between *intra-sector* partners affects the survival of partnership. The results show that incompatible logics indeed affect partnership dissolution in intra-sector partnerships.[16] However, we found weak support that incompatibility increases the hazard of dissolution of intra-sector partnerships in general (β=-0.157, $p < 0.1$); this effect is only highly significant in NPO-NPO partnerships (β= -0.570, $p < 0.01$). The moderation effects of power imbalance and mutual dependence are not found to be statistically significant either in NPO-NPO or FPO-FPO partnerships. This post-hoc analysis thus suggests that the NPO

category seems more heterogeneous than the FPO category in terms of institutional logics. Besides, it is the incompatibility of logics that is creating the challenge between partners rather than the sectoral background per se. Nonetheless, in view of the more generally significant results of incompatibility in cross-sector partnerships compared to intra-sector partnerships, the clash between the market and public good logics seems more evident, the more disparate the sectoral background of the partnering organizations.

DISCUSSION AND CONCLUSION

Discussion of findings

In this study, we investigate factors that determine whether cross-sector partnerships can be sustained for a considerable period of time or dissolve after a brief existence. In cross-sector partnerships, organizations face the challenge of dealing with different institutional logics of their partners, while relying on each other's resources. On the one hand, extant research tends to focus on organizations' resource profiles as a basis for a partnership's success (Gulati and Sytch, 2007); yet, an analysis of the impact of different institutional logics of partners is absent. On the other hand, previous studies have discussed individual and organizational level mechanisms that partners use to mutually adjust their organizational routines and expectations (Wang et al., 2008; Katila et al., 2008; Seitanidi and Crane, 2009). However, the role of resource dependencies as a way to resolve conflicts of competing institutional logics has not received much attention (Di Domenico et al., 2009; Le Ber and Branzei, 2010; Wry et al., 2013). To address this gap, we integrate elements from resource dependence theory and the institutional logics perspective to gain a better understanding of factors that might undermine the survival of cross-sector partnerships.

In line with previous findings, we argue that an understanding of the way in which incompatible institutional logics manifest themselves in cross-sector partnerships is critical and has significant implications for predicting the survival of a partnership. We specifically focus on one of the most pertinent sources of institutional complexity in cross-sector partnerships: the incompatibility between the public good logic and the market logic (Mars and Lounsbury, 2009). This study's findings support our first hypothesis indicating that an incompatibility between institutional logics negatively affects the survival of a cross-sector partnership. Another principal finding is that, although incompatible logics pose challenges for cross-sector partnerships, the negative effect of incompatible logics is mitigated by the degree of resource interdependence between organizations. While mutual dependence counteracted the impact of incompatible logics, power imbalance further increased the adverse impact of an incompatibility. Given the disparate moderation effects of both components of resource dependence, our findings thus lend further support to the need to distinguish between power imbalance and mutual dependence (Casciaro and Piskorski, 2005; Gulati and Sytch, 2007).

Overall, a cross-sector partnership's highest probability of survival occurs when there is a low incompatibility between partners' institutional logics and high mutual dependence. In such cases, partners rely on each other's resources without being able to impose exchange conditions. Since the tension between the institutional logics is low, partners are more open to adapt to alternative institutional logics. However, even if logics are highly incompatible, so long as mutual dependence is high, partners have the interest to sustain the relation because they consider it as strategically important. High mutual dependence compels cross-sector partners to opt for compromise to find a way to deal with competing logics. Partners will feel the need to look for pragmatic solutions beyond any widespread belief system. In contrast, the results show

that power imbalance intensifies the adverse impact of incompatible logics on partnership survival. This moderating effect suggests that the less dependent organization exercises its power by attempting to impose its institutional logics on others in the partnership. Under this scenario, the tension in the partnership is high, because each partner holds on to its norms, values, and practices. Since the tension could become insurmountable, it will lead to a breakup of the partnership, instead of an attempt to accommodate the institutional logics of the partners.

Theoretical implications

Theoretically, this paper contributes to an understanding of the failure of cross-sector partnerships by integrating elements from institutional logics and resource dependence theory. While a review of the alliance literature reveals an extensive list of reasons for the failure of partnerships between firms (Park and Ungson, 2001), little is known about the specific reasons why cross-sector partnerships fail. What makes cross-sector partnerships distinctive is the fact that practices of for-profit and non-profit organizations bear the imprint of different institutional logics (Vurro et al., 2010). The findings suggest that the incompatibility between the market logic and public good logic of cross-sector partners negatively affects the survival of partnerships. However, despite the detrimental impact of rivalry between institutional logics on partnership success, mutual dependence between partners can stabilize a partnership, so long as a balance of power is achieved between organizations. The study thus provides insight into how resource dependencies and institutional logics interact in the context of cross-sector partnerships. Our study also lends support to Binder (2007) who argued that organizations approach the institutional complexity neither in a purely rational way nor by blindly following

institutionalized scripts. Rather, organizations choose a middle ground, contingent on the level of dependency and incompatibility between institutional logics.

By bringing in insights from resource dependence theory, this study contributes to the institutional logics literature and adds a new dimension to our understanding of the way organizations deal with institutional complexity (Wry et al., 2013). This study highlights the important role of resource dependence in resolving institutional complexity, accounting for the dynamics of the material elements of institutional logics. Friedland and Alford (1991) argued that society and social relations include both material and symbolic elements. Material aspects of institutions refer to structures and practices; while symbolic aspects refer to ideation and meaning (Thornton et al., 2012). The institutional logics perspective emphasizes the interpenetration of the symbolic and material aspects of institutions. However, previous research has tended to focus on symbolic and normative aspects of logics (Le Ber and Branzei, 2010; Di Domenico et al., 2009). This study's findings show that the clash between organizational values and culture (symbolic aspect) could be better understood by considering the mutual dependency of partners at a practice level (material aspect).

Managerial implications

The results of this study also have managerial implications. Managers who seek to engage in cross-sector partnerships for instrumental reasons must look for partners who share their values, culture, and logics. Partners with incongruent logics face many problems. For instance, FPOs and NPOs tend to use different forms of control systems and performance evaluations. The control system in NPOs may be informal with features such as tolerance for mistakes, ease of access of employees to managers, open channels of communication and informal meetings,

consensus and participative decision-making and sharing of information between employees. What is most important to them is to ensure that the public objective of the partnership is achieved. FPOs are more likely to safeguard their private objectives and utilize formal control processes for this purpose (Chenhall et al., 2010). Directors in NPOs are reluctant to implement such formal control systems, since they find them irrelevant and impractical to accomplish their public objective. Furthermore, exploiting such systems requires training of current members as well as recruiting ones to ensure that the new formal controls are performed effectively in NPOs. NPO directors resent performing such changes in the structure of the workforce (Ebrahim, 2005). Resource dependency adds more pressure on managers either to adapt and fall in line, or to quit the partnership. We caution that risks associated with seeking complementary resources through cross-sector partnerships might impede long-term collaboration at the cost of reputation and legitimacy.

Limitations and future research

Despite using an original and extensive dataset to test our hypotheses, the particular empirical context of this paper (i.e. the carbon-offset market), a large number of Chinese organizations,[17] and the lack of contract-level information may limit the generalizability of our findings. Furthermore, compared to other cross-sector partnerships, the rules surrounding CDM projects are more clearly defined, as it is a legal mechanism governed by the United Nations. Still, we expect that much of the cross-sector dynamics will be similar in partnerships that do not operate in such a highly institutionalized environment. Nonetheless, as an avenue of further research, it would be interesting to see if the results hold for cross-sector partnerships in other contexts. For partnerships where organizations collaborate on a fully voluntary basis one would

expect that the lack of clearly defined rules would limit the partnership survival time. Then again, the voluntary nature might also mean that disparate logics would form less of a problem, as all partners would make the deliberate choice to work with organizations from different backgrounds. Furthermore, it would be interesting to explore the effect of institutional logics on the matching and selection of partners (Mindruta et al., 2016). While our study focused on the dissolution of partnerships, more research is needed to understand how organizations make a choice to partner with certain organizations and not with others.

Existing research has identified different scenarios for how competition between incompatible logics plays out (Kraatz and Block 2008; Pache and Santos, 2010; Battilana and Dorado, 2010; Lounsbury, 2007; Greenwood et al., 2011). As Meyer and Hollerer (2010: 1251) argue: "There are multiple ways in which multiple logics can interact: logics may peacefully co-exist, compete with one another, supersede each other, provide an opportunity for blending or hybridization, or result in a compromise or temporary co-existence". While our study provides empirical support for a co-existence scenario, i.e. if there is a low incompatibility and high mutual dependence; it would be interesting to examine to what extent the interaction between resource dependence might lead to hybridization configurations (Battilana and Dorado, 2010). We expect that in cross-sector partnerships, the higher the mutual dependence, the more likely partners will try to find a compromise. When power imbalance and incompatibility between logics are high, our findings suggest that the logics of the more powerful partner will supersede those of the less powerful ones. Future research can explore the specific organizational mechanisms that allow for hybridization of institutional logics. Finally, as our post-hoc analysis shows, an incompatibility of logics will not only play out between FPOs and NPOs, but also between organizations that operate within these broad categories. Future research could thus

develop more fine-grained analyses that focus on the impact of differences in logics between a more diverse set of actors.

NOTES

[1] http://pub.iges.or.jp/index.html

[2] https://cdm.unfccc.int/

[3] https://mintglobal.bvdinfo.com

[4] http://www.stats.gov.cn/english/

[5] See Olsen and Fenhann (2008) for details about the definitions of these categories.

[6] Barnett and Salomon (2012) sum the KLD scores along thirteen performance criteria.

[7] The magnitude of power imbalance between partners remains the same. However, its direction for organizations in i and j will be different; both specifications of power imbalance i.e. $C_{j\to i} - C_{i\to j}$ and $C_{i\to j} - C_{j\to i}$ yield similar results (available with authors). Considering the cross-sector and cross-border partnerships in the CDM market, the exchange and power relations between industries can be expected to be asymmetric given their differential needs (Kolk and Mulder, 2011; Ashraf et al., 2014). This computation of power imbalance is also in line with studies that measure power asymmetry's direction as well as magnitude (Gulati and Sytch, 2007).

[8] Actors who were working on projects (2-model network) are assumed to have partnerships with each other (1-mode network). The transformation into one-mode matrices was motivated by theoretical reasons to learn about actor-level dynamics (Ferriani et al., 2009).

[9] We selected the highest positive beta (default in UNICNET 6) to compute the Bonacich centrality measure. In doing so, we followed existing approaches in the literature to capture asymmetries due to actors' position, status and access to information (Gulati and Gargiulo, 1999). Negative beta values capture power dependencies (Rodan, 2011), which are already captured through our dependence measures.

[10] *Network constraint* and *relational embeddedness* are related measures, but capture different aspects of a social network. While the former captures the triadic structure i.e. whether organizations' partners have relationships with each other, the latter captures the dyadic structure of organizations' direct ties with their partners.

[11] Interaction effects were excluded due to collinearity. Polidoro et al. (2011) also did not include interaction effects.

[12] The results of this analysis are available with the authors.

[13] Results of insignificant direct effects of power imbalance and mutual dependence on the dissolution of partnerships are omitted to conserve space.

[14] Further analysis shows that relational embeddedness positively and significantly affects partnership survival in the case of FPO-FPO partnerships only.

[15] It is a weak instrument, as it may affect dissolution. However, we could not find such an effect (results available with the author). Our results remained consistent if resource commitment is used as control variable.

[16] Further analysis (using the SUEST command in STATA 14) shows that coefficients of incompatibility in both cross-sector and intra-sector models are not statistically different (χ^2= 1.44, p>0.1).

[17] In our data, more ties exist between organizations that belong to countries other than China or India. At the tie level – our unit of analysis – the sample thus captures the diversity, despite the dominance of Chinese organizations in the carbon market. Nevertheless, we acknowledge this as one of the limitations of our study.

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Table I: Yearly Trend in Sample Statistics [a]

	2005	2006	2007	2008	2009	2010
Total project level partnerships ties	**220**	**612**	**3,952**	**5,916**	**9,041**	**7,064**
Cross-sector ties	30	92	1071	1771	2899	2268
Intra-sector ties	190	520	2881	4145	6142	4796
Organizational level partnerships ties	**218**	**472**	**2516**	**3621**	**4214**	**3281**
Cross-sector organizational level partnership ties	30	84	712	1061	1174	941
Intra-sector partnership ties	188	388	1804	2560	3040	2340
Geographic distribution %						
Indian organizations	21.51	12.56	5.57	5.45	6.56	10.33
Chinese organizations	6.45	10.76	24.86	30.16	20.93	18.63
% in the sample						
Private for-profit firms	81.82	80.17	76.55	75.19	75.71	77.89
State owned enterprises	13.64	16.38	20.60	22.48	22.15	19.05
Government -ministries/departments	3.03	2.16	2.06	1.74	1.53	2.10
Non-governmental –organizations	1.52	1.29	0.79	0.58	0.61	0.96
For-profit organizations (%)						
Private Firms	94.74	96.88	96.79	96.76	96.68	96.37
Listed State-owned firms	5.26	3.13	3.21	3.24	3.32	3.63
Not-for-profit organizations (%)						
Government ministries/public sector organizations	66.67	62.50	72.22	75	71.43	69.56
Non-governmental- organizations	33.33	37.50	27.78	25	28.57	30.44
Renewable energy projects (%)						
Biogas	6.67	20.87	9.16	6.49	6.07	9.23
Biomass	13.33	24.76	17.08	13.32	12.81	15.67
Wind Power	23.33	7.77	9.78	12.20	13.54	14.58
Hydro Power	13.33	11.65	31.83	36.94	36.69	26.89
Other renewable energies	0.00	1.94	0.78	0.69	0.60	0.75
Renewable projects of FPOs (% normalized by number of FPOs)	5	6	6	6	6	6
Renewable projects of NPOs (% normalized by number of NPOs)	20	16	16	14	14	14
Total CERs (in metric tons)	2292	5109	12000	8891	10500	7758
CER Prices (Euros, per metric ton)	22.52	17.33	0.66	0.02	13.02	14.4

[a] In 2010: total organizations = 1312; total projects =1500; total organizations in population=4019

Table II: Results of the Probit Model Predicting Organization's Probability of Forming the Partnership[a]

VARIABLES	Model 1	% change[b]
Incompatibility	-0.028(0.026)	-0.010
Power imbalance	-0.001(0.0004)	-0.0002
Mutual dependence	0.002**(0.0004)	0.001**
Project size	-0.094**(0.025)	-0.033
Project experience	-0.0004† (0.0002)	-0.0001
Relational embeddedness	-0.031**(0.004)	-0.011**
Network position	-0.002**(0.0003)	-0.001**
Clique concentration	0.021*(0.008)	0.007
Registration rate	-0.245**(0.028)	-0.087**
India-other ties	-0.646**(0.052)	-0.187**
India- India ties	-0.939**(0.223)	-0.236**
Other-Other ties	-0.312**(0.032)	-0.115**
Cross-border ties	0.290**(0.024)	0.096*
Developing-developing ties	-0.437**(0.078)	-0.136*
Developed-developed ties	0.145**(0.028)	0.050†
NGO-SOE ties	1.328**(0.148)	0.488**
SOE-GOV ties	0.545**(0.035)	0.209**
SOE-SOE ties	0.853**(0.040)	0.329**
Constant	-0.445**(0.037)	
Log-likelihood	-20386	
$\chi 2$	2100	
Percent correctly predicted	69.40 %	

** p<0.01, * p<0.05, † p<0.10, two-tailed test

[a] Number of observations= 34,165; Observation period: 2005 to 2010. Robust standard errors are in parentheses.

[b] Change in probability per unit change in predictors.

Table III: Descriptive statistics and correlations[a]

#	Variables	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12
1	Incompatibility (I)	0.211	0.321												
2	Power imbalance (PI)	0.219	24.68	-0.006											
3	Mutual dependence (MD)	1.705	30.43	-0.01*	0.275*										
4	Project size	0.219	0.33	0.297*	0.018*	0.086*									
5	Project experience	25.27	41.51	0.423*	-0.0004	0.013*	0.227*								
6	Network position	14.97	32.43	0.264**	-0.0003	0.003	0.224**	0.143**							
7	Network constraint	0.179	0.286	0.332**	-0.002	-0.006	0.367**	0.167**	0.158**						
8	Clique concentration	0.729	0.967	-0.067**	0.006	0.006	-0.082**	-0.121**	-0.103**	-0.148**					
9	Relational embeddedness	1.209	3.318	0.137**	-0.006	0.01†	-0.022**	0.115**	0.023**	-0.02**	-0.15**				
10	Registration rate	0.174	0.322	0.229**	-0.003	-0.011*	0.328**	0.129**	0.126**	0.401**	-0.225**	0.035**			
11	Resource commitment	0.171	0.237	0.236**	0.008	0.027**	0.369**	0.246**	0.153**	0.368**	-0.099**	0.061**	0.629**		
12	India-other ties	0.039	0.193	0.141**	0.0003	-0.0004	0.115**	-0.014**	0.139**	0.213**	-0.086**	-0.012*	0.103**	0.147**	
13	India-China ties	0.0001	0.011	-0.005	-0.0004	-0.0001	-0.007	-0.005	0.0002	0.009	-0.001	-0.001	-0.005	0.007	-0.002
14	China-china ties	0.001	0.024	-0.012**	-0.0002	-0.001	-0.016**	-0.012*	-0.011*	-0.014**	-0.018**	-0.006	0.02**	-0.02**	-0.005
15	India-India ties	0.005	0.073	-0.011*	-0.0002	0.005	-0.023**	-0.04**	0.006	0.01*	-0.032**	-0.008	-0.004	-0.025**	-0.015**
16	Other-Other ties	0.821	0.383	-0.24**	0.01*	0.005	-0.253**	-0.108**	-0.146**	-0.421**	0.224**	0.071**	-0.325**	-0.265**	-0.43**
17	PVT-SOE ties	0.253	0.435	0.03**	-0.005	-0.016**	0.047**	0.009*	0.044**	0.059**	0.021**	-0.045**	0.054**	0.022**	-0.022**
18	PVT-GOV ties	0.152	0.359	-0.106**	0.002	0.036**	-0.088**	-0.037**	-0.069**	-0.136**	0.039**	-0.039**	-0.144**	-0.098**	-0.076**
19	NGO-SOE ties	0.003	0.051	-0.004	-0.002	0.002	-0.003	-0.015**	0.009†	0.019**	0.025**	0.0003	0.025**	0.035**	-0.01*
20	NGO-GOV ties	0.001	0.026	-0.009†	0.069**	0.068**	0.006	-0.002	-0.005	-0.014**	-0.012*	-0.007	0.01*	-0.002	-0.005
21	SOE-GOV ties	0.041	0.199	-0.03**	0.022**	0.015**	-0.022**	-0.021**	-0.019**	-0.041**	0.019**	-0.02**	-0.059**	-0.03**	-0.042**
22	PVT-PVT ties	0.494	0.5	0.053**	-0.007	-0.019**	0.012*	0.036**	0.005	0.042**	-0.053**	0.084**	0.073**	0.054**	0.111**
23	NGO-NGO ties	0004	0.021	-0.002	-0.0002	-0.001	-0.014**	-0.01*	-0.003	0.003	-0.011*	-0.006	0.003	0.002	-0.004
24	SOE-SOE ties	0.034	0.182	0.054**	-0.003	-0.004	0.061**	-0.008	0.052**	0.079**	-0.016**	-0.014*	0.046**	0.028**	-0.038**
25	GOV-GOV ties	0.017	0.128	-0.034**	-0.001	-0.006	-0.01*	-0.006	-0.019**	-0.038**	0.007	-0.017**	-0.057**	-0.021**	-0.026**
26	Cross-border ties	0.877	0.329	0.118**	0.002	0.016**	0.144**	0.132**	0.062**	0.13**	-0.067**	0.012*	0.094**	0.125**	0.075**
27	Developing-developing ties	0.025	0.157	0.047**	0.001	-0.002	-0.007	-0.063**	0.081**	0.069**	-0.083**	0.01*	0.022**	-0.039**	0.273**
28	Developed-developed ties	0.713	0.452	-0.281**	0.011*	-0.003	-0.318**	-0.187**	-0.127**	-0.456**	0.295**	0.012*	-0.39**	-0.338**	-0.317**

**p<0.01, *p<0.05, †p<0.1

13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
-0.0002														
-0.001	-0.002													
-0.023**	-0.05**	-0.158**												
0.018**	-0.014**	-0.033**	-0.124**											
-0.004	-0.01*	-0.031**	0.179**	-0.247**										
-0.001	-0.001	-0.004	-0.026**	-0.03**	-0.022**									
-0.0003	-0.001	-0.002	0.012*	-0.015**	-0.011*	-0.001								
-0.002	-0.005	-0.015**	0.075**	-0.121**	-0.088**	-0.011*	-0.005							
-0.01*	0.014**	0.066**	-0.015**	-0.575**	-0.419**	-0.051**	-0.025**	-0.205**						
-0.0002	-0.0005	-0.002	0.01	-0.012*	-0.009†	-0.001	-0.001	-0.004	-0.021**					
-0.002	0.021**	-0.014**	-0.143**	-0.11**	-0.08**	-0.01*	-0.005	-0.039**	-0.186**	-0.004				
-0.001	-0.003	-0.01*	0.061**	-0.076**	-0.055**	-0.007	-0.003	-0.027**	-0.129**	-0.003	-0.025**			
0.004	-0.063**	-0.197**	-0.127**	-0.001	0.099**	0.013*	0.01*	0.069**	-0.131**	-0.008†	0.049**	0.044**		
0.065**	0.146**	0.457**	-0.196**	-0.068**	-0.057**	-0.008†	-0.004	-0.034**	0.127**	-0.003	-0.015**	-0.021**	-0.211**	
-0.017**	-0.037**	-0.116**	0.736**	-0.077**	0.206**	-0.01*	0.016**	0.097**	-0.104**	-0.022**	-0.099**	0.081**	-0.143**	-0.255**

TABLE IV: Lognormal Estimates of Influences on the Partnership Dissolution [a]

	Lognormal Models					Gamma Frailty Models			
VARIABLES	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**	**Model 7**	**Model 8**	**Model 9**
Incompatibility (I)		-0.276**	-0.278**	-0.325**	-0.326**	-0.276**	-0.278**	-0.325**	-0.326**
		(0.105)	(0.105)	(0.107)	(0.107)	(0.105)	(0.105)	(0.107)	(0.107)
Power imbalance (PI)			0.0003		0.001		0.0003		0.001
			(0.0002)		(0.001)		(0.0002)		(0.001)
I x PI			-0.044*		-0.072†		-0.044*		-0.072†
			(0.019)		(0.040)		(0.019)		(0.040)
Mutual dependence (MD)				0.001	0.001†			0.001	0.001†
				(0.0005)	(0.001)			(0.0005)	(0.001)
I x MD				0.073*	0.080*			0.073*	0.080*
				(0.032)	(0.040)			(0.032)	(0.040)
PI x MD					3.80e-07				3.80e-07
					(6.58e-07)				(6.58e-07)
I x PI x MD					0.004				0.004
					(0.003)				(0.003)
Project size	-0.658**	-0.639**	-0.640**	-0.659**	-0.662**	-0.639**	-0.640**	-0.659**	-0.662**
	(0.095)	(0.097)	(0.096)	(0.097)	(0.097)	(0.097)	(0.096)	(0.097)	(0.097)
Project experience	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Network position	0.006**	0.007**	0.007**	0.007**	0.007**	0.007**	0.007**	0.007**	0.007**
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Network constraint	0.618**	0.670**	0.669**	0.668**	0.664**	0.670**	0.669**	0.668**	0.664**
	(0.130)	(0.138)	(0.137)	(0.135)	(0.135)	(0.138)	(0.137)	(0.135)	(0.134)
Relational embeddedness	-0.124**	-0.126**	-0.126**	-0.130**	-0.131**	-0.126**	-0.126**	-0.130**	-0.131**
	(0.040)	(0.042)	(0.042)	(0.039)	(0.038)	(0.042)	(0.042)	(0.039)	(0.038)
Clique concentration	-0.0005	0.005	0.005	0.017	0.017	0.005	0.005	0.017	0.017
	(0.047)	(0.050)	(0.049)	(0.047)	(0.046)	(0.050)	(0.049)	(0.047)	(0.046)
India-other ties	0.652*	0.663*	0.662*	0.597†	0.590†	0.663*	0.662*	0.597†	0.590†
	(0.303)	(0.307)	(0.308)	(0.311)	(0.311)	(0.307)	(0.308)	(0.311)	(0.311)
India- India ties	3.837**	3.783**	3.632**	3.196**	3.219**	5.568**	5.365**	5.040**	4.923**
	(0.396)	(0.397)	(0.399)	(0.409)	(0.408)	(0.408)	(0.407)	(0.414)	(0.413)

Other-Other ties	0.405**	0.391**	0.391**	0.356**	0.351**	0.391**	0.391**	0.356**	0.351**
	(0.122)	(0.124)	(0.124)	(0.125)	(0.124)	(0.124)	(0.124)	(0.125)	(0.124)
NGO-SOE ties	0.366	0.423	0.428	0.502	0.512	0.423	0.428	0.502	0.512
	(0.368)	(0.368)	(0.368)	(0.362)	(0.361)	(0.368)	(0.368)	(0.362)	(0.361)
SOE-GOV ties	0.205	0.227	0.232	0.248†	0.251†	0.227	0.232	0.248†	0.251†
	(0.143)	(0.146)	(0.147)	(0.145)	(0.144)	(0.146)	(0.147)	(0.145)	(0.144)
Cross-border ties	0.550**	0.596**	0.597**	0.616**	0.617**	0.596**	0.597**	0.616**	0.617**
	(0.139)	(0.144)	(0.144)	(0.144)	(0.143)	(0.144)	(0.144)	(0.144)	(0.143)
Developing-developing ties	0.298	0.263	0.260	0.210	0.204	0.263	0.260	0.210	0.204
	(0.272)	(0.274)	(0.274)	(0.274)	(0.274)	(0.274)	(0.274)	(0.274)	(0.274)
Developed-developed ties	0.010	0.038	0.036	0.044	0.044	0.038	0.036	0.044	0.044
	(0.099)	(0.101)	(0.101)	(0.101)	(0.100)	(0.101)	(0.101)	(0.101)	(0.100)
Inverse Mill's ratio	0.142	0.086	0.080	-0.025	-0.038	0.086	0.080	-0.025	-0.038
	(0.272)	(0.280)	(0.281)	(0.290)	(0.288)	(0.280)	(0.281)	(0.290)	(0.288)
Constant	0.916**	0.845*	0.841*	0.724*	0.714*	0.845*	0.841*	0.724*	0.714*
	(0.345)	(0.352)	(0.354)	(0.361)	(0.359)	(0.352)	(0.354)	(0.361)	(0.359)
Log-likelihood	-1233	-1224	-1222	-1218	-1216	-1224	-1222	-1218	-1216
AIC	2500	2484	2484	2477	2480	2486	2486	2478	2482
Log-normal parameter (σ)	0.687	0.696	0.695	0.692	0.691	0.696	0.695	0.692	0.691
Overdispersion frailty parameter (Θ)						1.82e-07	4.20e-07	1.54e-06	9.82e-07

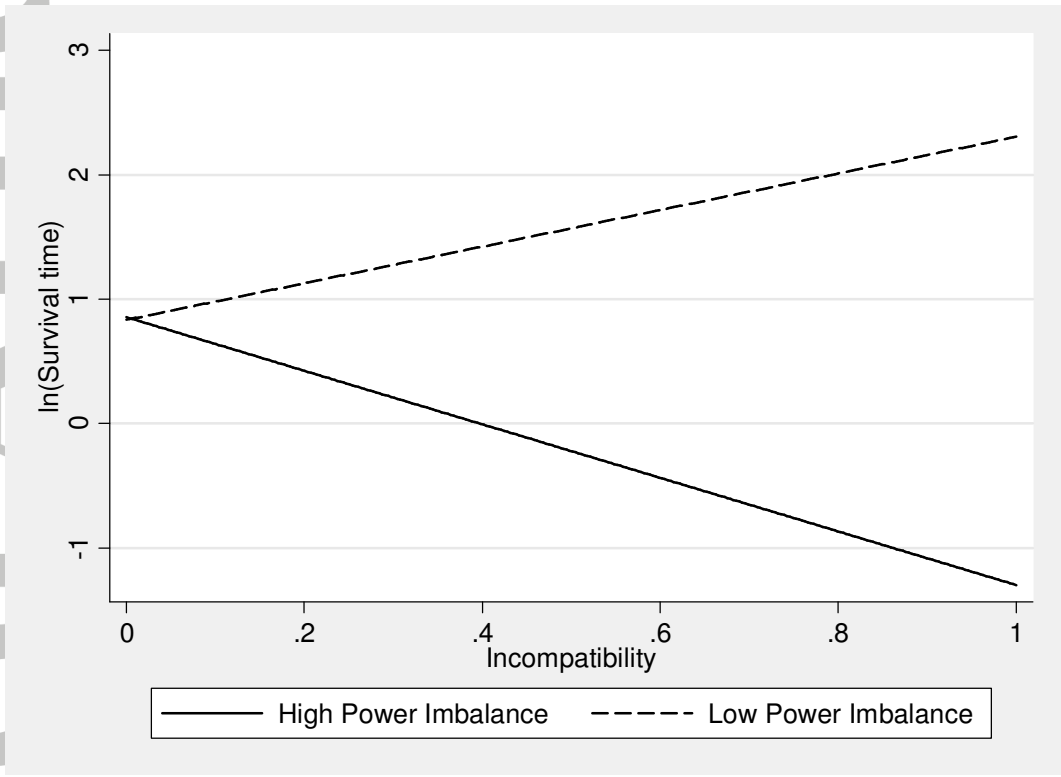
** p<0.01, * p<0.05, † p<0.10, two-tailed test

Robust standard errors in parentheses

Observations = 5,735; Subjects=2897; Dyads=1172; Failure/ties = 630

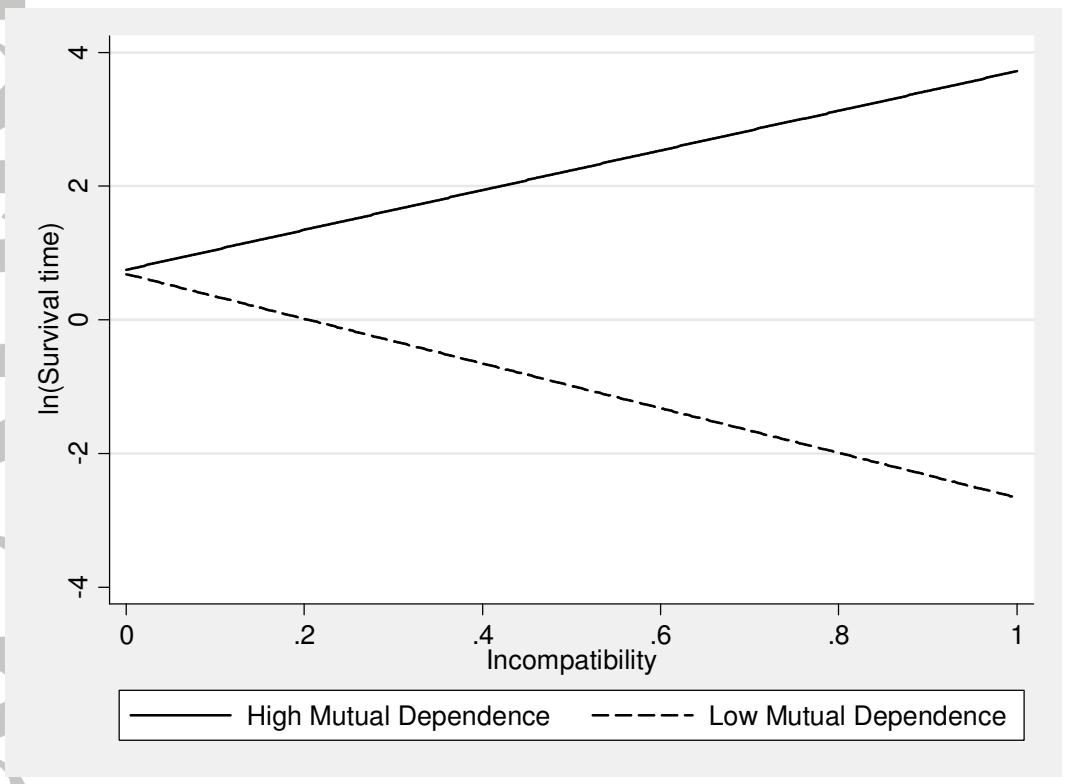
[b] The coefficient are interpreted as time ratios that is eβ, if the value is greater than 1 it will increase the survival time of partnership and hence hazard of dissolution will go down but value less than 1 implies survival time will decrease and hazard of dissolution will increase.

Figure 1: Effects of incompatibility on survival time of cross-sector partnership in the presence of low and high[a] power imbalance among cross-sector partners



[a] High power imbalance is the power imbalance one standard deviation above the mean of power imbalance and low power imbalance is power imbalance one standard deviation below the mean of power imbalance.

Figure 2: Effects of incompatibility on survival time of cross-sector partnership in the presence of low and high[a] mutual dependence among cross-sector partners



[a] High mutual dependence is the mutual dependence one standard deviation above the mean of mutual dependence and low mutual dependence is mutual dependence one standard deviation below the mean of mutual dependence.