The Performance Impact of Informal and Formal Institutional Differences in Cross-Border Alliances

ABSTRACT

This study addresses the simultaneous and diverse effects of differences in informal and formal institutions on cross-border alliances' financial performance. We utilize data from 405 microfinance institutions (MFIs), based in 74 developing countries, that have alliances with partners from developed countries. We find that the impact of informal institutional differences between MFIs and their cross-border partners is sigmoid-shaped, with performance first increasing, then declining, before improving again as informal institutional differences grow large. By contrast, formal institutional differences appear to be detrimental to MFIs' performance. Consistent with our prediction, we find that MFIs' cross-border experience moderates both formal and informal institutional effects.

Key words: Cross-border alliance; Performance; Informal institutional differences; Formal institutional differences; Microfinance industry.

1. INTRODUCTION

Cross-border alliances typically involve the sharing and exchange of knowledge and resources between partners embedded in varied institutional contexts (Carlsson, 2006). In this paper, we extend this argument and draw performance implications for cross-border alliances. Past research on alliance performance has considered structural and relational aspects (Burt, 1992; Podolny, 1994; Rothaermel, 2001), while institutional differences among alliance partners have been considered largely from the narrow perspective of "cultural distance" (Kogut & Singh, 1988). Notwithstanding some notable exceptions (e.g., Filiou & Golesorkhi, 2016; Lavie & Miller, 2008), there is a dearth of knowledge on the distinct and potentially variable impact of informal and formal institutional differences on alliance performance. We redress this gap in the empirical context of vast institutional differences, where alliance partners come from developed and developing countries, respectively.

Past research has shown that differences in the nature of institutions shape alliance partners' attitudes and abilities to learn (Lyles & Salk, 1996; Parkhe, 1991; Simonin, 1999), which in turn affect their firms' financial performance. In addressing the role of national institutional settings in cross-border alliances, we draw a fundamental distinction between informal and formal institutions, in line with institutional economics (North, 1990). This growing body of research has highlighted the coevolutionary nature of informal and formal institutions, while calling for their distinct treatment (e.g., Alesina & Giuliano, 2015; Bowles, 1998; Tabellini, 2008). In this paper, we argue that informal and formal institutional differences *both* have an impact on performance returns from cross-border alliances, however much their impact varies.

To test our contention, we use a sample of 405 microfinance institutions (MFIs), based in 74 developing countries, that have alliances with partners from developed countries. The

microfinance industry makes an interesting testing ground for our research agenda because of the many cross-border alliances between MFIs in developing countries and their partners in developed countries (Mersland, Randøy, & Strøm, 2011). Moreover, thanks to transparency guidelines introduced by international stakeholders like CGAP, which is a specialized microfinance branch of the World Bank, relevant and high-quality data are available for this industry, which is uncommon when it comes to data from developing economies in general (Beisland, Mersland, & Randøy, 2014).

In line with our hypotheses we find that the impact from informal institutional differences is sigmoid-shaped, with performance first increasing, then declining, before improving again as informal institutional differences grow large. By contrast, we find a clear negative firm-based performance effect from large formal institutional differences. A firm's cross-border experience has a positive moderating effect on both informal and formal institutional differences.

Our study contributes to the international business literature in several ways. First, we enhance our understanding of the impact of institutional differences on the performance of cross-border alliances. Past research has highlighted the role of informal institutions at the expense of formal institutions (Fey & Beamish, 2001), and often produced inconsistent results, at times showing that domestic alliances outperform cross-border alliances (Hennart & Zeng, 2002; Mowery, Oxley, & Silverman, 1996), while at other times finding that alliances between partners hailing from different informal institutional settings perform better than domestic alliances (Park & Ungson, 2001). Using a global dataset, our study provides comprehensive and clear results: formal institutional differences between cross-border alliance partners have a negative effect on performance, whereas the effect of informal institutional differences on performance depends on the extent of the differences between the partners.

Second, we contribute to the alliance literature by simultaneously addressing the impact of informal and formal institutions. To do so, we investigate a matrix of interorganizational partnerships exhibiting large variations in informal and formal institutions between cross-border alliance partners across many heterogeneous countries (74 in this study) and continents.

Third, our study contributes to the literature on nonlinear performance effects from internationalization. Specifically, we are motivated by the sigmoid performance effects found in studies on internationalization through wholly owned subsidiaries (Contractor, Kundu, & Hsu, 2003; Lu & Beamish, 2004), internationalization of alliance portfolios (Lavie & Miller, 2008), and the effect of institutional differences on firms' innovation returns from alliances (Filiou & Golesorkhi, 2016). By extending these past studies, we also shed light on the debate on the curvilinear effect of informal institutional differences on the cross-border activities of firms (e.g., Barkema & Drogendijk, 2007; Björkman, Stahl, & Vara, 2007; Stahl & Tung, 2015).

Fourth, by comparing the impact of informal and formal institutional differences as the key contextual elements, we contribute to the growing body of literature emphasizing the need for understanding the distinct attributes and economic outcomes of informal and formal institutions (e.g., Alesina & Giuliano, 2015; Bowles, 1998; Tabellini, 2008). We strive to fill the gap in our understanding of the impact of informal and formal institutions on firms' financial performance. In particular in the context of developing countries, where informal institutions have a prominent role in enabling or hindering business transactions and formal institutions provide weaker business support (Khanna & Palepu, 1997, 2000; Verbeke & Kano, 2013). We also provide an understanding of the impact of firms' cross-border experience along each distinct dimension of informal and formal institutions. This gap especially exists in the context of alliances, a popular and important venue for economic and managerial transactions.

Finally, we contribute to the understanding of organizations working in a rapidly expanding global service industry (Ault & Spicer, 2014), whose financial returns from internationalization are yet to be thoroughly researched (one exception is Mersland et al., 2011). Moreover, we focus on the global microfinance industry, whose importance to economic and social development and modernization has been widely acknowledged, and which is deeply embedded in its respective home and host government systems, rendering national differences salient.[1]

2. ALLIANCES AND CONTEXTUAL DIVERSITY

We employ the institutional perspective (North, 1990) to argue that informal and formal institutions demarcated at the national level (Edquist & Johnson, 1997) give rise to different sources of enablers and constraints in cross-border alliances and have distinct effects on firms' financial performance. The differing nature of such institutions shapes partners' attitudes and abilities to coordinate the liabilities of such differences and to leverage the financial potential of cross-border alliances. Specifically, we argue that the tacit (informal) or explicit (formal) nature of institutions engenders distinct effects on partners' financial performance in cross-border alliances. Informal differences, typically unwritten, encompass socially shared rules and constraints (e.g., Sartor & Beamish, 2014; Sauerwald & Peng, 2013). Due to their tacit (Polanyi, 1966) and elusive nature, such differences have the potential to generate either the positive impact associated with, for example, resource complementarities, or the negative

[1] Examples include the Dutch government-owned development bank FMO, with a microfinance portfolio of 8 billion USD in 85 countries (www.fmo.nl), the Belgium BIO, a private-public (50/50) company with more than 150 investments across the globe (www.bio-invest.be), and the Norwegian government-owned NORFUND with a portfolio of 1.7 billion USD, where banking and microfinance is one of the main asset classes (www.norfund.no).

impact linked to conflicting values, norms, and practices between cross-border alliance partners (Parkhe, 1991). We posit that firms' performance varies with the level of informal institutional differences, following a sigmoid (S-shaped) pattern. When a firm encounters cross-border partners that are marginally different, its performance is likely to increase due to the partners' better understanding and appreciation of subtly different approaches; however, as differences increase, conflicts will surface, eroding performance. Once differences have reached a high level, awareness of the differences will emerge, and the urgency of collaboration will become apparent to the partners, prompting cooperation and improved performance.

By contrast, formal institutional differences, codified and explicit in nature (Polanyi, 1966), constitute "rules of the game" and are likely to produce differences between alliance partners that would be disruptive rather than complementary. More "incompatible" formal institutional pairs of cross-border alliance partnerships would increase the costs of conducting business, due to the unfamiliarity of each partner with the other partner's institutional setting (Brouthers, Brouthers, & Werner, 2008). Once set, such "rules of the game" cannot be easily changed and there are no established mechanisms with which to facilitate the rapprochement of the disparate formal institutional sets of rules (North, 1990).

Finally, we also argue that firms' cross-border experience helps bridge both informal and formal institutional differences since experiential learning can capture both codified and tacit knowledge. The theoretical driver of our argument also incorporates insights from the literature on absorptive capacity and organizational learning (e.g., Levitt & March, 1988), and is in line with the prediction of the internationalization (Uppsala) paradigm (Johanson & Vahlne, 1977).[2]

[2] The Uppsala internationalization model highlights how firm-based accumulated knowledge and learning reduce the cost of doing international business by overcoming "psychic distance," and thus enhance the potential for profitable internationalization.

2.1. The impact of informal institutional differences

Informal institutions are systems of shared meanings, embedded in norms, values, beliefs, and the collective understanding of a society, that are not formulated into documented rules and standards (North, 1990). Furthermore, informal institutions consist of culture, which is responsible for shaping human cognition, perception, mental models, behavioral norms, traditions, customs, and belief systems. International business scholars have treated informal institution similar to culture (e.g., Estrin, Baghdasaryan, & Meyer 2009; Filiou & Golesorkhi, 2016).

Cross-border alliances typically involve knowledge exchange between partners, and this sharing and learning process is shaped by institutional differences (Lyles & Salk, 1996; Parkhe, 1991; Simonin, 1999). Differences in informal institutions may limit familiarity, and thus impair interfirm trust (Gulati, 1995), limit the scope of the convergence of values and goals that are needed to elicit positive attitudes, increase coordination costs, and impair resource exchange (Parkhe, 1991). However, evidence from existing empirical literature on the effect of informal institutional differences on the performance of cross-border alliances is highly inconsistent, showing a positive, negative, and/or no effect (Fey & Beamish, 2001; Hennart & Zeng, 2002; Parkhe, 1991; Park & Ungson, 1997). The inconsistent results have been attributed to a myriad of reasons, ranging from differences in theoretical frameworks to divergences in conceptualization and method (Shenkar, 2001). By and large the literature has considered informal institutional differences as detrimental to the performance of cross-border alliances (Barkema, Bell, & Pennings, 1996; Barkema & Vermeulen, 1997, Stahl & Tung, 2015). Only recently has the literature explored the nonlinear effect of informal institutions on the performance of firms' cross-border activities and emphasized the positive effect of informal

institutions (Barkema & Drogendijk, 2007; Björkman et al., 2007; Stahl & Tung, 2015).[3] In acknowledging the growing ambivalent and inconclusive influences of informal institutional differences on the performance of cross-border alliances, we argue that the association between cross-border informal institutional differences and firms' performance returns from such alliances may vary with the level of informal institutional differences.

At a low level of informal institutional differences, resource and skill exchange opportunities are more accessible to cross-border partners, making organizational learning more efficient and effective due to partners' relative similarity. The conformities in perception and attitudes toward problem-solving enable partners to establish a shared meaning of the rules of engagement that underpin their collaboration (Ruigrok & Wagner, 2003; Lu & Beamish, 2001; Schenkar, 2001). This facilitates knowledge and resource-sharing, inducing partners to focus on how they can combine their knowledge and take advantage of their respective competencies in order to foster performance (Lane & Lubatkin, 1998; Jiang & Li, 2008; Mowery et al., 1996). This is in line with the internationalization literature, specifically the Uppsala framework (rooted in Hymer's "liability of foreignness"), which postulates that firms' internationalization path is determined by their experiential learning (Johanson & Vahlne, 1977, 2009; Hymer, 1975). The assumption is that the internal information processing requirements for identifying and accessing network resources are less costly for firms whose countries share informal institutional settings (Rugman & Verbeke, 2004). Evidence from the literature also suggests that firms are better able to deal with informal institutional constraints

[3] In addition, evidence from samples of UK-based biopharmaceutical and US-based software firms shows internationalization of alliance portfolios to have an S-shaped (sigmoid) impact on partners' innovation and financial returns, respectively (Filiou & Golesorkhi, 2016; Lavie & Miller, 2008). However, their finding is different from ours. We believe that this difference may be due to the context of our study, i.e., cross-border alliances between partners from developing and developed countries, the disaggregation of informal and formal institutional differences, and/or the nature of the dependent variable.

on expansion into nationally different but proximate regions that share the same informal institutional settings (Buckley & Ghauri, 2004; Peng, 2002; Peng & Delios, 2006).

Past research also highlights how incremental increases in informal institutional differences lead to more perceptible, tacit differences between partners in their interpretation of and response to strategic and managerial issues (Chui, Lloys, & Kwok, 2002; Park & Ungson, 2001). Such institutional differences are likely to increase coordination costs that could overshadow the marginal benefits of sharing resources and leveraging market opportunities with cross-border partners (Hitt, Hoskisson, & Kim, 1997). As informal institutional differences increase conflict, the ensuing mistrust, lack of commitment, and ineffective interaction become more apparent, leading to lower cross-border alliance performance (Lane & Beamish, 1990; Sirmon & Lane, 2004). Moreover, informal institutional differences undermine unique opportunities and valuable network resources offered by partners. The insufficient overlap between the knowledge bases and national informal institutional backgrounds of partners impairs the ability of the partners to absorb and use valuable network resources (Cohen & Levinthal, 1990; Phene, Fladmoe-Lindquist, & Marsh, 2006).

Informal institutional differences are difficult to fully perceive and recognize, making their conscious accommodation within existing alliance routines uncertain (Nicholson, Stepina, & Hochwarter, 1990; Park & Ungson, 2001). This is particularly relevant for tacit knowledge transfer, such as management beliefs, experiences, and business-process development (Ambrosini & Bowman, 2001). Increasing informal institutional differences hinders firms from implementing firm-specific practices conducive to collaboration as cross-border partners' informal institutional differences make their attitudes and approaches to work incompatible (Björkman et al., 2007). In addition, Barkema and Vermeulen (1997) note that an elevated level of informal institutional differences in cross-border alliances reduce the effectiveness of collaboration, making the alliances less likely to survive. Inaccurate judgment of the factors

that hinder effective cooperation can trigger the application of unsuitable routines and inappropriate business- and alliance-specific practices (Heimeriks, 2010). Exploration of distant knowledge bases offered by one's cross-border partners results in lower initial performance (Barkema & Drogendijk, 2007).

The negative effect that informal institutional differences have on cross-border alliances increases with the differences. As the differences grow, partners can develop a mutual antagonism, at least up to an inflection point where the differences are large enough to draw attention to themselves and prompt cooperation efforts that will mitigate the negative effects and set in motion an effort to identify and leverage complementary skills and resources. Given the established tendency of firms to pay attention to and react to salient events (Levitt & March, 1988), it is reasonable to assume that awareness of informal institutional differences will ignite only when the differences are considerable.

Therefore, at an elevated level of informal institutional differences, firms are likely to both recognize the value of network resources and facilitate cooperation to enhance the assimilation and use of external knowledge, by investing additional time and alliance-specific resources to manage those differences (Dyer & Hatch, 2006). Such efforts can include training and monitoring (Shenkar & Zeira, 1992), consulting (Kale & Singh, 2007; Zollo & Winter, 2002), and targeted staffing (Hennart & Park, 1993; Shenkar, Luo, & Yeheskel, 2008). The argument that informal institutional differences can lead to positive outcomes by creating opportunities in firms cross-border activities has been noted (Stahl & Tung, 2015). Lew, Sinkovics, Yamin, and Khan (2016) also find that considerable informal institutional differences do not amount to a liability in cross-border technology transfers. Based on previous literature and our arguments above we suggest that:

Hypothesis 1. The relationship between informal institutional differences and a firm's performance in cross-border alliances is sigmoid (S-shaped), with performance first increasing, then declining, and finally increasing.

2.2. The impact of formal institutional differences

Formal institutional differences reflect the codified and explicit national variations in, for example, employment regulations, intellectual property regimes, business systems, rules and regulations, financial market operations, and fiscal and economic stability (North, 1990). Such differences can impose formidable barriers to cross-border alliances. Significant differences in the functioning of financial markets may introduce alliance conflicts, as partners will prioritize different types of outputs and different time horizons for achieving them (Park & Ungson, 1997). Formal institutional diversity in the form of different legal systems gives rise to higher transaction and coordination costs, making the use of contracts as a control mechanism costly and ineffective (e.g., Chen & Chen, 2003). Such differences are also likely to inhibit the transfer of business practices between partners and constrain a firm's ability to absorb and use valuable resources, by severely limiting its knowledge of distant partners' resources and capabilities (Kostova & Roth, 2002). The complexity and diversity inherent in regulatory, legal, and economic factors have important implications for learning and coordination (Li, Qian, & Qian, 2012). Substantial administrative, regulatory, and legal differences between cross-border partners lead to boundedly rational constraints on the management of alliances, increasing the costs of accommodating such differences to alliance management practices (e.g., Rugman & Verbeke, 2007). Owing to such dissimilarities, a firm's ability to absorb and use valuable resources and knowledge of institutionally distant partners becomes constrained, undermining partners' efforts to effectively share knowledge, adapt, and coordinate their value-adding activities (Meyer, 2001; Slangen & Beugelsdijk, 2010; Tong, Reuer, & Peng, 2008). The

tangible and explicit attributes of formal institutions may allow partners to readily access information pertaining to the requirements of formal institutional settings and thus help alliance partners to negotiate the terms of their cooperation. However, this may be less relevant to cross-border alliance partners from less compatible pairs of developed and developing nations, "less compatible" with respect to formal institutional settings, as there are risks of undesirable resource spillover and value misappropriation (Hamel, 1991; Lavie, 2006).[4] Based on previous literature and our arguments above we suggest that:

Hypothesis 2. The relationship between formal institutional differences and a firm's performance in cross-border alliances is negative.

2.3. The firm's cross-border experience

Thus far, we have argued that a firm's performance is affected by the informal and formal institutional differences inherent in its cross-border alliances. However, a firm's capacity to extract benefits from its alliances may also depend on its cross-border experience. A firm's accumulated cross-border experience provides experiential knowledge in bringing gaps and identifying opportunities with partners from diverse informal and formal institutional contexts (Cyert & March, 1963; Levitt & March, 1988). Firms need to learn about the institutions – both informal and formal – in order to enhance the success of foreign operations (e.g., Barkema & Drogendijk, 2007).

In relation to informal institutional differences, a firm's cross-border experience, specifically in forming and managing alliances, enables it to understand tacit differences and

[4] We suggest a linear relationship for the formal institutions, whereas the impact of informal institutions is nonlinear (S-shaped). The main reason for this difference is that the firm can take organizational countermeasures when the informal institutional differences are large (training, etc.), whereas the same countermeasures are less effective in relation to formal institutional differences, which are less in the control of the firm (legal differences, etc.).

develop further means for exploring external opportunities arising from its alliances with its partners (Lavie and Rosenkopf, 2006). We expect that a firm's specific learning curve can provide it with a broader mind-set and a greater ability to respond to informal institutional differences and hence with institutional capital (e.g., Ethiraj, Kale, Krishnan, & Singh, 2005; Johanson & Vahlne, 1977). Furthermore, prior research has identified cross-border experience as a distinct alliance capability element to overcome informal institutional liabilities (Barkema, Shenkar, Vermeulen, & Bell, 1997). This is also the logic behind the Uppsala model, which acknowledges that firms accumulate knowledge over time as they learn to make necessary adjustments in foreign markets (Johanson & Vahlne, 1977, 2009). Firms' cross-border experience can help alliance partners to overcome relational impediments due to informal institutional differences. This in turn enhances the scope of shared values and goals that are needed to elicit positive attitudes and facilitate social exchange in cross-border alliances (Parkhe, 1991). Based on previous literature and our arguments we suggest:

Hypothesis 3a. A firm's cross-border experience positively moderates the trajectory relationship, described in Hypothesis 1, between the firm's performance and informal institutional differences.

Although "psychic distance" is identified by Johanson and Vahlne as the key factor behind experiential learning,[5] it precludes a consideration of specifically formal institutional differences. Therefore, to address formal institutional differences, the firm can also use its accumulated cross-border experience to decipher key elements of local formal institutions, thereby facilitating resource sharing and reducing the costs of coordinating activities (Das and Teng, 1998). Firms with limited cross-border experience have difficulty interpreting,

[5] This composite factor later morphed into a singular capture of "cultural distance" (Shenkar, 2001).

understanding, and adapting to their cross-border partners' formal institutions. Their own formal institutional context and mechanisms constrain their ability (and perhaps willingness) to change (Oliver, 1997). In such cases, firms have difficulty internalizing changes. By contrast, firms with substantial experience with cross-border partners can identify differences in formal institutional environments and learn how to utilize the comparative advantages embedded in the formal institutions of their partners (Parkhe, 1991). They can search out reliable partners, effectively anticipate contingencies, and design suitable contracts and other bonding mechanisms to discourage opportunism (Simonin, 1997). Based on previous literature and our arguments we suggest:

Hypothesis 3b. A firm's cross-border experience positively moderates the relationship, described in Hypothesis 2, between the firm's performance and formal institutional differences.

3. METHOD

3.1. Data

We use data from the microfinance industry to test our hypotheses. We argue that this global industry has several advantages for testing our hypotheses. Microfinance activities are quite homogeneous across countries (similar technology and financial services are used around the world), with an extensive matrix of interorganizational partnerships[6] exhibiting large variations in informal and formal institutions between cross-border alliance partners across a large number of heterogeneous countries and continents (Mersland et al., 2011).[7] The unusually

[6] These are arrangements between microfinance institutions (MFIs) based in the developing world and their cross-border partners in the developed world.

[7] This result holds even after controlling for economic differences.

assessable marginal *performance* impact from informal and formal institutional differences is due to relatively uniform and transparent financial reporting within the industry (Beisland et al., 2014). The utility-like nature of MFIs' operations, with typically few head-on competitors in the local market, enables the observation of suboptimal (costly) organizational arrangements. The lack of a stock market for corporate control of MFIs,[8] and the fact that we do not study conventional firm-to-firm arrangements but rather agreements involving a donor or investor on the one hand and a funded organization on the other, imply that a suboptimal ("unprofitable") alliance arrangement, in terms of informal and formal institutional differences between the partners, can be sustained over long periods. This in turn implies that we can observe larger performance variations (extremes) than what can be expected in a regular for-profit context with fierce competition.

We utilize data on 405 MFIs (the unit of analysis in this study) in 74 countries. The MFIs were assessed from 1998 to 2010 by one of the five leading rating agencies specializing in microfinance: MicroRate, Microfinanza, Planet Rating, Crisil, and M-Cril. The MFIs were also assessed by professional third parties according to a transparency measure introduced in the late 1990s by international policy agents like the CGAP, a specialized microfinance branch of the World Bank (Beisland et al., 2014). A comparison of the five rating agencies' rating methodologies reveals no major differences between their variables and the variables we use in our study, and thus supports the reliability of our dataset. Table 1 provides information on the proportion of MFIs in our dataset. In addition, we use a dummy variable to account for whether the MFIs in our dataset had cross-border alliances. The types of cross-border alliances we consider range from MFIs being part of an international microfinance network, to MFIs

[8] In fact, only around 10 MFIs are listed worldwide (Briere & Szafarz, 2015). Using data from unlisted companies to study the research questions is in fact a strength of our study, considering the thin and sometimes nonexistent capital markets in low-income countries.

having an international debt (commercial or subsidized), to MFIs having an international partner – an investor or sponsor – who acted as the main initiator of the MFI See Appendix 1 for descriptive information on the type and content of the MFIs' relationships with their cross-border partners. The MFIs in our dataset take a number of legal and organizational forms but all are either non-profit member-based cooperatives or for-profit shareholder-controlled firms. We do not include other microfinance providers, such as central banks, small savings and credit cooperatives, or development programs that offer microcredit solely for welfare.

It can be argued that our dataset has a certain sample selection bias, since only *rated* MFIs are included. However, in practice, MFIs interested in engaging in cross-border partnerships and accessing funding need to present an external rating report as a credential before entering into negotiations. This applies in particular to younger MFIs without an international reputation. The dataset thus represents internationally oriented MFIs with the intention to practice microfinance in a business-oriented and transparent manner (Beisland et al., 2014). Moreover, we argue that data from the MFIs' rating reports have some distinct advantages over the data from commonly used MFI databases (e.g., the general MIX Market database: www.mixmarket.org). First, the data contain valuable information, e.g., on the MFI's international initiator and its network membership, that is unavailable from other sources. Second, the data are not self-reported, as is the case in MIX Market; instead, a third party – the rating agency –collects and verifies the data. Third, MIX Market data contain relatively more information on very large MFIs, which are not subject to microfinance rating reports because they are rated by traditional agencies such as Standard & Poor's. Thus, the bias toward large-sized MFIs in the MIX Market data is less prevalent in our dataset, which has a wide size distribution (see Table 2). In addition, we employ random effects estimations that assume that the unobserved heterogeneity error term is uncorrelated with each independent variable. We also run Harman's single factor test to detect common bias method as a source of endogeneity

(see Sharma, Yetton, & Crawford, 2009). It must be noted that our dataset is the up-to-date version of a dataset used in several prior studies (e.g., Mersland et al., 2011; Mersland & Strøm, 2010).

Insert Table 1 and 2 about here

3.2. Dependent variable

We measure the MFIs' financial performance (the dependent variable) in terms of the real inflation-adjusted return on assets (ROA). We also use the ratio of operational expenses to assets to measure financial performance (Mersland & Strøm, 2010). Whereas costs and income drive the ROA, operational costs are of interest, as the competitive environment of the MFI does not "distort" them. This is important since the competitive environment can vary significantly from country to country (Assefa, Hermes, & Meesters, 2013). However, the results for operating costs were in line with the results for ROA that we report in this paper. The unreported results are available upon request. ROA is our main indicator of financial performance because it "summarizes" an MFI's financial success and has been used in prior studies (e.g., Mersland et al., 2011).

We recognize that most MFIs operate with a "double bottom line" approach, striving to achieve social returns as well as financial returns (Armendáriz & Morduch, 2010). Interestingly, past research shows that the legal status of the organization, whether for-profit or non-profit, does not impact its ROA (Mersland & Strøm, 2008). A common denominator across MFIs is that they are all pushed in the direction of cost efficiency. Nevertheless, as indicated by Mersland and Strøm (2010), the MFI's main financial challenge is related to its

operational costs and financial performance, which are prerequisites for long-term social returns.[9] Given the fact that only about 10 MFIs worldwide (Briere & Szafarz, 2015), and only two in our dataset, are stock exchange-listed, we can't use market-based performance measures (e.g., Tobin's q). In fact, the use of listed firms could potentially have brought in other biases since capital markets in low-income countries, especially in non-Anglo-Saxon countries, are often unrepresentative, thin, and sometimes nonexistent (as in the case of African firms; see Hearn, 2016).

3.3. Independent variables

Culture is an important reflection of national informal institutions, representing shared values and non-codified standards, and reflects a socially constructed reality shaping cohesion, logics of action, and coordination among individuals within the society (North, 1990). Using indicators of national cultural differences based on Kogut and Singh's (1988) index, previous studies have captured the role of informal institutions in raising obstacles to cross-border alliances (e.g., Filiou & Golesorkhi, 2016). However, the use of cultural distance based on Kogut and Singh's index has raised widespread concern (Shenkar, 2001) about symmetry, illusions of equivalence, and the adequacy of the statistical techniques used to construct and validate Hofstede's original dimensions of culture on which Kogut and Singh's index is based, among other things (Javidan, House, Dorfman, Hanges, & De Luque, 2006; Shenkar, 2001). To address these concerns, we also apply two alternative cultural indices to capture informal institutional differences: one based on the GLOBE study (House, Hanges, Javidan, Dorfman,

[9] We also run a robustness check using a measure of social outreach performance (accounting for the dual mission of MFIs) proxied by the average loan size, where a positive social outreach implies a lower average loan size for MFIs. Although using average loan size as a proxy for poverty outreach has been criticized (Armendáriz & Szafarz, 2011; but see Mersland et al., 2011), researchers have so far not come up with a better alternative measure for social performance. The unreported results confirm our hypotheses and are available upon request.

& Gupta, 2004; Javidan & House, 2001) and the other based on the World Values Survey (WVS). The GLOBE study shows nine indices based on recent surveys and uses contemporary empirical techniques in their construction and validation (Javidan et al., 2006). The "practices" indices of the GLOBE study are preferred to the "values" indices because MFIs' cross-border partners are more likely to be concerned with the informal institutional indices that they actually encounter in the MFIs' countries.[10] In addition, it has been argued that both Hofstede's study and the GLOBE study might capture marginal rather than absolute levels of values (Maseland & Van Hoorn, 2009), which also suggests using the "practices" indices (Estrin et al., 2009)

In addition, we use the WVS's cultural dimensions of traditional/secular-rational and survival/self-expression (Inglehart & Baker, 2000; Inglehart, Basanez, Diez-Medrano, Halman, & Luijkx, 2004) to construct an alternative informal institutional measure (e.g., Brouthers et al., 2008; Salomon & Wu, 2012). This choice was based on the sampling, timelines, scale, and validity of the WVS in its focus on normative and cognitive national culture. Compared to Hofstede (2001) and House et al. (2004), the WVS captures the national cultural characteristics of the overall population of a country, instead of just those of managers of corporations. Given the complexity of the concepts that are measured under the umbrella of national culture, the more diverse set of respondents sampled by the WVS may provide additional information. Furthermore, the WVS has been applied to a wider range of fields, such as institutional economics (e.g., Tadesse & White, 2008), sociology (e.g., Curtis, Baer, & Grabb, 2001), and international business (e.g., Salomon & Wu, 2012), establishing it as a validated and reliable construct.

[10] We obtain similar results using "value" indices.

Overall, in operationalizing informal institutional differences, we measure informal institutional differences by using cultural differences between alliance partners' countries of origin. We use Kogut and Singh's (1988)[11] index of cultural distance – based on Hofstede's (1980) four dimensions of culture: uncertainty avoidance, individuality, tolerance of power distance, and masculinity-femininity[12] – as a robustness test in Appendix 2. We then calculate each indices of cultural differences based on the GLOBE study, using the formula $\sum_{j=1}^{nit}$ EC $_{kj} - EC_{km}$ $/n_{it}$, where EC_k is the measure of the *k*-th GLOBE cultural indicator, for *k*=1 to 9, c_j is cross-border partner *j*'s country of origin, *m* is the MFI's country of origin, and n_{it} is the number of partners involved with MFI *i* in year *t*. The methodological concerns related to the sigmoid nature of the relationship tested by the informal institutional differences[13] imply that we have to reduce the number of variables (Hair, Babin, Money, & Samouel, 2006). Therefore, we conduct a principal component analysis (PCA) of the informal institutional differences based on the nine indicators of GLOBE with varimax rotation. The exploratory factor analysis suggests that the theoretical constructs indeed load onto one factor. The one-factor solution also shows a high level of reliability with a Cronbach alpha of 0.886 and an eigenvalue of 6.116. Various debates can be found in the literature about how many factors are to be retained (Hair et al., 2006). According to the Kaiser criterion, eigenvalues >1 should be retained as

[11] Kogut and Singh (1988) designed an overall index that defines the cultural differences between a given nation and other nations as follows: (cultural distance $_j$) = $\sum_{i=1}^{4} \left\{(I_{ij} - I_{iu})^2 / \mathrm{V}_i\right\} / 4$.

[12] We acknowledge that recent discussions in the literature question such a notion of *distance* and argue that *friction* better captures the impact of informal institutional differences (Shenkar, 2001; Shenkar, Luo, & Yeheskel, 2008). Nevertheless, empirical studies invariably employ distance-based constructs and measures and their findings indicate that the various proxies for such differences are broadly consistent (e.g., Dow & Larimo, 2011; Estrin et al., 2009).

[13] These include high multicollinearity, the degree of freedom in the regression models, and the correlated nature of informal institutional indices.

separate factors. However, this criterion might underestimate the number of factors (Hair et al., 2006). Given that the result of this factor analysis is in line with previous studies (e.g., Gaur & Lu, 2007; Mitton, 2008), one single solution seems suitable. Similarly, we use the same approach to operationalize informal institutional differences based on the WVS by subtracting the MFI's WVS aggregated score from its cross-border partner's score.

We use items selected from the economic freedom index developed by the Heritage Foundation, as indicators of the presence of formal institutions and the openness of the institutional environment (Berggren & Jordahl, 2005; Meyer, Estrin, & Bhaumik, 2009; Stroup, 2007). The index provides aggregated annual values, including evaluations of countries in terms of business activity, trade, investment, labor markets, financial freedom, corruption, property rights, and the like. This index is highly correlated with other proxy measures, such as the Global Competitiveness Report (World Economic Forum) and World Bank database indicators (Hanke & Walters, 1997; Berger & Bristow, 2009). Following insights from Lavie and Miller (2008), we compute formal institutional difference measures, using the formula $\sum_{j=1}^{nit} \left| EI_{kcj} - EI_{km} \right| / n_{it}$, where EI_k is the measure of the *k*-th indicator, for *k*=1 to 10, c_j is cross-border partner *j*'s country of origin, *m* is the MFI's country of origin, and n_{it} is the number of partners involved with MFI *i* in year *t*. For each MFI in our sample, we determine its cross-border partners' identities and their countries of origin. We then construct a composite measure based on the factor score derived from the 10 indicators, which we found to be highly correlated.[14] The literature also indicates that formal institutional indicators generally tend to overlap with each other (Mitton, 2008; Dow & Larimo, 2011). We use principal components

[14] The correlation matrix is available upon request.

and factor analysis with varimax rotation, which produced a single factor score with an eigenvalue of 7.82 and a standardized Cronbach's alpha of 0.91.

The final tested independent variable is the MFI's cross-border experience. As stated previously, the MFIs in our dataset have been assigned international ratings, and the industry is highly global, with most MFIs having had some form of cross-border support since start-up, as noted in Appendix 1. Therefore, we use as a proxy for an MFI's cross-border experience the cumulative number of years since it started its microfinance activities, lagged by one year (Lavie, Kang, & Rosenkopf, 2011). Following past research recognizing that the marginal value of each incremental unit of experience declines as overall experience increases, we transform this variable into its natural logarithm (e.g., Goerzen & Beamish, 2005). Capturing cross-border experience with an MFI's age is a reflection of the extent of the internationalization of this industry (Mersland et al., 2011) and in particular the MFI founder(s') role in creating cross-border connectivity (Randøy, Strøm, & Mersland, 2015). As a robustness check we test our hypotheses on a subsample of MFIs with only cross-border initiators (indicating the MFI's age to be equivalent to the cross-border influence and experience of its founders from its inception). The results confirm our predicted hypotheses.[15]

To further isolate the effects of informal and formal institutional differences on MFIs' performance, we control for the diversity of cross-border partners' countries of origin (Goerzen & Beamish, 2005; Lavie & Miller, 2008), using an inverted Herfindahl index. For each MFI *i* in year *t*, we use the formula $1-\sum_{c=1}^{15}(n_{itc}/n_{it})^2$, where n_{itc} is the number of partners of MFI *i* that originate from country *c*, and n_{it} is the total number of cross-border partners of MFI *i* in year *t*. This composition demonstrates the dominance of developed economies as MFIs'

[15] Unreported results are available upon request.

cross-border partners. A high value for this measure would suggest that an MFI's partners were globally dispersed. Figure 1 shows the distribution of MFIs' cross-border partners' countries of origin. We control for whether MFIs have a shared language with their cross-border partners using a dummy variable, in line with the argument that it is a one-off effect. The dummy variable is assigned a value of 1 when MFIs and their cross-border partners have a shared language and 0 otherwise.

We also apply the following organization-specific MFI control variables that have been included in recent microfinance performance research (Cull, Demigüc-Kunt, & Morduch, 2007; Mersland et al., 2011): type of ownership, assets (size), and whether or not assets are regulated by banking authorities. This information is from rating reports, i.e., the main data source we use. Further, given the high degree of variation in the economic environments of our MFIs' countries of origin, we use country variables to reduce misspecification of MFIs' performance (e.g., Mersland & Strøm, 2010). This includes the country's human development index (HDI), which is a composite country index covering life expectancy, education, and income (GDP per capita). HDI and GDP per capita are taken from World Bank and United Nations Development Program, respectively. Table 3 provides a summary of all the variables.

Insert Table 3 and Figure 1 about here

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4. RESULTS

Table 4 provides descriptive statistics for the variables used in the analysis, and the correlation matrix; see also the variance inflation factors of the baseline models in Appendix 3. None of the correlation coefficients is of high magnitude (Kennedy, 2008).[16] The MFIs' mean values of informal and formal institutional differences (GLOBE) in cross-border alliances are 2.05 and 14.36, respectively. Table 5 reports the generalized least squares estimation in the panel data, with missing values subject to list-wise deletion, and ROA as the dependent variable. We chose the random effects model due to the nature of the study variables, which are mainly time invariant, and because our robustness check (Hausman, 1978; test Prob>chi2 = 0.055) revealed random effects to be appropriate to test the effects of informal and formal institutional differences on the MFIs' performance. Models 1 and 5 are the baseline models with the linear terms of the GLOBE and WVS measures, respectively. We test Hypothesis 1 (using the GLOBE and WVS measures) and Hypothesis 2 in Models 2 (6) and 3 (7), in which we test for a sigmoid relationship between informal institutional differences and MFIs' performance, respectively, by adding GLOBE and WVS squared terms in Model 2 (6) and GLOBE and WVS cubic terms in Model 3 (7). Hypothesis 3a and Hypothesis 3b are tested by introducing the interaction effect of cross-border experience on informal institutional differences (the GLOBE and WVS measures) as well as on formal institutional differences in Model 4 (8) respectively. Models 9 and 10 serve as the full models with the GLOBE and WVS measures, respectively. We conclude with Wald tests on the significance of each model against the baseline models.

Insert Tables 4 and 5 about here

[16] It must be noted that we trim outliers from the dataset. For example, MFIs with more than 50 years of experience were removed from our dataset, given that MFIs are nearly all young organizations; our observations center on MFIs with almost ten years of experience on average.

Models 1 and 5 indicate that informal institutional differences have a negative and significant effect on MFIs' performance. While both the GLOBE and WVS measures are significant at 5 percent, we expect a nonlinear relationship to better capture the effect of informal institutional differences on MFIs' performance at each level of difference. The joint test of the linear, squared, and cubic terms of informal institutional differences, as demonstrated by the GLOBE and WVS measures, are significant at the 1 (5) percent level in Model 3 (7). This supports the hypothesized sigmoid relation between informal institutional differences and MFIs' financial performance. In addition, the Wald chi-square statistic indicates that the inclusion of the cubic terms significantly improves our model's fit. Models 9 and 10 (the full models) also confirm these results. Overall, these results support Hypothesis 1, with a significant effect of the positive linear term, the negative squared term, and the positive cubic term. Our estimated relationship suggests that the minimum ROA level is at the 2.150 point of informal institutional differences (GLOBE), which corresponds to a negative ROA of 0.450 and the maximum ROA at the 0.971 point of informal institutional differences, which corresponds to a positive ROA of 0.236 (see Figure 2).[17] To contextualize our results, the informal institutional difference between an MFI from, say, Mexico and a French cross-border partner is 2.363, while the difference between a Mexican MFI and a US partner is 1.136. Our results suggest that, at low levels of informal institutional differences, MFIs are better able to reap the benefits of exposure to different cultures, due to the tacit and elusive nature of informal institutional characteristics that makes subtle differences difficult to decipher and acknowledge. At higher levels of informal institutional differences, our interpretation is that MFIs become more aware of the sources of difference while being unable, or unwilling, to redress the moderate negative effect, while at the highest levels of differences MFI are willing to make explicit investments in

[17] The graph of the WVS on the MFI's performance also confirms the hypothesized S-shaped pattern.

alliance management practices and other resources to enhance financial performance returns from cross-border alliances.[18] Our findings is in line with the international business literature, highlighting that the learning capacity of the firm will be greatest when the overlap between the firms' cultural knowledge is fairly large, yet small enough to stimulate learning (e.g., Barkema & Drogendijk, 2007). Furthermore, our results are also in line with the organizational learning literature, suggesting that firms that move away from their knowledge-base of experience could encounter short-term performance decline, however, enhanced learning and better performance in future expansions (e.g., Levinthal, 1997; Gavetti & Levinthal, 2000). In all the models discussed above, we find support for Hypothesis 2 in the negative and significant relationship between formal institutional differences and MFIs' financial performance (at 1 and 5 percent levels). We believe that this negative relationship is caused by the costs of forming cross-border alliances with partners embedded in very different formal national institutions, and that it is also reflected in the average formal institutional difference the MFIs confront with their cross-border partners, namely, 14.36 in Table 4. MFIs' investments may increase with the customization of products and technologies to match cross-border partners' banking preferences and standards from the developed countries. Filiou and Golesorkhi (2016) also find that increased formal institutional differences have a negative impact on firms' innovation returns from cross-border alliances. Furthermore, the risk of undesirable resource spillover and misappropriation of value (Hamel, 1991; Lavie, 2006) increases with the disparity in economic and financial development. National institutions affect transaction costs and the efficiency of the business exchanges in MFIs' cross-border alliances, and such institutions are seen as the main driver of MFIs' financial stability (Ahlin, Lin, & Maio, 2011). We also find support for

[18] We conduct an extensive set of robustness tests, such as testing our hypotheses on random samples and running semiparametric regressions for panel data. The unreported results of these robustness tests provide further support for our hypothesized relationships between informal institutional differences and MFIs' performance returns from cross-border alliances.

Hypothesis 3a and Hypothesis 3b, revealing two positive and significant (at 5 and 1 percent levels) interaction effects from MFIs' cross-border experience on informal and formal institutional differences, using models with the same interaction terms as in Model 4 (8). These results support the argument that organization-specific learning from accumulated cross-border experience contributes to MFIs ability to bridge informal and formal institutional differences with its cross-border alliance partners, hence improving MFIs' financial performance (e.g., Barkema & Drogendijk, 2007, Barkema et al., 1997). Figure 3 depicts this relationship.

Insert Figures 2 and 3 about here

Turning to the performance effects of the control variables, shown in Table 5, first, the variable attesting to the diversity of the cross-border partners' countries of origin exhibits a negative and significant sign at the 5 percent level in Model 2. This indicates that as the number and diversity of cross-border partners in an MFI's portfolio of alliances increase, the ability of the MFI to coordinate and access its partners' networks diminishes. However, our results also suggest that an MFI's cross-border experience can improve its learning and absorptive capabilities for managing informal and formal institutional differences, enhancing performance returns from cross-border alliances. Regulation of the MFIs by banking authorities has a negative and significant impact, at the 5 percent level in Model 1 and 5. We find no significant impact of the MFI's ownership type on its performance, which is in line with previous microfinance research indicating that type of ownership has negligible impact on MFI performance (e.g., Mersland & Strøm, 2008). In most models, the MFI's size (proxy for its assets) exhibits a positive and significant effect on its performance, which indicates the existence of organizational scale economies in microfinance banking, as previously reported by Hartarska, Shen, and Mersland (2013). We also find a positive and significant effect of the

language variable at the 5 percent level in Models 1, 5 and 8, suggesting that MFIs enhanced their performance by sharing a language with their cross-border partners. This is in line with international business research where it has been found, for example, that a shared language improves the absorptive ability of firms' employees to share globally relevant company information such as technological development, financial data, health and safety procedures, and employment conditions (e.g., Piekkari, Welch, & Welch, 2014). Finally, we find a low HDI for the MFI's home country negatively affects the MFI's performance at the 5 percent significance level in Models 5 and 10. This finding illustrates the challenges involved in operating businesses in poor countries. Overall, the results from Table 5 show the regression specifications to have acceptable explanatory and predictive abilities.

5. DISCUSSION AND CONCLUSION

In this study we examine financial performance returns from cross-border alliances from an institutional perspective. We highlight that the nature of institutions, both formal and informal, and the extent of informal institutional differences are important in understanding the intricacies of cross-border alliances and firms' financial returns. We find support for the notion that informal and formal institutions are of an implicit and explicit character, respectively, with different impacts on partners' abilities to address and negotiate such institutional differences with their cross-border alliance partners. Our study affirms Shenkar's (2001) contention that the impact of informal institutional differences can be nonlinear. We also show that this pattern does not extend to differences between formal institutions, reaffirming the dissimilar nature of informal and formal institutional differences, as claimed in both classical sociology and institutional economics. We argue that the theoretically motivated and observed sigmoid

pattern of the relationship between informal institutional differences and firm performance enriches the existing literature on cross-border alliances.

Furthermore, we provide empirical support for the notion that informal institutional differences can have marginal positive as well as negative effects, compounded as a net sigmoid effect. This notion is motivated by the fact that cross-border alliances can help MFIs to access possible complementarities or value-adding resources, as well as be a source of disruption to MFIs (Stahl & Tung, 2015). Specifically, we argue that the realization of positive as well as negative outcomes depends, among other factors, on the extent of the observed differences.

We demonstrate that firms can leverage their cross-border experience to moderate the performance impact of informal and formal institutional differences. We suggest that firms can capitalize on experiential learning to form and manage cross-border alliances, specifically utilizing institutional experience and capabilities (Barkema et al., 1997; Cyert & March 1963). To our knowledge, our study is among the first to consider the impact of organizational experience on institutional heterogeneity. Our study hypothesizes and observes positive moderating effect of firms' cross-border experience on both informal and formal institutional differences, which extends the findings of previous studies in this area (e.g., Lavie & Miller, 2008; Kale & Singh, 2007). Another relevant study is that of Hall (1959, p. 156) who builds an experience-based model of institutional adjustment. Our findings are particularly appealing to firms based in developing countries, whose accumulated cross-border experiences are commonly less developed. Experiential knowledge could assist such firms in establishing a range of alliance routines to manage cross-border alliances and to overcome potential frictions and coordination problems due to institutional differences. In turn increasing the potential financial sustainability of cross-border alliances and subsequent social outreach.

It is a commonly observed fact that cross-border partnerships between organizations in the developed world and partners in the developing world are on the rise (Economist, 2014)[19] and our study addresses this phenomenon. Specifically, our study has managerial implications for strategy-making, institutional adaptation, and international business, as called for by Jennings, Greenwood, Lounsbury, and Suddaby (2013). A first implication of our study is that "informal institutional due diligence" may not be sufficient for handling cultural gaps, and that firms should put continuous monitoring in place in order to identify inflection points (Rothaermel & Deeds, 2006). A second managerial implication is that enhancing performance by accessing diverse knowledge bases in cross-border alliances depends on the type of institutional differences being studied. This suggests a need to pay close attention to such differences as a criterion for selecting cross-border alliance partners as well as for a criterion developing adaptations to such differences as an important alliance capability (e.g., Hitt, Ahlstrom, Dacin, Levitas, & Svobodina, 2004). Thus, we recommend a more informal institutionally targeted approach when cross-border actors seek partners in developing countries. We argue that an institutional perspective on MFIs' partnerships can enhance our understanding of what drives their cross-border alliance performance.

In acknowledging the debate on the constructs of informal and formal institutional differences (Berry, Guillen, & Zhou, 2010; Brewer & Venaik, 2011; Luo & Shenkar, 2011), we have attempted to identify informal and formal institutional differences by means of disaggregating them. However, in identifying the effect of each individual index of informal and formal institutions, we have faced challenges of conceptualization and methodology. In

[19] The Economist, "Democracy in America," April 3, 2014. http://www.economist.com/blogs/democracyinamerica/2014/04/foreign-aid.

future research, it may be worthwhile to explore new directions of how to measure and disaggregate individual indices of institutions (e.g., Dow & Larimo, 2011). For instance, it may be worthwhile to explore the extent to which informal institutions share similarities with the concept of culture, in order to compare whether these constructs produce similar or divergent results. Another possible fruitful avenue for future research is to explore the motivations underlying the formation of cross-border alliances (especially between partners in very dissimilar countries), as well as in what direction and by what mechanism knowledge is transferred between partners.

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Appendix 1: MFIs' cross-border dimensions: Descriptive statistics

	Mean	Std.	Min	Max
International initiator	0.38%	0.485	0.000	1.000
International commercial debt	0.41%	0.491	0.000	1.000
International subsidized debt	0.51%	0.500	0.000	1.000
International network member	0.33%	0.471	0.000	1.000

The descriptive statistics for MFIs' cross-border partners in Appendix 1 show that as many as 38% of MFIs have an international initiator, 41% have an international commercial debt, 51% have an international subsidized debt, and 33% are members of a recognized international network.

Appendix 2: The test for a sigmoid relationship between informal institutional differences and MFIs' financial performance returns from cross-border alliances based on Kogut and Singh's index and the uncertainty avoidance dimension of Hofstede.

We computed the informal institutional difference, based on the Kogut and Singh's (1988) index (henceforth referred to as KS) to provide a comparison with our other measures of informal institutional differences reported in Table 5. In addition, in acknowledgment of Shenkar (2001), who argues for the disaggregation of cultural dimensions, we also calculated the difference between MFI m and its cross-border partner's country c_j as the absolute differences of each of Hofstede's dimensions: power distance, uncertainty avoidance, individuality, masculinity, femininity, long-term/short-term normative orientation, and indulgence/restraint. Our preliminary results highlighted that only one indicator was significant, namely, uncertainty avoidance indicator (henceforth referred to as UAI). Therefore, we also tested the sigmoid pattern of H1 using this indicator. Overall, the results confirm the sigmoid relationship between informal institutional differences and MFIs' financial performance from cross-border alliances. Results of the random effects model with ROA as the dependent variable and KS and UAI variables are reported below.

ROA	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Cons	1.855	3.713	1.281	-0.283	0.689	1.479	-0.208	-0.675	1.652	-0.746
	(0.136)	(0.215)	(0.084)	(0.085)	(0.101)	(0.101)	(0.077)	(0.113)	(0.164)	(0.099)
Regulation	-0.040**	-0.008	0.055	0.001	-0.028*	-0.028	-0.015	-0.05	-0.056*	-0.050
	(0.018)	(0.002)	(0.037)	(0.018)	(0.019)	(0.020)	(0.017)	(0.021)	(0.032)	(0.021)
Type	-0.012	-0.011	0.008	-0.011	0.019	-0.012	0.002	0.003	-0.053	0.003
	(0.017)	(0.017)	(0.021)	(0.017)	(0.011)	(0.017)	(0.016)	(0.020)	(0.043)	(0.021)
Assets	0.045**	0.006**	0.127**	0.045**	0.074**	0.045**	0.035***	0.020**	0.099**	0.101**
	(0.012)	(0.004)	(0.045)	(0.012)	(0.015)	(0.012)	(0.012)	(0.013)	(0.011)	(0.013)
Cross-border MFI	0.081	0.022	0.014*	0.032	0.035	0.006	0.013*	0.006	0.212	-0.002
	(0.014)	(0.011)	(0.031)	(0.011)	(0.016)	(0.013)	(0.014)	(0.013)	(0.029)	(0.071)
Cross-border diversity	-0.167	-0.099	0.134*	-0.189	-0.078	-0.019**	0.106	-0.316	0.076	0.088
	(0.012)	(0.016)	(0.077)	(0.116)	(0.088)	(0.055)	(0.086)	(0.254)	(0.061)	(0.072)
Language	0.189**	0.039	0.041	0.047	0.025**	0.028	0.056**	0.178**	0.172	0.191
	(0.051)	(0.022)	(0.032)	(0.016)	(0.009)	(0.008)	(0.011)	(0.046)	(0.051)	(0.058)
HDI	0.055	0.089	0.102	0.068	-0.086	-0.101	-0.167	-0.048	0.063*	-0.097*
	(0.045)	(0.099)	(0.083)	(0.031)	(0.069)	(0.099)	(0.178)	(0.027)	(0.052)	(0.063)
Formal inst. diffs.	-0.013***	-0.031***	-0.061**	-0.046**	-0.078***	-0.066**	-0.045***	-0.033**	-0.068***	-0.033***
	(0.001)	(0.011)	(0.015)	(0.032)	(0.045)	(0.055)	(0.033)	(0.002)	(0.059)	(0.002)
MFI cross-border exp.	0.041	0.061	0.040**	0.012	0.017	0.016	0.018	0.022	0.0132*	0.056
	(0.023)	(0.041)	(0.012)	(0.009)	(0.026)	(0.025)	(0.026)	(0.011)	(0.023)	(0.018)
KS	-1.246***	1.168**	1.234***	-1.206**					1.146***	
	(0.059)	(0.012)	(0.071)	(0.078)					(0.036)	
Square values of KS		-2.431***	-2.587**						-2.615**	
		(0.023)	(0.033)						(0.067)	
Cubic values of KS			1.104*						1.109*	
			(0.004)						(0.008)	
UAI					-1.456***	1.111***	1.159***	-1.354***		1.143**

					(0.046)	(0.065)	(0.051)	(0.077)		(0.089)
Square values of UAI						-2.105**	-2.487**			-2.671**
						(0.032)	(0.027)			(0.128)
Quadratic values of UAI							1.120**			1.101**
							(0.083)			(0.074)
Experience* formal inst. diffs.				0.096**				0.078**	0.067**	0.058**
				(0.023)				(0.055)	(0.043)	(0.006)
Experience* KS				0.017**					0.014***	
				(0.009)					(0.019)	
Experience*UAI								0.028**		0.098**
								(0.034)		(0.056)
Overall R	0.21	0.25	0.27	0.23	0.23	0.26	0.28	0.25	0.29	0.31
Wald chi square	99.58***	127.56***	145.28***	116.89***	117.18***	138.46***	151.85***	126.18***	160.45***	167.83***
Wald test chi square		24.21***	15.45**	9.86**		25.89***	18.42***	12.11***	27.67***	28.146***
N MFIs	280	280	280	280	280	280	280	280	280	280

This table tests our hypotheses by using Kogut and Singh's index (KS) to capture informal institutions. Models 1 and 5 are the baseline models with linear terms of KS and UAI measures, respectively. We test H1 (using KS and UAI measures) and H2 in Models 2 (6) and 3 (7), in which we test for a sigmoid relationship between informal differences and MFIs' performance, respectively, by adding KS and UAI squared terms in Model 2 (6) and KS and UAI cubic terms in Model 3 (7). H3a and H3b are tested by introducing the interaction effect of experience on informal institutional differences (KS and UAI measures) as well as on formal institutional differences in Model 4 (8). Models 9 and 10 serve as the full models with either KS or UAI measures, respectively. ***, **, and * denote statistical significance at 1%, 5%, and 10%, respectively. Standard errors appear in parentheses. The reduced number of MFIs from the original dataset of 405 reflects the missing values subject to list-wise deletion due to factors such as: use of different informal institutional constructs; rating agencies reporting a different number of variables; and/or whether MFIs have cross-border partners.

Appendix 3

Variance inflation factor (VIF) based on baseline Model 1 (5)

Variable	
Formal inst. diffs.	1.364
WVS	1.135
GLOBE	1.842
MFI's cross-border exp.	2.498
Cross-border MFI	2.967
Cross-border diversity	1.534
Language	1.142
Regulation	1.953
Assets	1.576
Type	2.137
HDI	2.492

Table 5 of Appendix 3 reports the results of variance inflation factors of the baseline models. Testing for potential multicollinearity indicates that the maximum variance inflation factor in the full models (Models 9 and 10) is relatively high (Kleinbaum, Lawrence, Muller, & Nizam, 1998). We can attribute this to multiple occurrences of the GLOBE and WVS measures in the independent variables and interactions. Although VIFs fell to conventional levels when the quadratic and cubic terms were dropped, we did not find any symptoms of multicollinearity in the full models (Maddala, 2001).

Table 1: The frequency and percentage of MFIs in our dataset

Country	Freq.	Perc.	Country	Freq	Perc.
Albania	15	0.94	Romania	3	0.19
Argentina	4	0.25	Russian Fed.	58	3.63
Armenia	11	0.69	Senegal	34	2.13
Benin	37	2.32	South Africa	14	0.88
Bolivia	74	4.63	Sri Lanka	1	0.06
Bosnia Herz.	47	2.94	Tanzania	23	1.44
Brazil	56	3.5	Togo	13	0.81
Bulgaria	9	0.56	Trinidad and Tobago	3	0.19
Burkina Faso	13	0.81	Tunisia	3	0.19
Cambodia	48	3	Uganda	52	3.25
Chile	8	0.5	Montenegro	8	0.5
Colombia	27	1.69	Cameroon	21	1.31
Dominican Rep.	18	1.13	Guinea	3	0.19
Ecuador	84	5.26	East Timor	1	0.06
Egypt	17	1.06	Bangladesh	4	0.25
El Salvador	25	1.56	Nepal	13	0.81
Ethiopia	45	2.82	Vietnam	4	0.25
Georgia	24	1.5	Azerbaijan	32	2
Guatemala	28	1.75	Mongolia	9	0.56
Haiti	13	0.81	Nigeria	12	0.75
Honduras	36	2.25	Mozambique	6	0.38
India	91	5.69	Tajikistan	20	1.25
Indonesia	5	0.31	Croatia	4	0.25
Jordan	12	0.75	Chad	3	0.19
Kazakhstan	12	0.75	Rwanda	13	0.81
Kenya	41	2.57	Zambia	4	0.25
Kyrgyzstan	17	1.06	China	4	0.25
Madagascar	7	0.44	Serbia	4	0.25
Mali	11	0.69	Ghana	15	0.94
Mexico	80	5.01	Malawi	4	0.25
Moldova	9	0.56	Gambia	4	0.25
Morocco	32	2	Kosovo	18	1.13
Nicaragua	53	3.32	Rep. of Congo	3	0.19
Pakistan	1	0.06	Burundi	3	0.19
Paraguay	11	0.69	Niger	8	0.5
Peru	127	7.95	DRC - Kinshasa	4	0.25
Philippines	18	1.13			

Table 1 provides information on the proportion of MFIs in our database based on their frequency and percentage.

Table 2: Comparing data from MIX Market and rating reports (our data)

Variables MFIs	MIX Market (2006), 704 MFIs		Rating reports, 405	
	Mean	**Median**	**Mean**	**Median**
Age (years)	12	9	9	8
Total assets (USD)	45,566,650	6,169,918	6,348,701	2,672,081
Total staff (#)	400	94	85	49
# Active loan clients	73,564	10,102	12,543	4,878
Gross loan portfolio (USD)	33,072,688	4,438,677	4,276,508	1,972,629
Average outstanding loan (USD)	1,026	456	602	387

Table 2 documents the data used in this study, which is based on rating reports from five independent rating agencies. For comparison, we have also compared our data to data in the publicly available MIX Market database (https://www.themix.org/mixmarket/datasets), which is supported by World Bank.

Table 3. Definition of variables

Variables	Explanation/definition	Hypotheses
Dependent variables		
Financial performance Return on assets (ROA)	Operational net income divided by average annual assets and adjusted for country inflation	
Independent variables		
Formal inst. diffs. Indicators include business, trade, fiscal, and investment, and financial, monetary, labor freedom, freedom from corruption, property rights, and government size	$\sum_{j=1}^{nit} \mid EI_{kcj} - EI_{km} \mid / n_{it}$ We used principal components factor analysis with varimax rotation, which produced a single factor score	(-)
GLOBE's nine indices: assertiveness, institutional collectivism, in-group collectivism, future orientation, gender egalitarianism, human orientation, performance orientation, power distance, and uncertainty avoidance	$\sum_{j=1}^{nit} \mathrm{EC}_{kj} - EC_{km} / n_{it}$ We used principal components factor analysis with varimax rotation, which produced a single factor score	Sigmoid
WVS	Aggregated measures from the World Values Survey (Inglehart et al., 2004): traditional authority vs. secular-rational authority; survival values vs. self-expression values. We calculated the difference between MFI *m* and its international partner's country c_j: $\sum_{j=1}^{nit} \mathrm{WVS}_{m} - \mathrm{WVS}_{cj} / n_{it}$	Sigmoid
MFI's cross-border exp.	The natural logarithm of the years (lagged by one year) since the MFI started its microfinance operations	Moderating effect of cross-border experience on formal and informal

		institutional differences (+)
MFI control variables		
Cross-border diversity Diversity of MFI's cross-border partners' countries	$1 - \sum_{c=1}^{15} (n_{itc}/n_{it})^2$	
Cross-border MFI	Indicates MFI's type of cross-border alliances in terms of whether (1) the MFI is a member of an international network, (2) an international partner was active in initiating the MFI, and/or (3) the MFI has international debt (subsidized or commercial) Yes=1, No=0	
Language	Indicates whether the MFI has a shared language with its cross-border partner Yes=1, No=0	
Type	Indicates whether the MFI is a shareholder firm or a non-profit firm (we grouped NGOs and cooperatives under non-profit firms and non-bank financial institutions and banks under shareholder firms) Shareholder= 1, Non-profit=0	
Regulation	Whether or not the MFI is regulated by banking authorities Yes=1, No=0	
Assets	The natural logarithm of the MFI's assets	
Human development index (HDI)	A composite country index covering life expectancy, education, and income (GDP per capita)	

Table 3 describes the variables used in this study.

Table 4: Descriptive statistics and bivariate correlation matrix

	Mean	Std.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 ROA	0.02	0.13	1													
2 Formal inst. diffs.	14.36	11.34	-0.03	1												
3 KS index	0.46	1.08	-0.07*	0.26*	1											
4 WVS	5.38	1.31	-0.03	-0.21*	0.32*	1										
5 GLOBE	2.05	1.35	-0.09	0.03	0.12*	0.23*	1									
6 UAI	22.79	17.37	-0.22*	0.13*	0.07	-0.21*	0.07*	1								
7 MFI cross-border exp.	9.22	6.51	0.08	0.01	0.06	0.10*	0.08	0.07	1							
8 Cross-border MFI	0.74	0.44	0.34	0.14*	0.12*	-0.08	0.09	0.06	0.07	1						
9 Cross-border diversity	0.91	1.27	-0.04	0.09	0.24	0.11	0.13	0.07	0.18	0.19	1					
10 Language	0.26	0.16	0.19*	0.18*	0.20*	0.17	0.08	0.16*	0.07	-0.06	-0.24	1				
11 Regulation	0.28	0.46	0.04	-0.05	-0.06	0.02	0.01	-0.09	0.11	0.12	0.15	-0.09*	1			
12 Assets	6.42	0.59	0.28*	-0.01	-0.01	0.05	-0.09	0.08	0.08*	-0.15	0.18	-0.18*	0.13	1		
13 Type	0.34	0.47	-0.05	-0.04	-0.15*	-0.01	-0.05	-0.11	-0.06	-0.21*	0.34	-0.04	0.14*	0.15	1	
14 HDI	0.63	0.13	0.11	-0.26	0.23*	0.14*	0.22*	0.29*	-0.12*	0.08	-0.04	-0.06	0.05	0.12*	0.14	1

Table 4 provides descriptive statistics (mean and standard deviation) for variables used in this study. Significance level: two tails (* $p<0.01$). To save space, the individual formal institutional and GLOBE indices are not reported.

Table 5: Results of random effects model with ROA as the dependent variable

ROA	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Cons	-0.48	0.887	0.806	0.217	-0.551	-0.466	-1.987	-0.398	0.528	0.623
	(0.091)	(0.124)	(0.071)	(0.214)	(0.068)	(0.173)	(0.939)	(0.047)	(0.055)	(0.156)
Regulation	-0.048**	-0.047	-0.030*	0.030*	-0.033**	0.056	-0.035	0.007	-0.022	-0.037
	(0.034)	(0.024)	(0.014)	(0.037)	(0.018)	(0.015)	(0.016)	(0.008)	(0.011)	(0.019)
Type	0.001	0.029	0.003	0.016	0.002	-0.011	-0.008	-0.001	-0.001	-0.005
	(0.028)	(0.023)	(0.028)	(0.021)	(0.006)	(0.021)	(0.004)	(0.005)	(0.007)	(0.014)
Assets	0.073**	0.011**	0.072**	0.013**	0.083***	0.055**	0.006**	0.051**	0.087**	0.062**
	(0.013)	(0.001)	(0.013)	(0.031)	(0.041)	(0.011)	(0.006)	(0.007)	(0.008)	(0.001)
Cross-border MFI	0.011	0.069	0.006	0.013	0.01	0.005	0.012	0.012	0.005	0.023
	(0.033)	(0.031)	(0.033)	(0.009)	(0.026)	(0.022)	(0.019)	(0.009)	(0.008)	(0.018)
Cross-border diversity	-0.035	-0.102**	0.117	-0.045	-0.055	-0.089*	0.102	-0.088	0.168	0.112
	(0.026)	(0.069)	(0.075)	(0.017)	(0.018)	(0.012)	(0.056)	(0.073)	(0.123)	(0.089)
Language	0.130**	0.059	0.033	0.071	0.117**	0.173	0.246	0.221**	0.278	0.162
	(0.061)	(0.056)	(0.033)	(0.042)	(0.047)	(0.046)	(0.061)	(0.099)	(0.072)	(0.034)
HDI	-0.015	-0.022	-0.024	0.036	-0.018**	-0.078*	-0.095	-0.123	0.121	-0.196**
	(0.016)	(0.012)	(0.018)	(0.031)	(0.005)	(0.024)	(0.032)	(0.056)	(0.078)	(0.022)
Formal inst. diffs.	-0.014***	-0.016**	-0.041***	-0.071**	-0.042**	-0.047**	-0.026***	-0.082**	-0.021***	-0.017***
	(0.012)	(0.021)	(0.011)	(0.012)	(0.017)	(0.023)	(0.009)	(0.024)	(0.002)	(0.004)
MFI cross-border exp.	0.013	0.053	0.046*	0.018	0.013*	0.011	0.017*	0.461	0.011	0.015
	(0.008)	(0.024)	(0.022)	(0.005)	(0.002)	(0.001)	(0.001)	(0.009)	(0.005)	(0.006)
GLOBE	-1.036**	1.026**	1.435***	-1.386**					1.535**	
	(0.046)	(0.071)	(0.092)	(0.042)					(0.171)	
Square values of GLOBE		-2.001***	-2.751***						-2.852***	
		(0.016)	(0.077)						(0.182)	
Cubic values of GLOBE			1.126**						1.061**	
			(0.053)						(0.093)	

WVS					-1.019**	1.129***	1.415***	-0.149**		1.361***
					(0.014)	(0.051)	(0.053)	(0.023)		(0.034)
Square values of WVS						-2.055***	-2.064***			-2.527
						(0.088)	(0.081)			(0.015)
Quadratic values of WVS							1.116**			1.113**
							(0.062)			(0.013)
MFI cross-border exp.* formal inst. diffs.				0.078**				0.066**	0.063**	0.044**
				(0.014)				(0.017)	(0.021)	(0.012)
MFI cross-border exp.* GLOBE				0.076***					0.089**	
				(0.011)					(0.009)	
MFI cross-border exp.* WVS								0.097***		0.021**
								(0.056)		(0.005)
Overall R-square	0.22	0.25	0.28	0.26	0.21	0.24	0.27	0.25	0.32	0.31
Wald chi-square	107.56***	128.42***	150.56***	139.78***	103.47***	128.58***	138.47***	131.78***	175.21***	168.44***
Wald test chi-square		25.94***	18. 78***	10.12**		25.13***	14.67***	9.88**	28.66***	25.34***
N MFIs	268	268	268	268	290	290	290	290	268	290

Table 5 exhibits the models for testing our hypotheses. Models 1 and 5 are the baseline models with linear terms of GLOBE and WVS measures, respectively. We test H1 (using GLOBE and WVS measures) and H2 in Models 2 (6) and 3 (7), in which we test for a sigmoid relationship between informal differences and MFIs' performance, by adding GLOBE and WVS squared terms in Model 2 (6) and GLOBE and WVS cubic terms in Model 3 (7). H3a and H3b are tested by introducing the interaction effect of experience on informal institutional differences (GLOBE and WVS measures) as well as on formal institutional differences in Model 4 (8). Models 9 and 10 serve as the full models with either GLOBE or WVS measures, respectively. ***, **, and * denote statistical significance at 1%, 5%, and 10%, respectively. Standard errors appear in parentheses. The reduced number of MFIs from the original dataset of 405 reflects the missing values subject to list-wise deletion due to factors such as: use of different informal institutional constructs; rating agencies reporting a different number of variables; and/or whether MFIs have cross-border partners.

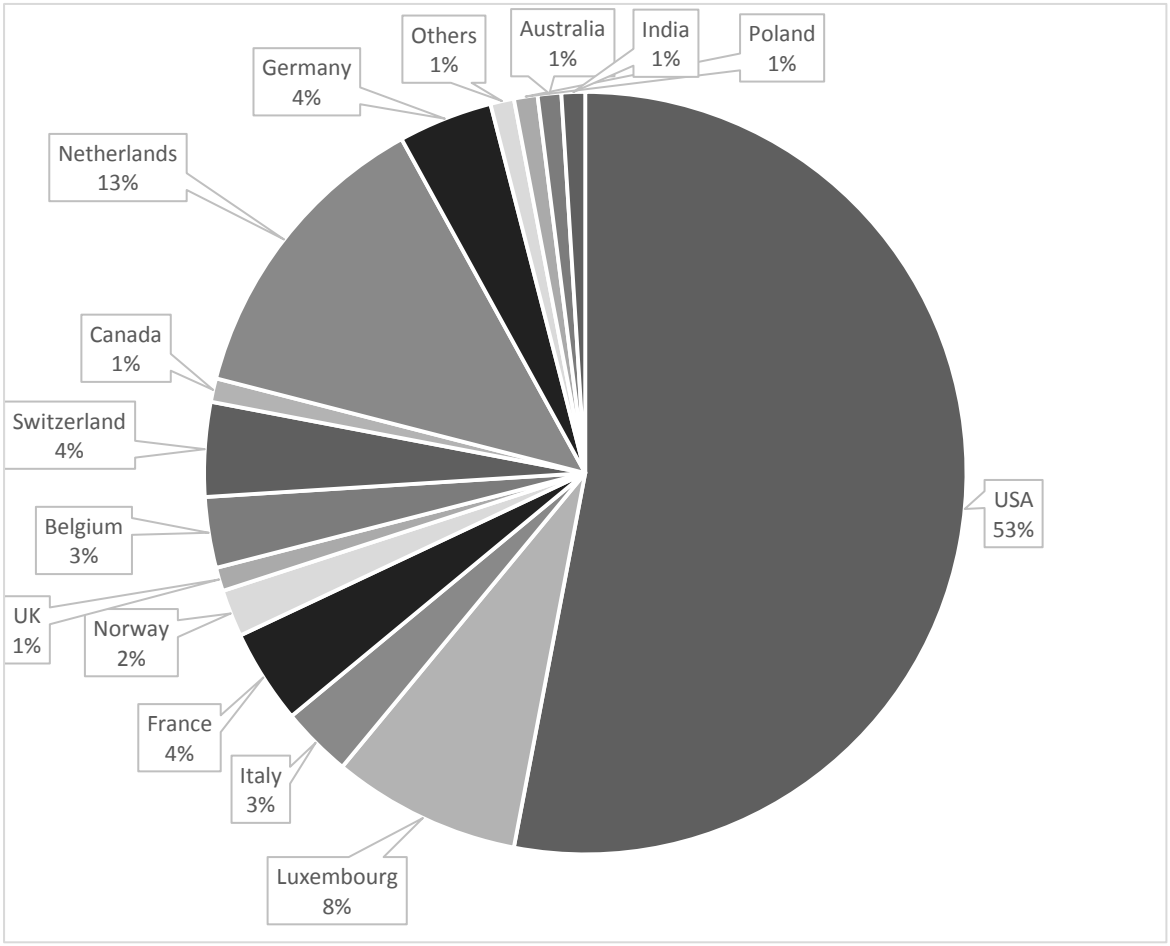

Figure 1: Distribution of MFIs' cross-border partners by country of origin.

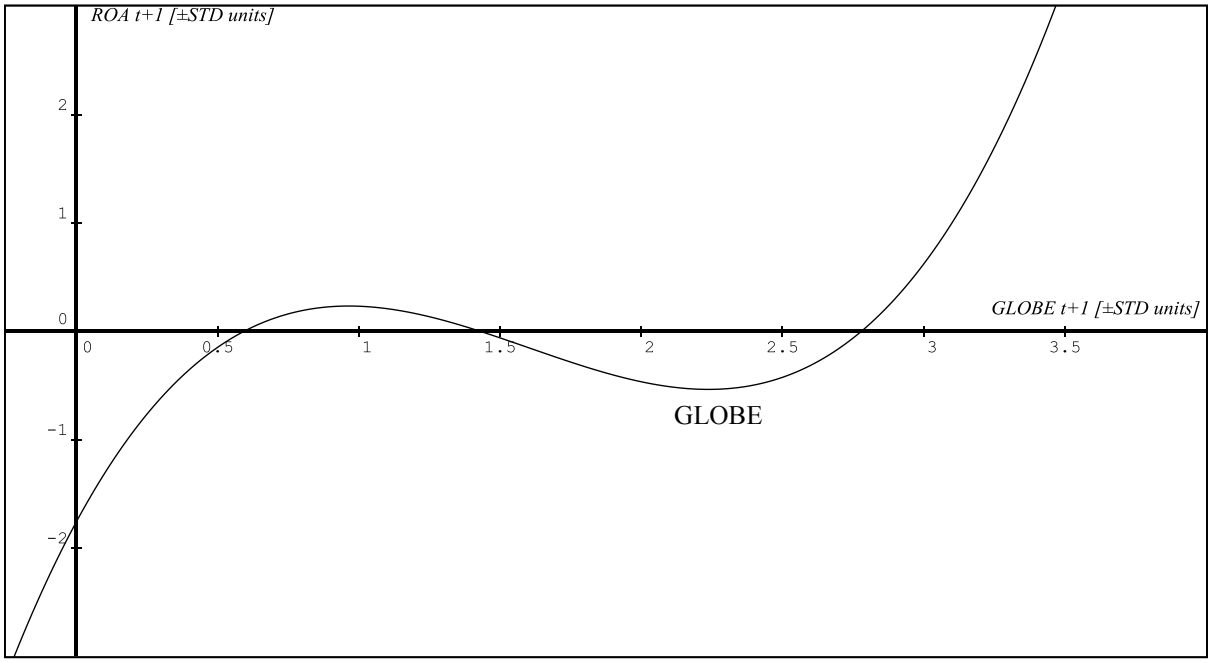

Figure 2: Sigmoid effect of informal institutional differences (GLOBE) on MFIs' performance (Model 9). In this figure, the variables of interest (ROA and GLOBE) are represented in standard deviation units, while all remaining variables are kept at their mean levels.

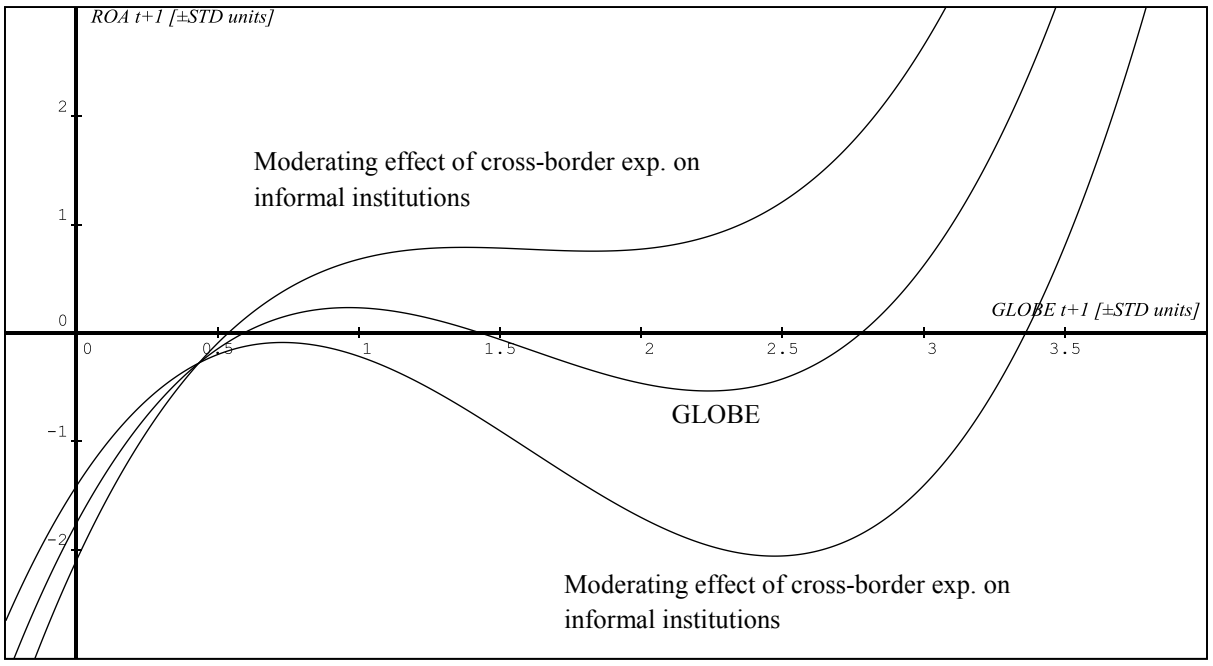

Figure 3: The moderating effect of cross-border experience on MFIs' performance (Model 9). This figure illustrates how the effect of informal institutional differences on the MFI's financial position shifts with one standard deviation (+/-) change in the MFI's cross-border experience.