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Hierarchy and conservatism in the contributions of resources to entrepreneurial activity

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Abstract This study addresses the relationship between the munificence offered by a country's proximate institutions in terms of a critical financial resource (informal investments) and human resource (entrepreneurship education) and its early-stage entrepreneurial activity. We also examine how this relationship might be moderated by underlying cultural values. Our main thesis is that the positive effects of resource munificence of proximate institutions on early-stage entrepreneurial activity should be attenuated in countries with a more hierarchical and conservative culture. We test our hypotheses using a multi-source dataset that spans 42 countries.

Keywords Comparative international entrepreneurship · Institutions · Resources · Culture

JEL Classifications L26 · M13 · O43

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1 Introduction

Entrepreneurship offers a crucial source of economic growth. In turn, entrepreneurial activities within a country are largely influenced by the country's institutions, both proximate and background. Proximate institutions tend to be formal and represent systems and infrastructure that directly shape economic behavior (North 1990); they provide the immediate context for a country's resource flows. Background institutions are typically informal and influence resource flows indirectly, as exemplified by cultural norms and principles about how actors should interact and share resources.

Despite increasing interest in how institutions influence entrepreneurship, limited attention has addressed the interaction of a country's proximate and background institutions (Hayton et al. 2002). Therefore, this study builds on and contributes to the growing body of macro-level entrepreneurship research (Bruton et al. 2009; Minniti and Lévesque 2010) by explicating how the effect of a country's resource base, as established by its proximate institutions, on early-stage entrepreneurial activity[1] may

[1] Consistent with previous research (Levie and Autio 2008; Reynolds et al. 2005), we conceive of early-stage

critically depend on background cultural guidelines and principles, such as the level of hierarchy and conservatism. These values speak to the presence of role obligations that might stifle resource flows within a country (Matsumoto et al. 2008), an issue directly relevant to our research focus.

Early-stage entrepreneurial activity is facilitated by the availability of relevant resources, of which two critical components are *informal investments*, or personal funds provided by family, friends, and acquaintances (Maula et al. 2005; Szerb et al. 2007), and *entrepreneurship education,* or exposure to information about starting and growing a venture (Bowen and De Clercq 2008; Levie and Autio 2008). In particular, we focus on the critical role that such resource types might play at the macro-level. Despite the general assumption that a country's proximate institutions can help channel economic action toward early-stage entrepreneurial activity by providing key financial and human resources (Baker et al. 2005; McMullen et al. 2008), cross-country investigations of entrepreneurship have not provided universal support for the beneficial role of such resources. For example, a recent comparative study of eight developed countries finds no evidence that educational systems significantly enhance entrepreneurship (Lim et al. 2010). We posit in turn that a country's early-stage entrepreneurial activity might depend on the ease with which resources embedded in its proximate institutions can be unlocked. Therefore, we consider the moderating effect of cultural "background" factors (Redding 2005) on the relationship between a country's resource munificence and the level of its early-stage entrepreneurial activity.

Our investigation of how cultural values might unlock resources provided by proximate institutions also extends prior research that has investigated cultural values as direct correlates of entrepreneurship. Hayton et al. (2002) suggest that culture may function as "a catalyst rather than a causal agent of entrepreneurial outcomes" (p. 45)—an argument that aligns with the notion that culture is an institution operating in the background (North 1990; Schwartz 1999). Accordingly, we need finer-grained research to better understand the moderating role of cultural values and explain how specific aspects of proximate institutions might translate into new business creation (Busenitz et al. 2000; Hayton et al. 2002).

In short, we aim to contribute to comparative international entrepreneurship literature by investigating how the cultural values of hierarchy and conservatism might explicate the potency with which a country's resource base—including both informal investments and entrepreneurship education—can be leveraged to enhance early-stage entrepreneurial activity. We draw on prior work pertaining to national business systems (e.g., Redding 2005; Whitley 1999, 2002) and cultural values (Schwartz 1994). We test our hypotheses using a 42-country dataset, derived from the Global Entrepreneurship Monitor's (GEM) *Adult Population Survey* and *Expert Questionnaire.*

2 Theory and hypotheses

2.1 Resource munificence of proximate institutions and early-stage entrepreneurial activity

Institutional theory posits that a country's institutions affect the nature of the economic interactions that take place within its borders (North 1990). Such institutions include the country's financial and educational infrastructure (George and Prabhu 2000; Levie and Autio 2008), as well as principles and guidelines for particular types of economic activity, including entrepreneurship (e.g., Baughn et al. 2006; Hechavarria and Reynolds 2009). One related framework that has proven particularly useful for explaining the role of a country's resource base in predicting entrepreneurship is the national business systems framework (Whitley 1999, 2002). It distinguishes between *proximate* and *background* institutions to delineate how macro-level resources might influence economic activities: Proximate institutions directly affect the resource flows that support particular economic activities, whereas their background counterparts do so indirectly by shaping deeper, underlying values for such resource flows.

Proximate institutions "act as the most immediate context of the business system" and "heavily influence the key resources upon which business is dependent" (Redding 2005, p. 135). As such, the resource munificence of proximate institutions have instrumental

Footnote 1 continued
entrepreneurial activities as those that take place in either the period before the actual launch of a venture (nascent activity) or the initial years after the launch (new business activity).

importance for explaining cross-national differences in the nature of the economic activities undertaken (Redding 2005; Whitley 2002), including entrepreneurial activity (Baker et al. 2005). We consider two resource types embedded in a country's proximate institutions: informal investments and entrepreneurship education. These resource types arguably play critical roles in the emergence and development of new businesses (Levie and Autio 2008; Maula et al. 2005). We hypothesize a positive relationship between the munificence of a country's proximate institutions with regard to these resource types and the level of its early-stage entrepreneurial activity.

First, early-stage entrepreneurial activity relies not only on entrepreneurs' personal financial means (Bygrave 2007) but often also requires substantial external financial capital (Bowen and De Clercq 2008; George and Prabhu 2000). During their earliest years of existence, however, business ventures typically lack reliable performance data or collateral, which makes it hard to secure financing from banks and other sources of intermediated financial capital (Berger and Udell 1998; De Clercq et al. 2012). Informal investments by family, friends, or acquaintances provide an important solution to the resulting "equity gap" (Maula et al. 2005; Szerb et al. 2007). Yet the willingness to provide such informal investments to early-stage ventures varies from country to country (Bygrave et al. 2003). Evidence from the Global Entrepreneurship Monitor (GEM) indicates wide variation in the incidence of informal investment activity relative to a country's gross domestic product (Bygrave 2007; De Clercq et al. 2012). Significantly, entrepreneurial activities tend to be constrained when informal investment is less available (Beck et al. 2005). Therefore, we expect that a country's resource munificence in terms of informal investments relates positively to early-stage entrepreneurial activity.

Second, early-stage entrepreneurial activity requires high-quality human capital—that is, a steady supply of relevant labor and human resources (Whitley 1999). Countries that feature a well-developed education system can better prepare potential entrepreneurs (Begley et al. 2005; Honig 2004). However, one particularly important element is the extent to which the educational system specifically addresses issues relevant to entrepreneurship (Levie and Autio 2008), such as opportunity recognition, new venture creation, and managing subsequent growth. The benefits of such entrepreneurship-specific education include greater awareness of new business creation, less uncertainty surrounding entrepreneurial careers, and the provision of skills needed to launch a venture successfully (Bowen and De Clercq 2008; Levie and Autio 2008; Reynolds et al. 2005). Therefore, a country's early-stage entrepreneurial activity should relate positively to the extent to which its educational system attends to issues pertinent to entrepreneurship.

Hypothesis 1 There is a positive relationship between the resource munificence of a country's proximate institutions with respect to (1) informal investments and (2) entrepreneurship education and its early-stage entrepreneurial activity.

2.2 Moderating effect of background institutions (cultural values)

We further argue that cultural values may moderate these relationships, that is, they influence the ease with which entrepreneurs can exploit a country's resource munificence to support early-stage entrepreneurial activity (Hayton et al. 2002). Culture refers to a collective programming of the mind and guiding principles that underscore human thought and behavior (Hofstede 1980; Schwartz 1999). As an institution, culture operates in the background, providing general principles for how people interact with one another, including their work-related relationships (North 1990; Redding 2005).

Cross-cultural comparative studies of entrepreneurship have adopted various frameworks. For example, Uhlaner and Thurik (2007), using data from the World Values Survey (Inglehart 2003), report a negative impact of post-materialism on new business formation rates. Stephan and Uhlaner (2010) rely on the GLOBE project (House et al. 2004) and predict national entrepreneurship rates on the basis of the extent to which a country's culture is performance-based or socially supportive. However, the most frequently used framework is that proposed by Hofstede (1980, 2001), as exemplified by research that finds a country's level of entrepreneurship to be positively related to its individualism and masculinity and negatively to its uncertainty avoidance and power distance (Busenitz et al. 2000; Hayton et al. 2002). Although Hofstede's framework has great merit and is frequently applied, it has been criticized for being

derived from a single organization and being empirically-driven rather than theory-driven (Magnusson et al. 2008; Ng et al. 2007). The relationships between Hofstede's cultural dimensions and macro-level indicators of entrepreneurship have also been found to be inconsistent over time (Shane 1993).

In this study, we rely on Schwartz's (1994, 1999) cultural framework to derive theoretical relationships among a country's proximate institutions, background institutions (culture), and early-stage entrepreneurship. Schwartz's framework includes seven value types that can be condensed into three dimensions: hierarchy (vs. egalitarianism), conservatism (vs. intellectual and affective autonomy), and harmony (vs. mastery). This model has been shown to be theoretically meaningful and empirically stable across different populations and time frames (Leong and Fischer 2011; Smith and Bond 1998). Its underlying dimensions exhibit equivalent meanings across cultures, and their validity has been tested and confirmed in multidimensional scaling analyses across multi-year, multi-sample studies involving 63 countries (Schwartz 1999; see also Munene et al. 2000).

We focus on Schwartz's hierarchy and conservatism values, because these values refer directly to the ease with which resources are shared among the people in a country (Matsumoto et al. 2008; Schwartz 1999). These values are thus particularly relevant for this study, which focuses on how culture may moderate the relationship between the resource munificence of a country's proximate institutions and early-stage entrepreneurial activity.[2] The link between the hierarchy and conservatism values stems from their common implication that resource flow constraints within a country arise from the role obligations imposed by other actors. Yet these two values also differ in *who* those influential other actors are. Hierarchy highlights resource flow constraints that arise because of the differential power *within* people's referent groups; conservatism captures relationships *between* referent groups and outsiders (Matsumoto et al. 2008; Schwartz 1994, 1999). By investigating these two cultural values, rather than all Schwartz's proposed values, we are able to focus precisely on how specific aspects of a country's culture interact with the resources embedded in its proximate institutions, in line with similar approaches used in previous research (e.g., Chui et al. 2002; Shao et al. 2010).

2.2.1 *The role of hierarchy*

The hierarchy dimension captures the role obligations imposed by powerful incumbents within an individual's referent group or in-group, such as family, religious groups, or an industry. In more hierarchical cultures, people become socialized within a hierarchical system of ascribed roles and rules that reflect current power structures, which legitimize an unequal distribution of power and resources. People in such cultures tend to be less willing to cooperate voluntarily with others and exhibit little concern for others' welfare; they also may not see others as moral equals who share the same basic interests. In contrast, people in low-hierarchy (or egalitarian) cultures tend not to internalize hierarchically defined obligations and roles and instead emphasize equality or social justice.

We hypothesize that the hierarchy of a country's culture suppresses the country's ability to leverage its resource base to support early-stage entrepreneurial activity. Powerful actors in hierarchical cultures tend to protect the status quo and the privileges accorded to their individual positions (Bourdieu 2000; Hofstede 1980), which in turn should deter the free distribution of resources for early-stage entrepreneurial activity. For example, powerful incumbents in a particular industry may be so protective of their existing market positions that they leave limited possibilities for entrepreneurship-relevant resources, whether financial or human capital, to be leveraged for market entry (Matsumoto et al. 2008; Scholtens and Dam 2007). Similarly, Mitchell et al. (2000) suggest that, in countries that accept social inequality, powerful elites have preferential access to not only a country's resource base but also the knowledge structures needed to exploit it, such that members of non-elite groups are prevented from leveraging such resources for their own entrepreneurial activity.

[2] The third dimension of Schwartz's framework (harmony vs. mastery) pertains to how people perceive their place in the natural and social world in general—including the extent to which they emphasize their fit with the surrounding world (Schwartz 1994, 1999)—rather than how underlying conventions guide the distribution of resources among actors. As such, there is no theoretical reason to expect this dimension to influence the distribution of resources among actors or moderate the relationship between a country's resource munificence and early-stage entrepreneurial activity. An unreported, post-hoc analysis confirmed this expectation.

In contrast, less hierarchical cultures tend to view unbalanced resource allocations as unethical and discourage the accumulation of resources by a limited set of powerful incumbents (Cohen et al. 1996; Takyi-Asiedu 1993). Since powerful incumbents are thus less inclined to defend the status quo (Bourdieu and Wacquant 1992; Hofstede 1980), resources relevant for entrepreneurial endeavors can be more easily exploited (Mitchell et al. 2000). In summary, we expect then that the instrumentality of entrepreneurship-specific resource munificence for enhancing early-stage entrepreneurial activity is attenuated in strongly hierarchical cultures, because the resources embedded in their proximate institutions are distributed less efficiently.

Hypothesis 2 The relationship between the resource munificence of a country's proximate institutions and its early-stage entrepreneurial activity is moderated by the hierarchy of its culture, such that the relationship is weaker for more hierarchical cultures.

2.2.2 *The role of conservatism*

The conservatism dimension entails the relationships between people's referent group and their out-groups, as well as the associated obligations to ensure the well-being of the referent group (Schwartz 1994, 1999). In conservative cultures, people tend to feel strongly connected to their immediate peers, such that the meaning of their lives is largely derived from their social relationships with them. Individuals are thus seen as embedded members of a group rather than as autonomous entities, and actions that could upset the traditional order are discouraged (Smith and Schwartz 1997). As a consequence, such cultures work to conserve resources for the referent group and defend those group resources from external threats or access (Matsumoto et al. 2008). At the other extreme, people in autonomous cultures find meaning in their uniqueness and are encouraged to express their own preferences and interests. They are not restrained by in-group obligations and instead are more likely to reach out to outsiders to obtain resources (Schwartz 1999).

We expect a similar attenuation effect of conservatism as that of hierarchy, in terms of exploiting a country's entrepreneurship-specific resource base for early-stage entrepreneurial activity. Conservative cultures tend to promote communal relationships that encourage reliance on in-group resources, even if outside resources might be more useful for achieving personal goals such as entrepreneurship (Yamaguchi 1994). In such cultures, resources are less likely to be distributed across a diverse set of actors, and there are consequently fewer opportunities for a country's entrepreneurship-specific resource base (e.g., financial capital, entrepreneurial skills) to be leveraged into early-stage entrepreneurial activity (Matsumoto et al. 2008; Mitchell et al. 2000). For example, entrepreneurs may rely less on informal investments provided by people from out-groups, because prevailing cultural norms discourage economic interactions with these groups.

In contrast, people in less conservative countries, who tend to be viewed as autonomous entities pursuing their own personal goals, are more open to engage in a free exchange of resources if such resources are needed to achieve their entrepreneurial goals (Schwartz 1994). In such cultures, the extent to which the resources embedded in proximate institutions are freely distributed depends on the characteristics of the resources themselves, rather than on whether the resources originate from the own referent group or out-groups (Matsumoto et al. 2008). In all, the relationship between the resource munificence of a country's proximate institutions and its early-stage entrepreneurial activity should be attenuated by the strength of its conservative values.

Hypothesis 3 The relationship between the resource munificence of a country's proximate institutions and its early-stage entrepreneurial activity is moderated by the conservatism of its culture, such that the relationship is weaker for more conservative cultures.

3 Research methods

3.1 Data collection

We obtained country-level data about early-stage entrepreneurial activity, the resource munificence of proximate institutions, and cultural values of 42 countries (listed in the "Appendix") from multiple sources. First, we derived the data about early-stage entrepreneurial activity and the munificence of informal investments from the GEM's *Adult Population Survey*. These data are notably rich, reliable, and valid

(Reynolds et al. 2005). In each country, private market survey firms annually conduct the *Adult Population Survey* with a representative weighted sample of at least 2,000 adults (aged 18–64 years) through telephone (or occasionally face-to-face) interviews. Macro-level entrepreneurship and international business research has increasingly employed these data (e.g., Bowen and De Clercq 2008).

Second, we used the GEM's *Expert Questionnaire*, a survey of country experts from varied backgrounds and knowledge bases, to assess the munificence of a country's educational system with regard to entrepreneurship-specific issues. The *Expert Questionnaire* employs standardized questions and validated measurement scales to assess, among other issues, experts' views of the quality of a country's educational system as it pertains to entrepreneurship (Levie and Autio 2008). The multi-item constructs in this survey have been proven to be highly reliable (Reynolds et al. 2005).

Third, we adopted the two cultural values, hierarchy and conservatism, from Schwartz, whose cultural framework provides content domains of values that distinguish people from different cultures at the country level (Kirca et al. 2009; Schwartz 1994); these values are reputed for their broad and strong theoretical foundation (cf. Kagitcibasi 1997; Steenkamp 2001) and have been widely used in academic research (e.g., Brock et al. 2008; Licht et al. 2007). Schwartz's values are derived from the perceptions of similar groups of respondents (e.g., school teachers) matched on critical characteristics in each country, and have demonstrated cross-country equivalence of meaning (Schwartz 1994). We employed Schwartz's adjusted scores which correct for country-level differences in scale use (as discussed by Ng et al. 2007).

3.2 Measures

3.2.1 Early-stage entrepreneurial activity

We measured a country's early-stage entrepreneurial activity with the aggregate total early-stage entrepreneurial activity (TEA) index derived from GEM's *Adult Population Survey*. The TEA measures the proportion of a country's adult population (18–64 years) engaged in either the process of starting a business ("nascent activity") or managing/owning a business that is <42 months old ("new business activity"). It is arguably the most widely used index in the GEM project. Reynolds et al. (2005) validated the TEA index by comparing it with national administrative data on firm birth rates. They also have confirmed its reliability by calculating the correlation of countries' TEA rates over different years. We similarly tested the reliability of our measure by calculating the correlation between countries' TEA levels for the different years under study (2003–2007). The correlation coefficients varied between .69 and .98 and were significant at $p < .01$.

3.2.2 Informal investments

We drew this variable from GEM's *Adult Population Survey* to measure a country's informal investment rate. This annual survey asks respondents whether they have financially contributed to a new business in the past 3 years, excluding stocks and funds (Maula et al. 2005; Szerb et al. 2007). The country-level aggregate index thus measures, in a given year, the percentage of a country's population that has engaged in informal investing. We tested the reliability of the measure by calculating the correlation between the prevalence of informal investing per country across the different years under study (2003–2007). The correlation coefficients varied between .79 and .97 and were significant at $p < .001$.

3.2.3 Entrepreneurship education

The measure of entrepreneurship education was based on the average of six items from GEM's *Expert Questionnaire* that assess the quality of a country's educational system with respect to entrepreneurship, using five-point Likert scales (Levie and Autio 2008; Reynolds et al. 2005). These questions include, for example, "In my country, teaching in primary and secondary education provides adequate attention to entrepreneurship and new firm creation" and "In my country, colleges and universities provide good and adequate preparation for starting up and growing new firms." The pairwise correlations between our composite measure and the six questions ranged between .70 and .79, and the Cronbach's alpha value was .83. The correlation coefficients among the values for the different years (2003–2007) spread between .64 and .87 and were all significant at $p < .05$.

3.2.4 Hierarchy

We adopted countries' adjusted hierarchy scores from Schwartz (1994, 1999), which assess the extent to which a culture legitimizes an unequal distribution of power, roles, and resources. The composite score is calculated by aggregating respondents' assessments of the importance of several guiding principles in their lives, with answers ranging from 7 ("of supreme importance") to 3 ("important") to 0 ("not important") to −1 ("opposed to my values") (Schwartz 1999).

3.2.5 Conservatism

The countries' adjusted scores for the conservatism dimension also came from Schwartz (1994, 1999). This dimension assesses the extent to which a culture emphasizes the existing social balance and discourages actions that might disrupt solidarity within the referent group or upset a traditional social order. The scores are calculated in a manner similar to those for hierarchy (Schwartz 1999).

3.2.6 Control variables

We included two control variables to account for alternative explanations of country-level differences in early-stage entrepreneurial activity: business friendliness and gross domestic product (GDP) per capita. We limited the number of control variables considering the limited number of data points (i.e., 42 countries), and because our aim was to understand the nature of specific direct and moderating effects, not to comprehensively model total early-stage entrepreneurial activity. First, *business friendliness* is a one-item measure based on a seven-point Likert scale, which captures the extent to which a country's managers judge hiring and firing practices as "flexible enough" rather than "too restricted"—a specific, important element of the extent to which a country's labor market policy is business friendly (Bénassy-Quéré et al. 2007; Dewitt et al. 2009; Görg 2005). It measures a critical obstacle, or lack thereof, to engaging in early-stage entrepreneurial activity (van Stel et al. 2007). We drew this variable for each country and year from various editions of the *Global Competitiveness Report* published by the World Economic Forum. Second, we controlled for the country's *GDP per capita*, because a country's level of economic development should affect its level of entrepreneurship (Wennekers et al. 2005). This measure came from a World Development Indicator provided by the World Bank (2009) that captures a country's GDP per capita in a given year, after a natural log transformation.

3.3 Data analysis

To test our hypotheses, we conducted a hierarchical ordinary least squares regression analysis using 42 country observations. Although we gathered 125 data points from the 42 countries over 5 years (2003–2007), we averaged the country data for the time period, similar to previous cross-country studies of entrepreneurship (e.g., Bowen and De Clercq 2008; Stephan and Uhlaner 2010), for two main reasons. First, the unbalanced panel dataset due to missing values may bias the estimates of the model parameters. Second, the TEA and two country-level resource variables were relatively stable for the 5-year study period.

4 Results

4.1 Main analysis

Table 1 contains the means, standard deviations, and correlations of the variables. The variance inflation factors (VIFs) were well below the cut-off value of 10 (Neter et al. 1996). We also reported the average VIF values for each of the regression models, and the highest value was 3.41 (see Table 2, Model 4), lower than the conservative cut-off value of 5 (Studenmund 1992). These statistics indicated no multicollinearity concerns in our analysis.

Table 2 shows the regression models we used to test the hypotheses. Model 1 included the control variables; Model 2 added the two proximate institutions (i.e., informal investments and entrepreneurship education) to test Hypothesis 1. In Model 3, we added the interaction terms between the two proximate institutions and the hierarchy value to test Hypothesis 2. Finally, Model 4 included the interaction terms between the two institutions and the conservatism value to test Hypothesis 3. Thus, we included the interaction terms for a particular cultural variable

Table 1 Summary statistics and correlation matrix ($N = 42$)

	Mean	SD	1	2	3	4	5	6
1. Total early-stage entrepreneurial activity	8.941	7.378						
2. Informal investments	4.314	4.558	.578					
3. Entrepreneurship education	2.419	.268	−.177	−.065				
4. Hierarchy	2.234	.441	.398	.478	−.090			
5. Conservatism	3.580	.314	.418	.517	.061	.641		
6. Business friendliness	3.548	1.011	.052	.154	.400	.396	.257	
7. GDP per capita	9.150	1.235	−.480	−.586	.266	−.503	−.504	.034

Correlations above |0.31| are significant at $p < .05$

Table 2 Main analysis (total early-stage entrepreneurial activity)

	Model 1	Model 2	Model 3	Model 4
Business friendliness	.069	−.019	−.097	.063
	(.489)	(−.111)	(−.575)	(.421)
GDP per capita	−.483***	−.108	−.220	−.046
	(−3.444)	(−.584)	(−1.176)	(−.271)
H1a: informal investments		.433*	.980**	1.092**
		(2.504)	(3.037)	(3.130)
H1b: entrepreneurship education		−.114	−.050	−.300†
		(−.736)	(−.328)	(−1.830)
Hierarchy		.062	.084	−.036
		(.309)	(.434)	(−.192)
Conservatism		.112	−.057	.104
		(.598)	(−.285)	(.623)
H2a: informal investments × hierarchy			−.607*	
			(−2.041)	
H2b: entrepreneurship education × hierarchy			−.005	
			(−.037)	
H3a: informal investments × conservatism				−.813*
				(−2.717)
H3b: entrepreneurship education × conservatism				−.272†
				(−1.997)
Mean model VIF	1.00	1.85	2.91	3.41
R^2	.235	.397	.478	.553
ΔR^2 against Model 1		.162	.243	.318
F test (F; against Model 1)		2.34†	2.55*	3.90**
ΔR^2 against Model 2			.1081	.156
F test (F; against Model 2)			2.56†	5.75**
Log likelihood	−137.39	−132.41	−129.77	−126.13
Log likelihood ratio test (χ^2; against Model 1)		9.97*	15.24*	22.52***
Log likelihood ratio test (χ^2; against Model 2)			5.27†	12.55**
AIC	28.79	278.82	277.55	27.26

$N = 42$. Standardized coefficients (and t values); † $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$ (all two-tailed tests)

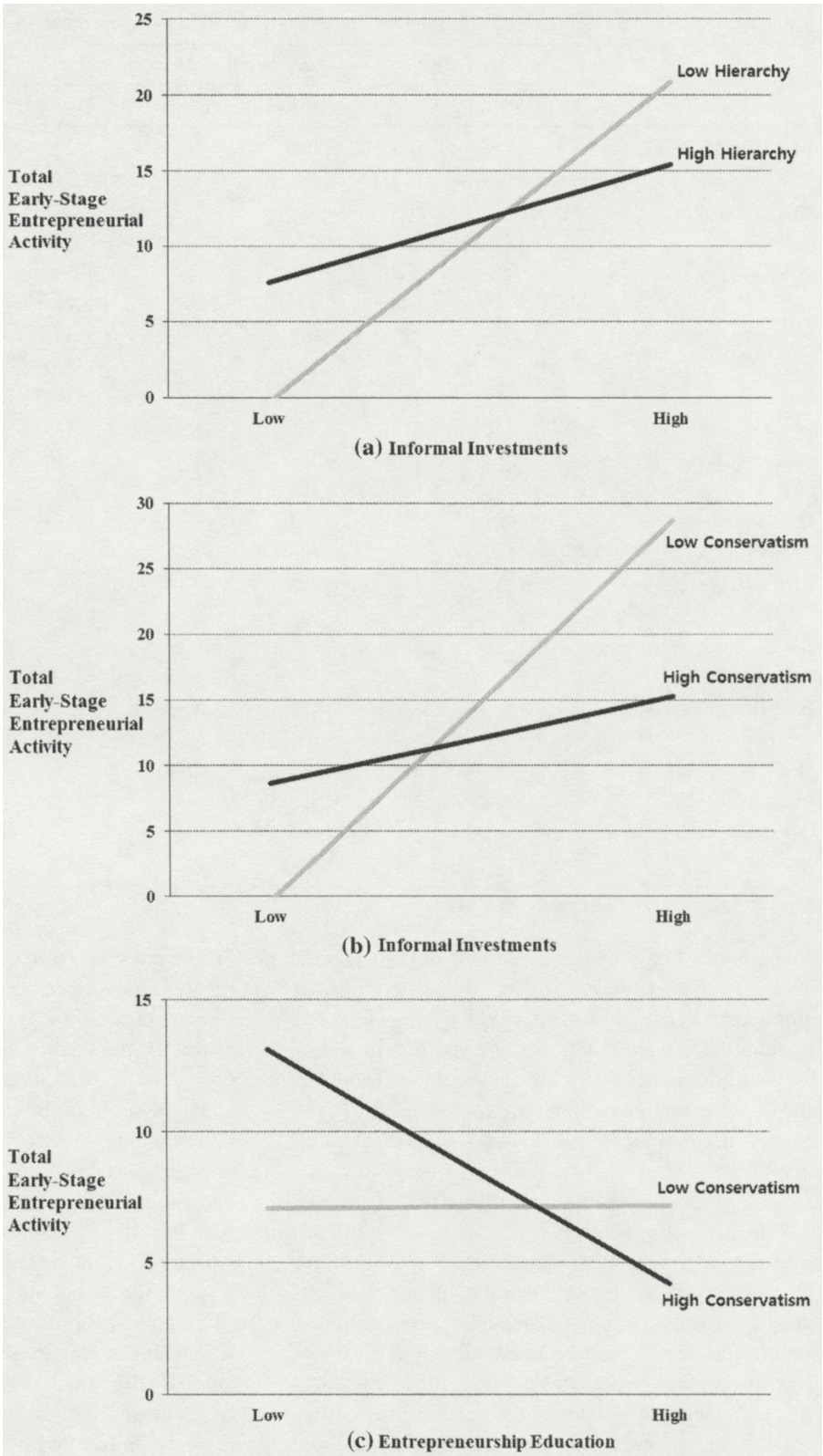

Fig. 1 Moderating effect of culture on the resource munificence-total early-stage entrepreneurial activity relationship. **a** Informal investments and hierarchy. **b** Informal investments and conservatism. **c** Entrepreneurship education and conservatism

Table 3 Post-hoc analyses (nascent vs. new business activity; necessity versus opportunity-based entrepreneurial activity)

	Nascent activity		New business activity		Necessity		Opportunity	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Business friendliness	−.185	−.012	.040	.164	−.022	.068	−.139	.051
	(−1.038)	(−.075)	(.249)	(1.132)	(−.125)	(.457)	(−.837)	(.329)
GDP per capita	−.132	.055	−.332†	−.187	−.457*	−.346*	−.076	.124
	(−.665)	(.297)	(−1.829)	(−1.143)	(−2.367)	(−2.050)	(−.411)	(.698)
H1a: informal investments	1.047**	1.154**	.775*	.924**	.256	.795*	1.299***	1.158**
	(3.064)	(3.043)	(2.476)	(2.744)	(.770)	(2.294)	(4.100)	(3.179)
H1b: entrepreneurship education	−.009	−.271	−.072	−.291†	−.142	−.365*	.015	−.234
	(−.055)	(−1.522)	(−.480)	(−1.838)	(−.896)	(−2.240)	(.096)	(−1.372)
Hierarchy	.022	−.107	.179	.076	.147	.030	.041	−.073
	(.105)	(−.529)	(.953)	(.425)	(.733)	(.161)	(.214)	(−.376)
Conservatism	.0010	.170	−.171	−.041	−.010	.034	−.096	.120
	(.004)	(.939)	(−.890)	(−.254)	(−.049)	(.204)	(−.495)	(.692)
H2a: informal investments × hierarchy	−.657*		−.474		−.187		−.810**	
	(−2.084)		(−1.643)		(−.610)		(−2.772)	
H2b: entrepreneurship education × hierarchy	.054		−.096		−.051		.027	
	(.375)		(−.726)		(−.366)		(.202)	
H3a: informal investments × conservatism		−.840*		−.726*		−.816**		−.758*
		(−2.581)		(−2.509)		(−2.742)		(−2.425)
H3b: entrepreneurship education × conservatism		−.230		−.293*		−.211		−.285†
		(−1.554)		(−2.222)		(−1.556)		(−2.003)
Mean model VIF	2.91	3.41	2.91	3.41	2.91	3.41	2.91	3.41
R^2	.403	.472	.499	.583	.434	.558	.487	.513
Log likelihood	114.43	−111.89	−96.93	−93.09	−94.26	−89.08	−110.61	−109.53
AIC	246.87	241.77	211.86	204.17	206.51	196.16	239.21	237.06

$N = 42$. Standardized coefficients (and t values); † $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$ (all two-tailed tests)

concurrently but added each pair of culture-specific interactions in sequence, to avoid multicollinearity problems (Cohen and Cohen 1983). The F value and log-likelihood ratio (LR) tests showed that including the two proximate institutions and culture (Model 2) and the different interaction terms (Models 3 and 4) all improved the empirical power of the models significantly.

With Model 2, we found a positive effect of informal investments ($\beta = .433$, $p < .05$) but no significant effect of entrepreneurship education ($\beta = -.114$, *ns*). This result partially supported the anticipated beneficial role of the resource munificence of a country's proximate institutions for early-stage entrepreneurial activity. The moderation hypotheses investigating whether a country's hierarchy attenuates the relationship between resource munificence and early-stage entrepreneurial activity (Hypotheses 2a–b) also received partial support: Whereas the interaction effect between informal investments and hierarchy was negative and significant ($\beta = -.607$, $p < .05$), the interaction between entrepreneurship education and hierarchy was not significant ($\beta = -.005$, *ns*). Finally, we found support for the attenuation effects of conservatism on the relationship between the two proximate institutions and early-stage entrepreneurial activity: The interaction was negative and significant for informal investments ($\beta = -.813$, $p < .05$) and weakly significant for entrepreneurship education ($\beta = -.272$, $p = .054$), in support of Hypotheses 3a and b.

To gain better insights into the specific nature of the significant interactions, we plotted the corresponding graphs (Fig. 1a–c). The strength of the positive relationship between resource munificence with respect to informal investments and early-stage entrepreneurial activity appeared subdued in countries

marked by high levels of hierarchy (Fig. 1a). A similar pattern emerged with respect to the attenuation effect of conservatism on the positive relationship between informal investments and early-stage entrepreneurial activity (Fig. 1b). The relationship between entrepreneurship education and early-stage entrepreneurial activity even became *negative* at high levels of conservatism (Fig. 1c).

4.2 Post-hoc analysis

We undertook two sets of post-hoc analyses to investigate the potentially differing moderating effects of the cultural values on two types of early-stage entrepreneurial activity. First, we compared interaction models that aimed to explain a country's nascent activity, or the proportion of the adult population currently in the process of starting up a business (Table 3, Models 1 and 2), versus its new business activity, or the proportion of the adult population who owned/managed a business <42 months old (Table 3, Models 3 and 4). For nascent activity, both hierarchy ($\beta = -.657$, $p < .05$) and conservatism ($\beta = -.840$, $p < .05$) hampered the exploitation of informal investments but did not significantly influence the leveraging of entrepreneurship education. For new business activity, conservatism hindered the exploitation of resources with respect to both informal investments ($\beta = -.726$, $p < .05$) and entrepreneurship education ($\beta = -.293$, $p < .05$), but the moderating effects of hierarchy were not significant ($\beta = -.474$, *ns*; $\beta = -.096$, *ns*, respectively).

Second, we compared the interaction terms for predictions of early-stage entrepreneurial activity driven by necessity (Table 3, Models 5 and 6) versus opportunity (Models 7 and 8). For necessity-based early-stage entrepreneurial activity, we found only one significant moderating effect, namely, the interaction between informal investments and conservatism ($\beta = -.816$, $p < .01$). For opportunity-based entrepreneurial activity, the significant interaction effects between informal investments and hierarchy ($\beta = -.810$, $p < .01$) and informal investments and conservatism ($\beta = -.758$, $p < .05$), as well as the weakly significant interaction between entrepreneurship education and conservatism ($\beta = -.285$, $p < .10$), were consistent with the findings for early-stage entrepreneurial activity in general.

5 Discussion

5.1 Discussion of results

The positive and significant relationship we found between the availability of informal investments and the level of early-stage entrepreneurial activity is consistent with arguments that a financial system targeted at entrepreneurial activities critically enables a country's business infrastructure to support such activities (Bowen and De Clercq 2008; George and Prabhu 2000). This assertion is particularly pertinent when it comes to the availability of personal funds from informal investors (e.g., Maula et al. 2005; Szerb et al. 2007). In this regard, the negative correlation between our informal investment measure and a country's GDP ($r = -.586$, $p < .001$) implies that such investments may play a particularly important role in less developed countries, for example through micro-lending practices that take place within family and friendship circles (Bygrave 2007). Yet our results, somewhat surprisingly, indicate that a country's entrepreneurship education does *not* have a direct impact on the level of early-stage entrepreneurial activity, even though such education is considered an important feature of countries' immediate macro-economic context that may assist in the creation of new businesses (Levie and Autio 2008).

Our findings regarding the moderating effects of hierarchy and conservatism shed further light on these results. With the exception of the insignificant interaction between entrepreneurship education and hierarchy, we find that the extent to which a country's value system infuses rigidity into the exchange of resources (manifested in high levels of hierarchy and conservatism) attenuates the relationship between resource munificence and early-stage entrepreneurial activity. First, the potency of a country's informal investments for enhancing early-stage entrepreneurial activity decreases with higher levels of hierarchy (Fig. 1a). This finding indicates that the tendency of powerful actors in hierarchical cultures to protect the privileges that come with their status may prevent the efficient distribution of relevant financial resources to those who need them most in their entrepreneurial endeavors (Bourdieu 2000; Hofstede 1980). For example, early-stage entrepreneurial activity in India—a country marked by relatively high levels of hierarchy (3.05; mean 2.18; SD .47)—is not

particularly prevalent (9.48; mean 8.63; SD 6.69), despite the abundance of informal investments available to entrepreneurs (22.43; mean 3.86; SD 3.91).

The constraining influence of a country's culture on the exploitation of its resource base to support early-stage entrepreneurial activity is also apparent in the moderating effect of conservatism. In countries marked by high levels of conservatism, the instrumentality of informal investments for enhancing such activity diminishes, and entrepreneurship education even suppresses early-stage entrepreneurial activity. A possible explanation for this latter finding is that entrepreneurship education may increase awareness of the risks associated with a career as an entrepreneur; combined with the natural tendency in conservative cultures to avoid seeking resources from outsiders, such awareness could steer people toward non-entrepreneurial economic activities that offer more stability and certainty (Sarasvathy 2008). A further examination of the nuanced nature of this relationship is warranted though, particularly considering the relatively weak interaction between entrepreneurship education and conservatism. For example, it would be useful to investigate how the interplay between culture and people's exposure to entrepreneurship-specific education influences their individual motives to pursue a career as an entrepreneur (Honig 2004).

Our post-hoc analyses illustrate that the two cultural values play different roles in exploiting a country's resource base for "nascent" versus subsequent "new business" activity. First, in the nascent phase, hierarchy and conservatism hampered the effective exploitation of informal investments, but not entrepreneurship education. Perhaps nascent businesses depend more heavily on the availability of informal investments, because traditional sources of financing (e.g., banks) tend to be unwilling to invest in the very early stages of new ventures (Berger and Udell 1998; Szerb et al. 2007). Accordingly, nascent businesses are affected to a greater extent by how the country's culture allows for the free flow of entrepreneurship-specific financial resources. In contrast, the need to attract relevant human resources from a wide set of sources may be less salient when the venture is still in the process of being set up (Davidsson and Honig 2003). Second, in the new business phase, conservatism hampered the leveraging of informal investments and entrepreneurship education, but hierarchy did not. As a possible explanation, we posit that once the venture is up and running, it needs a larger resource base, which may require support from a wider set of actors, particularly from those who are *outside* the entrepreneur's referent group and are not immediate peers (De Clercq and Arenius 2006; Shane and Delmar 2004). Thus, highly conservative cultures attenuate the extent to which entrepreneurship-relevant resources can be channeled toward new business activity, because these values tend to hamper the range of outside actors from which entrepreneurs can acquire relevant resources (Matsumoto et al. 2008; Schwartz 1994). In contrast, the unwillingness of powerful incumbents who belong to the entrepreneurs' *own* referent group to share resources in hierarchical cultures might have less of an impact on the exploitation of the country's resource munificence in the new business phase.

The post-hoc analyses also revealed that the moderating role of cultural values was stronger for early-stage entrepreneurial activity driven by opportunity rather than necessity. Necessity-based entrepreneurship is often a last resort (McMullen et al. 2008); any cultural explanations for this type of entrepreneurship—including the effects on the exploitation of a country's resource base—thus may be superseded by economic explanations. In contrast, opportunity-based entrepreneurship should be more prone to institutional influences, considering the greater opportunity costs faced by opportunity-oriented entrepreneurs (Shane and Venkataraman 2000). Such entrepreneurship also tends to rely more on access to relevant resources, particularly the ability to combine and leverage those resources across a wide set of actors (Lechner and Leyronas 2009; McMullen et al. 2008). In turn, this tendency should increase the potency with which the cultural values studied here impact the leveraging of entrepreneurship-relevant resources for opportunity-based entrepreneurship.

In general, our findings provide support for our key theoretical argument: The effectiveness of a country's proximate institutions in channeling relevant resources toward early-stage entrepreneurial activity depends in critical ways on the cultural environment in which such activity takes place. As such, we contribute to comparative international entrepreneurship research by explicating how cultural values that affect the rigidity of resource flows influence the instrumentality of different resource types, embedded in proximate institutions, for enhancing early-stage entrepreneurial activity. In countries in which people tend to accept the role obligations

imposed on them by powerful others (i.e., hierarchical) or similar others (i.e., conservative), the potency of the resource munificence in countries' proximate institutions for enhancing entrepreneurship diminishes. This study thus provides important insights into the simultaneous roles that specific aspects of the institutional environment play in fostering entrepreneurship.

5.2 Limitations and future research directions

We acknowledge that this study's empirical approach and research method are not without limitations. First, our selection of countries was based on their availability in the GEM project, rather than a random selection procedure. Second, the Schwartz data are not very recent; future research should determine whether their validity still holds. Third, we derived the entrepreneurship education variable from the opinions of experts, who reported the extent to which their country's education system devotes attention to entrepreneurship-related issues. Although the GEM protocol requires that these experts represent various backgrounds and knowledge (Reynolds et al. 2005), their representativeness for a country's whole population cannot be warranted, and the type of experts selected might also vary across countries. Fourth, by running separate regressions for the interaction terms that included hierarchy versus conservatism, we implicitly treated these two cultural values as independent. Such independence cannot be assumed conceptually, but this empirical approach helped us avoid the multicollinearity problems that would have arisen had we considered all the interaction terms simultaneously (Neter et al. 1996). Fifth, the relationships that we hypothesized may be susceptible to reverse causality, in that the prevalence of early-stage entrepreneurial activity can affect a country's resource munificence. For example, an importance source of informal investments might be wealthy, established entrepreneurs who want to give back to emerging businesses (Mason and Harrison 1999). Early-stage entrepreneurial activity also contributes to economic growth and prosperity (Minniti and Lévesque 2010), which may affect a country's cultural values (Inglehart and Baker 2000). Thus, unpacking the complex and dynamic relationships among country-level resources, cultural values, and entrepreneurial activity likely requires longitudinal research designs that span a longer period.

Further research should also consider the interplay between culture and *other* entrepreneurship-relevant financial resources, such as formal venture capital, government subsidies, or targeted bank loans (Bowen and De Clercq 2008), as well as exposure to entrepreneurship at different *levels* of educational training (Uhlaner and Thurik 2007). Such research could also investigate the role of additional resource types, such as the extent to which people encounter entrepreneurial role models (Scherer et al. 1989) or believe that exchange partners can be trusted (Dakhli and De Clercq 2004). Another approach would be to examine how economic variables, such as the country's level of development, fit the picture, and particularly how cultural variables might help unlock a country's financial resources in general, instead of only entrepreneurship-specific ones, and thereby help predict entrepreneurial activity (Wennekers et al. 2007).

Another potentially fruitful area for research is investigating the interplay between a country's resource base and a *wider* set of cultural values than we considered, although such an approach might lead to greater multicollinearity and higher hurdles for finding significant interaction effects. For example, future research could consider the moderating impact of socially supportive versus performance-based cultures (Stephan and Uhlaner 2010) or also that of Hofstede's (1980, 2001) cultural dimensions. In this regard, it has been argued that Schwartz's hierarchy and conservatism values relate closely to Hofstede's power distance and collectivism dimensions, respectively (Shao et al. 2010; Wu et al. 2008). Thus, by using Schwartz's values, we built on and extended comparative international entrepreneurship literature that has been based on Hofstede's work, while overcoming some of the criticisms leveled at it (Magnusson et al. 2008; Ng et al. 2007). Additional research could undertake an explicit comparison of the two frameworks in terms of their capacity to explain how a country's proximate institutions can be leveraged toward early-stage entrepreneurial activity. Another framework that would be particularly useful for undertaking *longitudinal* studies is that of Inglehart (2003) because it assumes that a country's cultural values are time dependent, whereas Schwartz and Hofstede consider culture as being relatively invariant and enduring over time (Uhlaner and Thurik 2007).

5.3 Implications

We believe this study offers important implications for policy makers. In particular, the direct positive effect of the availability of informal investments on early-stage entrepreneurial activity points to the need for countries to make this source of financing widely available to economic actors. Although many entrepreneurs rely on self-financing (Bygrave 2007), access to informal investments by family, friends, or other acquaintances offers an important alternative (Szerb et al. 2007). This study shows that encouraging people to invest personal funds in others' new business endeavors may be critical for stimulating a country's entrepreneurial base.

Further, we extend prior arguments about the role of government in creating an institutional environment that favors entrepreneurship (e.g., Baumol 1990). In cultures characterized by high levels of hierarchy and conservatism, governments should not only focus on creating an institutional environment that increases the overall levels of financial and human resources targeted at entrepreneurship but also pay attention to *distributing* these resource types efficiently across as a wide set of entrepreneurial actors as possible. In the absence of such efficiencies, resources—even if inherently useful for entrepreneurship—may be channeled toward alternative activities that demand less effort and confront less uncertainty or fewer hurdles.

To conclude, this study is among the first to explain macro-level early-stage entrepreneurial activity as an outcome of the interplay between a country's proximate and background institutions. Such attention is warranted, in that the potency with which resource availability enhances entrepreneurship depends on the cultural conditions in which resource exchanges take place. By explaining variations in the level of early-stage entrepreneurial activity across different institutional settings, this study offers a stepping stone toward a more comprehensive understanding of the macro-level drivers of entrepreneurship and economic prosperity in a country.

Appendix

See Table 4.

Table 4 Country list

Argentina	Greece	Poland
Australia	Hungary	Portugal
Austria	Iceland	Romania
Belgium	India	Russia
Brazil	Ireland	Singapore
Canada	Israel	Slovenia
Chile	Italy	South Africa
China	Japan	Spain
Colombia	Jordan	Sweden
Croatia	Latvia	Switzerland
Denmark	Netherlands	Turkey
Finland	New Zealand	Uganda
France	Norway	United Kingdom
Germany	Peru	United States

42 Countries total

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