



# Individual-Level Resources and New Business Activity: The Contingent Role of Institutional Context

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**This study considers the relationship between people's access to resources and their likelihood to start a new business, and particularly how this relationship might be moderated by formal and informal institutions. Individual-level resources might be more potent for new business creation in countries with financial and educational systems that are more oriented toward entrepreneurship, higher levels of trust, and cultures that are less hierarchical and conservative. The hypotheses are tested by undertaking random-effects multilevel analyses of a multi-source data set that spans a 5-year time period (2003–2007). The study's findings offer important implications for research and practice.**

## Introduction

The new business creation process operates at multiple levels (Davidsson & Wiklund, 2001), influenced by micro-level factors such as people's resources (e.g., Bhagavatula, Elfring, Tilburg, & van de Bunt, 2010; Davidsson & Honig, 2003), as well as macro-level institutions (e.g., Aidis, Estrin, & Mickiewicz, 2008; Autio & Acs, 2010; Bowen & De Clercq, 2008; Terjesen & Hessels, 2009; Vaillant & Lafuente, 2007). Thus, the allocation of resources to the exploitation of new business opportunities cannot be considered in isolation from the broader institutional context in which such opportunity exploitation occurs (Autio & Acs; Redding, 2005). The intricate interplay between the individual and the institutional context makes it "improbable that entrepreneurship can be explained solely by reference to a characteristic of certain people independent of the situations in which they find themselves" (Shane & Venkataraman, 2000, p. 218), but few studies consider how the combination of individual- and

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country-level factors drives new business activity in a single framework (Davidsson & Wiklund; Phan, 2004; Shepherd, 2011). This oversight has great significance, in that people's individual resource endowment may matter for new business creation (Bhagavatula et al.; Davidsson & Honig), but so does whether and how they can share and complement these resources effectively with those of other actors (Baumol, 1990; Lechner & Leyronas, 2009).

In response, this study seeks to contribute to comparative international entrepreneurship research (e.g., Aidis et al., 2008; Bruton, Ahlstrom, & Puky, 2009; Lim, Morse, Mitchell, & Seawright, 2010; Thomas & Mueller, 2000) by investigating whether and how a country's institutional context may be instrumental in unlocking individual-level resources from its members to achieve new business creation. Most research that explains new business creation is limited to one of two levels of analysis: one stream that focuses on the role of individual-level factors, and another centers on the role of institutions (Autio & Acs, 2010; Davidsson & Wiklund, 2001; Phan, 2004). Limited attention addresses the development and testing of multilevel models that cross these two levels—with a few notable exceptions in the form of recent multilevel studies on the roles of gender, capital, and macro-level conditions in entrepreneurship (Elam, 2006, 2008; Elam & Terjesen, 2010; Terjesen & Szerb, 2008) and an examination of how regulatory regimes affect entrepreneurs' growth aspirations (Autio & Acs). Single-level investigations yield only an incomplete understanding of the process of new business creation (Hitt, Beamish, Jackson, & Mathieu, 2007) and must be complemented by multi-level models (Elam; Shepherd, 2011). Our investigation of the roles of institutional conditions for the exploitation of individual-level resources directly addresses this concern.

In addition, this study responds to calls for more cross-country research that considers the combined effects of both formal and informal institutions (Dikova, Sahib, & Van Witteloostuijn, 2010; Hayton, George, & Zahra, 2002). In line with recent efforts that consider various institution types in explaining entrepreneurship (e.g., Elam & Terjesen, 2010; Kreiser, Marino, Dickson, & Weaver, 2010; Nguyen, Bryant, Rose, Tseng, & Kapasuwana, 2009; Terjesen & Amoros, 2010; Terjesen & Hessels, 2009; Verheul, van Stel, & Thurik, 2006), we investigate the moderating roles of a country's formal institutions (i.e., financial and educational systems) and informal institutions (i.e., trust and cultural values). As we argue in detail, the first set of institutions informs the extent to which individuals can complement their personal resources with a relevant set of resources that reside in their institutional environment. The second set captures the extent to which the resources embedded in that environment can be shared and distributed easily across actors.

In what follows, we first explicate how our combined consideration of individual-level resources and the institutional context to explain the likelihood that a person starts a new business fits within and extends extant entrepreneurship literature. Next, we summarize the arguments for the baseline positive relationship between individual resources and the likelihood of starting a new business. We then turn our attention to the cross-level contingency effects of institutional factors and posit that the relationship between individual-level resources and new business activity is moderated by a country's institutional context. We test our hypotheses by applying random-effects multilevel analyses to a multisource data set of 181,450 observations spanning 5 years (2003–2007), derived from the Global Entrepreneurship Monitor's Adult Population Survey (APS), the National Expert Survey (NES), the World Values Survey (WVS), and Schwartz's cultural value framework. We conclude by discussing some implications for theory, practice, and future research.

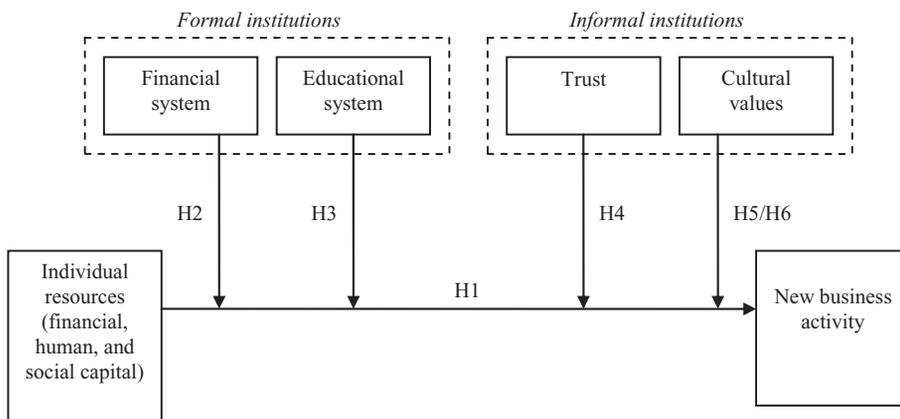
## Theoretical Background and Hypotheses

New business creation requires substantial resources, including financial, human, and social capital (e.g., Blanchflower & Oswald, 1998; Cooper, Gimeno-Gascon, & Woo, 1994; Davidsson & Honig, 2003; Venkataraman, 1997). Individual ownership of and access to these resources informs the likelihood that a person starts a new business (Arenius & Minniti, 2005; Davidsson & Honig; De Clercq & Arenius, 2006). In turn, institutions set the boundary conditions for human and economic interactions (North, 1990, 1994), including entrepreneurship (Baker, Gedajlovic, & Lubatkin, 2005; Bowen & De Clercq, 2008). A country's institutional context encompasses formal components, such as laws and formal infrastructure, as well as informal ones, such as conventions and norms of behavior (North; Whitley, 1994). Despite the general assumption that differences in institutional conditions help explain cross-country variation in new business activity (Baker et al.; Vaillant & Lafuente, 2007), the way in which these conditions influence the exploitation of individual resources for new business activity remains a relatively unexplored question (Autio & Acs, 2010).

To fully understand the importance of people's resource endowments for their decision to start a business, it is necessary to apply multilevel models that consider the role of individual resources in combination with the role of institutions (Davidsson & Wiklund, 2001; Shepherd, 2011). While individual resources may inform a person's decision to exploit new business opportunities, access to complementary resources in the institutional environment (Hellmann, 2007; Redding, 2005) and the easy distribution of such resources across a wide set of actors (Baumol, 1990) may just be as important in light of the uncertainty and unexpected hurdles that mark any new business endeavor (Chen, Greene, & Crick, 1998; Sarasvathy, 2001). Yet, this intricate interplay between individual- and institutional-level factors has barely been examined. In response, we investigate the contingency effects of two components of a country's formal institutions (financial and educational systems) and informal institutions (trust and culture) on the instrumentality of individual-level resources in people's engagement in new business activity, as we summarize in the conceptual framework in Figure 1.

Figure 1

### Conceptual Framework



## Individual-Level Resources and New Business Activity

New business creation requires the assembly and mobilization of resources to exploit opportunities (Brush, Manolova, & Edelman, 2008; Gartner, 1985; Shane & Venkataraman, 2000). Various resources or capital types may be relevant, but the most frequently studied are financial, human, and social capital (e.g., Autio & Acs, 2010; Bhagavatula et al., 2010; Chandler & Hanks, 1998; Cooper et al., 1994; Davidsson & Honig, 2003; Honig, 1998). As entrepreneurs confront various challenges during their efforts to exploit new business opportunities, and deal with the high levels of uncertainty that mark the new business creation process (Dew, Velamuri, & Venkataraman, 2004; Sarasvathy, 2001), their access to personal financial assets, skills, and knowledgeable others may increase their perceived ability to overcome these challenges and enhance the attractiveness of pursuing opportunities to turn them into actual new businesses (Choi, Lévesque, & Shepherd, 2008; Shane & Venkataraman).

First, new business creation requires *financial* capital to meet initial cash flow needs. Extant research often focuses on the role of external finance as a means to meet short-term financial needs (Winborg & Landstrom, 2000), but entrepreneurs typically lack reliable performance data, collateral, or legitimacy, which may make it difficult to secure financing from external sources such as banks, venture capitalists, or even informal investors (Berger & Udell, 1998; O’Gorman & Terjesen, 2006; Wright, Lockett, Clarysse, & Binks, 2006). Many entrepreneurs resort to internal sources of financing or bootstrapping (Bhide, 1992; Starr & MacMillan, 1990; Winborg & Landstrom), and their own financial assets, or those of their household, thus can play a critical role (Arenius & Minniti, 2005; Elam, 2008).

Second, people’s *human* capital, as reflected in their educational level and domain-specific skills (Becker, 1994), represents another important individual resource endowment that is instrumental for new business creation (Davidsson & Honig, 2003; Ucbasaran, Westhead, & Wright, 2008). Higher education levels can increase perceptions of the person’s own ability to exploit new business opportunities (Autio & Acs, 2010), but the possession of knowledge and skills directly relevant to entrepreneurship can be particularly potent in increasing the likelihood of starting a business (De Clercq & Arenius, 2006; Gimeno, Folta, Cooper, & Woo, 1997). Because people with domain-specific skills are more efficient in gathering and analyzing the information required for a task at hand (Forbes, 2005), they should be more likely to perceive entrepreneurship as a viable career option to the extent that they believe they hold relevant knowledge for such a career (e.g., Arenius & Minniti, 2005; Chen et al., 1998).

Third, prior research points to the instrumentality of people’s *social* capital in their decision to start a new business (Davidsson & Honig, 2003; De Carolis, Litzky, & Eddleston, 2009), including their exposure to entrepreneurial role models (Arenius & Minniti, 2005; Klyver & Hindle, 2007; Klyver, Hindle, & Meyer, 2008). Such exposure can increase awareness and self-efficacy (Bandura, 1977; Minniti & Nardone, 2007), reduce the uncertainty that surrounds new business creation (Davidsson & Honig), and offer a source of relevant business advice and emotional support (Klyver & Hindle; Manolova, Carter, Manev, & Gyoshev, 2007). Overall, higher levels of social capital typically correlate positively with the likelihood of starting a new business.

**Hypothesis 1:** There is a positive relationship between individual resources (financial, human, and social capital) and the likelihood to start a new business.

## Cross-Level Moderating Effects of Institutions

In this section, we draw on and extend comparative international entrepreneurship research by investigating the possibility that institutions may function as important boundary conditions that influence the extent to which individual-level resources affect the likelihood of starting a new business (Autio & Acs, 2010). Institutions represent “the rules of the game in a society, or, more formally, are the humanly devised constraints that shape human interactions” (North, 1990, p. 3), including “formal constraints—such as rules that human beings devise—and informal constraints—such as conventions and codes of behavior” (North, p. 4). Extant literature suggests various institutions that might affect the prevalence of new business activity, such that countries differ, for example, with respect to how their financial and educational infrastructure accommodates the specific needs of new businesses (Bowen & De Clercq, 2008; Levie & Autio, 2008) or whether normative support exists for entrepreneurial careers (Baughn, Chua, & Neupert, 2006; Hechavarria & Reynolds, 2009).

Mirroring the distinction between formal and informal constraints, the macro-level environment consists of formal and informal institutions (North, 1990; Whitley, 1994, 1999). Formal institutions are more proximate and represent formal systems and infrastructures—such as the regulatory framework, financial infrastructure, and the skill development system—that directly shape the opportunities for particular types of economic behavior (Bowen & De Clercq, 2008; Whitley). Conversely, informal institutions operate more in the background and influence economic behavior indirectly (North; Whitley), as exemplified in prevailing guiding principles for how actors should interact or with whom they should interact (Hechavarria & Reynolds, 2009).

We focus on two formal institutions that directly affect the extent to which a country’s members can access the critical resources of capital and labor (Whitley, 1994): the financial system and the educational system. In so doing, we complement Autio and Acs’s (2010) recent investigation of the role of a country’s regulatory framework in explaining the relationship between entrepreneurs’ resources and growth aspirations. These two formal institutions reflect the extent to which people can access a relevant set of external resources that they might not possess themselves when they start a new business (Bowen & De Clercq, 2008; Redding, 2005; Whitley). Furthermore, we consider two informal institutions that capture whether the resources in a country can be distributed easily across a wide set of actors: trust and culture. Trust informs how actors relate when they engage in economic transactions, particularly with regard to their willingness to combine resources with unfamiliar others (Fukuyama, 1995; Knack & Keefer, 1997; Kwon & Arenius, 2010). In addition, cultural values such as hierarchy and conservatism should influence how resource flows might be stifled by expectations or role obligations imposed by others (Matsumoto, Yoo, Nakagawa, & Multinational Study of Cultural Display Rules, 2008; Schwartz, 1994, 1999). In the next section, we discuss the specific roles of these institutional conditions in channeling individual-level resources toward new business creation.

## The Role of Formal Institutions

**Financial System.** The nature of a country’s financial system is an important determinant of its level of new business activity (Levie & Autio, 2008). New businesses often require substantial *external* financial capital (Bowen & De Clercq, 2008; George & Prabhu, 2000), including personal funds received from informal investors and business angels

(Szerb, Rappai, Makra, & Terjesen, 2007), venture capital (Sapienza, 1992), or bank loans (Cetorelli & Strahan, 2006). Thus, individuals who start a new business tend to depend on the presence of a financial system that takes into account the specific needs of entrepreneurial companies (Bowen & De Clercq). Yet, the extent to which the financial system supports entrepreneurship—in terms of providing resources to launch and grow the business—varies from country to country (Bygrave, Hay, Ng, & Reynolds, 2003). We extend this argument by hypothesizing that the presence of a financial system oriented toward entrepreneurship can leverage individual resources for the decision to start a new business.

The resourcefulness of people can signal credibility and preparedness to providers of external finance (Arthurs, Busenitz, Hoskisson, & Johnson, 2009; Stuart, Hoang, & Hubels, 1999) and thus people with abundant resources may be more likely to gain access to external finance. However, this connection may be functional only if the financial system accommodates the specific needs of new businesses (Bowen & De Clercq, 2008). Similarly, the exploitation of resource-intensive projects is most salient in financing regimes that aim specifically toward such projects (Huang & Xu, 1999). Because the presence of a financial system oriented toward entrepreneurship typically facilitates and promotes activities that require high levels of resources (Bowen & De Clercq), such a system should provide an important impetus to people to exploit their personal resources and start new businesses. In addition, the opportunity costs of leveraging individual resources—particularly those specific to new business creation—to benefit career options *other* than entrepreneurship increase when external financial support for entrepreneurship is available (Autio & Acs, 2010; Cassar, 2006). Accordingly, the motivation to channel personal resources toward new business creation should be higher in these conditions. Therefore, we predict a positive moderating effect of the orientation of a country's financial system toward entrepreneurship, such that:

**Hypothesis 2:** The relationship between individuals' resources and their likelihood to start a new business is moderated by the country's financial system, such that the relationship is stronger when the financial system is more entrepreneurially oriented.

**Educational System.** New business creation benefits from the presence of a steady supply of skilled labor and human resources (Honig, 2004). As such, a country's educational system can affect individuals' decision to start new businesses (Levie & Autio, 2008; Van de Ven, 1993), to the extent that a country's education system provides high-quality human capital (Whitley, 1999). Countries marked by a well-developed education system generally prepare entrepreneurs better for the hardships associated with creating and running a new business (Begley, Tan, & Schoch, 2005; Honig). Yet, a critical element in the context of new business creation is the extent to which education addresses issues directly relevant to entrepreneurship, such as the effective identification and exploitation of new business opportunities and the effective management of subsequent business growth (Bowen & De Clercq, 2008; Honig; Reynolds et al., 2005).

We hypothesize that the presence of an "entrepreneurship-oriented" educational system invigorates the extent to which individual resources increase the likelihood of a new business start-up. Entrepreneurship-oriented education can provide resourceful individuals with access to more high-quality employees who can leverage their resources to support the new business undertaking (Hellmann, 2007; Honig, 2004). Because an educational system that addresses issues of entrepreneurship increases the available pool of knowledgeable human resources for an entrepreneur, it should complement and help leverage individual-level resources toward new business creation (De Clercq & Arenius,

2006). Similar to our theorizing about the role of the financial system, the resourcefulness of entrepreneurs may signal their competency and increased chances of success (Certo, Daily, & Dalton, 2001; Stuart et al., 1999), which may make them more effective in gauging collaboration from qualified others who have been exposed to entrepreneurship-related issues in their training. Finally, the prevalence of entrepreneurship-oriented training in the educational system promotes *awareness* of entrepreneurship as a career choice, particularly in terms of its opportunities and risks (Peterman & Kennedy, 2003), which should make it easier for an individual entrepreneur to convince others to help her exploit her personal resources in a new business undertaking.

**Hypothesis 3:** The relationship between individuals' resources and the likelihood to start a new business is moderated by the country's educational system, such that the relationship is stronger when the educational system is more entrepreneurially oriented.

## The Role of Informal Institutions

**Trust.** An important facet of a country's informal institutional environment is the extent to which interactions among members are marked by high levels of trust (Knack & Keefer, 1997). Such generalized trust reduces the uncertainty surrounding relationship development among economic actors, even if these actors are not familiar with one another (Kwon & Arenius, 2010; Uzzi, 1997), and thus reduces the transaction costs involved in related resource exchanges (Chiles & McMackin, 1996). Because trust "lubricates" social relationships, people in high-trust countries are less likely to take advantage of one another even if the opportunity to do so arises (Larson, 1992; Putnam, 2000), which increases people's willingness to engage in economic transactions with others, even in situations that entail high levels of risk such as in new business creation (Lorenz, 1999; Slemrod & Katuscak, 2005). At the macro level, high-trust countries have been found to enjoy higher economic growth rates than their less-trusting counterparts (Knack & Keefer), due to the more effective mobilization of resources toward productive activities (Fukuyama, 1995; Putnam, 1993).

In turn, we expect that in countries marked by high levels of trust, people's individual resources will be more instrumental for new business creation, compared with counterparts in low-trust countries. The incomplete nature of economic exchange contracts—particularly those in which resourceful individuals have much to lose if others were to appropriate their personal assets or knowledge (Autio & Acs, 2010)—means that resourceful entrepreneurs may be more likely to bear the risk of entering such contracts if they regard their exchange partners as trustworthy (Sengun & Nazli Wasti, 2009). Especially in the context of new business activities, high trust levels enhance the stability and reliability of relationships, such as those with customers and suppliers (Aidis et al., 2008; McMullen, Bagby, & Palich, 2008). Therefore, in high-trust countries, individuals are more likely to be confident that others will not misuse their personal resources for their own personal benefit, which increases their propensity to exploit their resources to create a new business.

**Hypothesis 4:** The relationship between individuals' resources and their likelihood to start a new business is moderated by the level of trust in their country, such that the relationship is stronger for higher levels of trust.

**Cultural Values.** Cultural values refer to how people hold certain standards or ideals that regulate their approach to the relationships with others, including their work relationships

(Schwartz, 1994, 1999). In this study, we focus on two aspects of a country's value system—its levels of hierarchy and conservatism—that influence the ease, or lack thereof, with which resources can be unlocked and freely distributed in a country (Matsumoto et al., 2008). Both these values imply that the effective distribution of resources can be stifled by expectations that a person should behave in accordance with particular role obligations imposed on her by *other* actors (Schwartz). Although these dimensions are closely related conceptually and empirically, they nevertheless “reflect different conceptualizations about the psychological contents of culture” (Matsumoto et al., p. 927), in that they differentiate these *other* actors. Hierarchy captures differentiation of power and status within an individual's referent groups, whereas conservatism speaks to relationships between these referent groups and outsiders (Matsumoto et al.). We explicate how these two cultural values may suppress the instrumentality of individual resources to enhance the likelihood of starting a new business.

*Hierarchy* entails the extent to which there is a desire among a country's members to preserve existing power structures within their referent groups, such as their local community or a particular industry (Schwartz, 1994, 1999). Strongly hierarchical cultures rely on power differences and ascribed roles to govern economic action (Schwartz), such that an unequal distribution of social power and authority is considered legitimate (Munene, Schwartz, & Smith, 2000). More hierarchical cultures tend to restrain free exchanges of resources—including those that might be relevant for exploiting new business opportunities—and therefore may offer fewer chances for people to leverage their personal resource base with external resources that they might be lacking (Cohen, Pant, & Sharp, 1996; Scholtens & Dam, 2007; Takyi-Asiedu, 1993). A certain level of resourcefulness among entrepreneurs may help convince powerful incumbents to provide complementary resources (Hellmann, 2007; Stuart et al., 1999; Wiklund & Shepherd, 2009), but those resource combinations will be hampered when the primary motivation of incumbents is to protect the status quo and their preferential positions (Bourdieu & Wacquant, 1992). For example, powerful incumbents in an entrepreneur's industry may be more protective of their existing marketing channels, leaving fewer chances for the entrepreneur to exploit her resources and enter the market (Larsson, Bengtsson, Henriksson, & Sparks, 1998; Matsumoto et al., 2008; Scholtens & Dam). In contrast, with low levels of hierarchy, incumbents may be less inclined to defend the current status quo and protect their privileges (Bourdieu & Wacquant; Hofstede, 1980), which makes it easier for entrepreneurs to leverage their personal resources in support of their new business endeavors (Mitchell, Smith, Seawright, & Morse, 2000). *Ceteris paribus*, the level of hierarchy of a country's culture influences the ease with which resources can be leveraged:

**Hypothesis 5:** The relationship between individuals' resources and their likelihood to start a new business is moderated by the hierarchy of their country's culture, such that the relationship is stronger in less hierarchical cultures.

The *conservatism* dimension instead reflects how referent groups relate to outside groups, such as the extent to which people feel obligated to please and accommodate similar others (e.g., family, religion, location) and thus do not see themselves as autonomous entities (Schwartz, 1994, 1999). Highly conservative cultures promote relatedness and communal relationships and encourage people to achieve “in-group” goals rather than reach out to those outside the in-group, even if those others could help them achieve their personal goals (Kim, Triandis, Kagitcibasi, Choi, & Yoon, 1994; Markus & Kitayama, 1991; Yamaguchi, 1994). Consequently, highly conservative cultures typically limit the ease of resource distribution across a diverse set of their members, because of the expectations that resources should be shared with a referent group of similar others

(Schwartz, 1994, 1999). Consequently, in such cultures, entrepreneurs will have reduced opportunities to leverage their skills and contacts with knowledgeable others (Matsumoto et al., 2008; Mitchell et al., 2000). For example, someone who personally knows entrepreneurs who belong to another referent group (e.g., another religion) than her own may not be able to leverage her own social capital, because existing cultural norms discourage her from interacting with those entrepreneurs. In contrast, in less conservative cultures—where autonomy and individual achievement are more admired than commonly shared beliefs with the in-group—a resourceful individual can more easily reach out to relevant others in society to gain assistance in exploiting her personal resources to support her new business endeavors (Begley & Tan, 2001; Hofstede, 1980; Shane, 1992).

**Hypothesis 6:** The relationship between individuals' resources and their likelihood to start a new business is moderated by the conservatism of their country's culture, such that the relationship is stronger in less conservative cultures.

## Research Method

### Data Collection

We obtained individual- and country-level data from multiple sources for 32 countries (listed in Appendix 1). First, data about individuals' resources and likelihood to start a new business come from the APS administered by the Global Entrepreneurship Monitor (GEM), a project that started in the late 1990s to create harmonized data about new business activity and its correlates across countries. These data are notably rich, reliable, and valid (Reynolds et al., 2005). In each country studied, private market survey firms annually conduct the APS with a representative weighted sample of at least 2,000 adults (aged 18 to 64 years) through telephone (or occasionally face-to-face) interviews. Comparative international entrepreneurship research increasingly relies on these data (e.g., Baughn et al., 2006; Bowen & De Clercq, 2008; Elam & Terjesen, 2010; McMullen et al., 2008).

Second, to assess a country's formal institutions with respect to its financial and educational systems, we rely on GEM's NES, which surveys country experts who represent a range of backgrounds and knowledge. The NES employs standardized questions and validated measurement scales to assess experts' views of the institutional environment, including the orientation of the country's financial and educational infrastructure toward entrepreneurship. Its multi-item constructs are highly reliable (Reynolds et al., 2005).

Third, we derive macro-level data on the level of trust from the WVS coordinated by the University of Michigan and the Inter-university Consortium for Political and Social Research. Specifically, we draw on WVS data regarding the extent to which interpersonal relationships are marked by high levels of trust. The WVS project conducts national surveys of basic values and beliefs in over 50 countries, representing almost 90% of the world's population (Inglehart & Welzel, 2005). The surveys use a stratified multistage random sampling approach to ensure representative samples. The WVS data have been used in academic research across various disciplines, including sociology (Knack & Keefer, 1997), international business (Hui, Au, & Fock, 2004), and entrepreneurship (Hechavarria & Reynolds, 2009; Kwon & Arenius, 2010).

Fourth, to measure the two cultural values, hierarchy and conservatism, we turn to Schwartz (1994, 1999), who provides a comprehensive set of cultural dimensions based on a survey of more than 60,000 respondents. Schwartz's cultural dimensions are often

recommended for their broad and strong theoretical foundation (Kagitcibasi, 1997; Schwartz & Ros, 1995; Steenkamp, 2001) and have been widely used in prior academic research (e.g., Brock, Shenkar, Schoham, & Siscovick, 2008; Watson, Lysonski, Gillan, & Raymore, 2002).

## Measures

**New Business Activity.** We measure the likelihood of new business activity as a binary variable, which equals 1 if the respondent, at the time of the data collection, was either “involved in concrete activities to start up a new business” or “owning and managing a business that was less than 42 months”—thus capturing both nascent and new entrepreneurs engaged in new business activity (Levie & Autio, 2008; Reynolds et al., 2005).

**Individual-Level Resources.** *Financial capital* assesses whether a respondent belongs to the lower, middle, or higher tier of the country’s distribution of household income, a measurement approach similar to those used in prior research (e.g., Arenius & Minniti, 2005; Autio & Acs, 2010; Minniti & Nardone, 2007). *Human capital* is a dummy variable, equal to 1 when a respondent indicated that “they had the knowledge, skills and experience required to start a new business” (De Clercq & Arenius, 2006; Minniti & Nardone). It captures respondents’ perceptions of their capabilities to launch a business. *Social capital* is measured with a dummy variable that assesses whether the respondent “personally knew someone who had started a business in the past two years” (Klyver & Hindle, 2007; Minniti & Nardone).

**Formal Institutions.** The orientation of the country’s *financial system* toward entrepreneurship is measured as the average of scores on six questions from the GEM NES (see Appendix 2) that assess the availability of various sources of funding aimed at entrepreneurship, including informal investors, venture capitalists, and banks (Bowen & De Clercq, 2008; Reynolds et al., 2005). The pairwise correlations between our composite measure and the six questions range between .78 and .89, and the Cronbach’s alpha equals .90. The orientation of the *educational system* toward entrepreneurship is measured as the average of six items from the NES (see Appendix 2) that indicate the quality of a country’s educational system—including primary, secondary, university, executive, and vocational levels—with respect to entrepreneurship (Levie & Autio, 2008; Reynolds et al.). The pairwise correlations between our composite measure and the six questions range between .70 and .79, and the Cronbach’s alpha equals .83.

**Informal Institutions.** Similar to prior research (e.g., Knack & Keefer, 1997; Kwon & Arenius, 2010), we measure a country’s level of *trust* based on the WVS (1999–2004 data collection wave) and its question, “Generally speaking, would you say most people can be trusted?” Our measure captures the percentage of respondents in each country who responded in the affirmative. The two cultural values, hierarchy and conservatism, each are composite measures based on Schwartz’s (1994, 1999) assessments of the importance of guiding values in people’s lives, whereby answers for the different values may range from 7 (“of supreme importance”) to 3 (“important”) to 0 (“not important”) to –1 (“opposed to my value”; Schwartz, 1994, 1999). For both cultural values, we used the composite score that reflects respondents’ aggregate assessments of the importance of different underlying values.

**Control Variables.** Consistent with prior research that uses multilevel analysis (Autio & Acs, 2010; Elam, 2006), we include control variables that operate at either individual or country levels. At the individual level, we control for *gender* (Elam & Terjesen, 2010; Minniti & Nardone, 2007; Verheul et al., 2006), measured as a dummy variable (0 = male; 1 = female); *age* and *squared age* (Autio & Acs); and *work status*, which captures whether the respondent is not working, is retired, or is a student (=0) or works full- or part-time (=1; Arenius & Minniti, 2005; Minniti & Nardone).

At the country level, we control for six variables: business friendliness, control of corruption, emerging economies, income, year, and region. First, *business friendliness* comes from various editions of the *Global Competitiveness Report*, published by the World Economic Forum. It is based on a 7-point Likert scale and captures the extent to which managers judge hiring and firing practices as “flexible enough” rather than “too restricted” (Görg, 2005), which arguably should drive new business creation (van Stel, Storey, & Thurik, 2007). Second, *control for corruption* is adopted from the *Worldwide Governance Indicator* published by the World Bank (2009a) and uses six indicators to assess a country’s governance quality (Kaufmann, Kraay, & Mastruzzi, 2009). Scores range between  $-2.5$  and  $2.5$ , and higher scores indicate higher quality governance (i.e., less corruption). Such control is an important predictor of new business activity, because limiting corruption reduces the uncertainty that new businesses encounter (Anokhin & Schulze, 2009). Third, the *emerging economies* dummy variable equals 1 when a country is not a member of the Organization for Economic Co-operation and Development (OECD) in a given year; otherwise, it equals 0 (see Appendix 1). Emerging countries may differ from their developed counterparts with respect to what drives their entrepreneurial activity (Bruton, Ahlstrom, & Obloj, 2008). Fourth, *gross domestic product per capita* is adopted from the World Development Indicator provided by the World Bank (2009b) and captures a country’s gross domestic product per capita in a given year, after a natural log transformation. Similar to Autio and Acs (2010) and Wennekers, van Stel, Thurik, and Reynolds (2005), we include the main and squared terms to capture any curvilinear effects. Fifth, *year* is a dummy variable that captures year-fixed effects. Sixth, *region* represents one of seven region dummies: Africa, Asia, Eastern Europe, Western Europe, North America, South America, or Oceania.

## Data Analysis

To test our hypotheses, we conduct a hierarchical logistic regression analysis using a panel data set consisting of 181,450 observations from 32 countries over a 5-year period (2003–2007). Our individual-level data are nested within country-level data, so we use the generalized linear multilevel logit regression modeling technique (Guo & Zhao, 2000). Specifically, we use multilevel logistic regression with a random intercept to test hypothesis 1 and multilevel logistic regression with a random intercept and random coefficients to test hypotheses 2–6. We also include time and region fixed effects to account for unobserved characteristics across years and regions that might arise from missing variables (Wooldridge, 2002).

A multilevel model has several advantages over conventional fixed or random effects panel data models. First, ignoring interdependency between individual- and country-level data can lead to biased results in coefficients, standard errors, and confidence intervals (Autio & Acs, 2010; Hofmann, 1997), because observations within groups (i.e., countries) are correlated and thus not independently distributed. Second, multilevel models can provide a systematic analysis of the effects of variables that operate at multiple levels, as well as of their cross-level interactions (Echambadi, Campbell, & Agarwal, 2006; Guo &

Zhao, 2000). Multilevel random coefficients models also allow parameter variation across groups (i.e., countries), which is not the case in the fixed or random effects models in conventional panel data analyses (Autio & Acs; Greene, 2004). Our statistical approach is consistent with that used in recent multilevel entrepreneurship studies (Autio & Acs; Elam, 2006).

## Results

In Table 1, we present the means, standard deviations, and correlations. The variance inflation factors are below the cut-off value of 10, and thus multicollinearity is not a concern in our analysis (Neter, Kutner, Nachtsheim, & Wasserman, 1996). Several models serve to test the hypotheses, as shown in Table 2. Model 1 includes the control variables, and model 2 adds the three individual-level resources to test hypothesis 1. Models 3–7 add the interaction terms between each of the five country-level variables and the set of individual-level resources. The log-likelihood ratio tests show that including the three capital types as well as each set of interaction terms significantly improves empirical power.

As shown in Table 2 (model 2), we find positive effects of individual-level financial capital ( $\beta = .144$ ;  $p < .001$ ), human capital ( $\beta = 1.952$ ;  $p < .001$ ), and social capital ( $\beta = .694$ ;  $p < .001$ ) on new business activity, in strong support of hypothesis 1. In terms of the moderation effects of the formal institutions, we have hypothesized that an entrepreneurship-oriented financial system (hypothesis 2) and educational system (hypothesis 3) strengthen the positive relationship between individual-level resources and new business activity. Model 3 shows that the financial system positively moderates the relationship between two individual-level resources and new business activity. As we anticipated in hypothesis 2, there is positive interaction between the financial system and human capital ( $\beta = .245$ ;  $p < .001$ ) and social capital ( $\beta = .278$ ;  $p < .001$ ); however, we find no significant interaction between the financial system and individual-level financial capital ( $\beta = -.003$ ; ns). The results for the moderating role of the orientation of the educational system toward entrepreneurship (hypothesis 3, model 4) mirror these results: There is a positive interaction between the educational system and human capital ( $\beta = .292$ ;  $p < .05$ ) and social capital ( $\beta = .378$ ;  $p < .001$ ), but not one with financial capital ( $\beta = -.013$ ; ns). Thus, we find partial support for hypotheses 2 and 3.

The results for the moderating role of informal institutions are shown in models 5–7. There is a positive interaction of trust with human capital ( $\beta = .305$ ;  $p < .10$ ) and social capital ( $\beta = .328$ ;  $p < .05$ ) but not financial capital ( $\beta = .019$ ; ns), in partial support of hypothesis 4 (model 5). The results for the moderating roles of the two cultural values are also mixed. Model 6 shows a negative interaction between hierarchy and human capital ( $\beta = -.667$ ;  $p < .001$ ) consistent with hypothesis 5, but no significant interactions with financial capital ( $\beta = .025$ ; ns) or social capital ( $\beta = .025$ ; ns). The results for the moderating role of conservatism are somewhat more in line with our expectations in hypothesis 6 (model 7): we find a negative interaction between conservatism and both human capital ( $\beta = -1.306$ ;  $p < .001$ ) and social capital ( $\beta = -.105$ ;  $p < .10$ ) but no significant interaction effect between conservatism and financial capital ( $\beta = .051$ ; ns).

To test the robustness of our results, we collected additional data for each of the macro-level variables and examined whether and how they influenced the instrumentality of the individual-level resources on the likelihood of new business creation.<sup>1</sup> For a

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1. The detailed results of these *post hoc* analyses are available upon request.

Table 1

Summary Statistics and Correlation Matrix (N = 181,450)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. New business activity	.057															
2. Financial capital	.236	.114														
3. Human capital	.167	.132	.248													
4. Social capital	-.046	-.134	-.025	-.099												
5. Financial system	-.015	.021	-.025	-.032	.494											
6. Educational system	-.037	.039	-.052	.044	.124	.169										
7. Trust	.077	-.087	.022	.017	.191	.014	-.287									
8. Hierarchy	.085	.026	.028	.074	-.184	.039	-.491	.597								
9. Conservatism	-.070	-.086	-.163	-.118	.027	.004	-.007	-.004	-.028							
10. Gender	-.070	-.065	-.030	-.153	.126	.074	.046	-.029	-.088	.022						
11. Age	-.009	.104	.201	.103	-.035	.011	.000	.018	.020	-.092	.034					
12. Work status	.011	-.099	-.006	-.062	.567	.254	-.189	.504	.055	.021	.074	.004				
13. Business friendliness	-.077	-.052	-.033	-.086	.588	.286	.454	-.373	-.660	.036	.124	-.029	.257			
14. Control of corruption	-.087	-.033	-.039	-.117	.546	.303	.331	-.501	-.718	.039	.127	-.033	.216	.785		
15. GDP per capita	.080	.032	.024	.102	-.425	-.179	-.470	.513	.826	-.024	-.113	.022	.000	-.710	-.732	
16. Emerging country	.089	1.779	.506	.371	2.923	2.458	.333	2.174	3.408	.513	43.001	.670	3.606	1.346	9.698	.210
Mean	.285	.787	.500	.483	.487	.203	.130	.386	.212	.499	16.561	.484	.919	.799	.824	.407
Standard deviation																

Note: Correlations above |.005| are significant at  $p < .05$ .  
GDP, gross domestic product.

Table 2

## Regression Results Predicting New Business Activity (N = 181,450)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Controls: Individual level							
Gender	-.503***	-.229***	-.228***	-.231***	-.229***	-.212***	-.208***
Age	-.020***	-.016***	-.016***	-.016***	-.016***	-.015***	-.015***
Age squared	.000***	.000***	.000***	.000***	.000***	.000***	.000***
Work status	-.326***	-.885***	-.883***	-.889***	-.886***	-.959***	-.959***
Controls: Country level							
Business friendliness	-.171**	.104†	.126†	.132*	.104	.164**	.162**
GDP per capita	.336	-.901	-.514	-.973	-1.181	-.457	-.492
Squared GDP per capita	-.043	.031	.011	.046	.046	.011	.014
Emerging markets	-1.230	-.239	-.220	-.072	-.277	-.454	-.805†
Control of corruption	.673***	.401**	.331*	.039	.412	.170	.192†
Financial system			-.220*				
Educational system				.031			
Trust					-.696		
Hierarchy						.526*	
Conservatism							1.738***
Explanatory variables							
H1: Financial capital (FC)		.144***	.155*	.177	.138***	.087†	-.034
H1: Human capital (HC)		1.952***	1.249***	1.233***	1.849***	3.417***	5.083***
H1: Social capital (SC)		.694***	-.107	-.233	.590***	.637***	1.072***
Cross-level interaction terms							
H2: FC × financial system			-.003				
H2: HC × financial system			.245***				
H2: SC × financial system			.278***				
H3: FC × educational system				-.013			
H3: HC × educational system				.292*			
H3: SC × educational system				.378***			
H4: FC × trust					.019		
H4: HC × trust					.305†		
H4: SC × trust					.328*		
H5: FC × hierarchy						.025	
H5: HC × hierarchy						-.667***	
H5: SC × hierarchy						.025	
H6: FC × conservatism							.051
H6: HC × conservatism							-1.306***
H6: SC × conservatism							-.105†
Random parameter (country)	.388	.229	.235	.167	.242	.179	.175
Log-likelihood	-498,022	-534,170	-535,955	-534,393	-534,455	-690,340	-690,335
Generalized chi-square ( $\chi^2$ )	179.20	169.27	170.77	169.17	169.57	222.18	222.18
LR test for model 1 ( $\chi^2$ )		72.30***	75.87***	72.74***	72.87***	384.64***	384.63***
LR test for model 2 ( $\chi^2$ )			3,570***	446***	570***	312,340***	312,330***

†  $p < .10$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$  (two-tailed test).

Note: Constant, year-fixed effects and region-fixed effects are estimated but not reported. GDP, gross domestic product.

country's financial and educational systems, we used the World Economic Forum *Global Competitiveness Report* to capture the availability of venture capital and the availability of scientists and engineers (both measured on a 7-point Likert scale), respectively. To complement the trust measure, we used the "control of corruption" variable drawn from the World Bank (2009a), which assesses the governance quality in a country's exchange relationships. Finally, we captured two of Hofstede's measures that overlap conceptually

with Schwartz's hierarchy and conservatism, namely, power distance and collectivism–individualism (Ng, Lee, & Soutar, 2007; Wu, Lawler, & Yi, 2008). The results are consistent with those in Table 2: We do not find support for any of the hypothesized moderating effects of these five variables on the financial capital–new business activity relationship, but all five variables interact significantly and in the expected direction with human and social capital. Although these variables are only proxies for the focal institutional variables, the results for these robustness checks provide further credence for our findings.

## Discussion

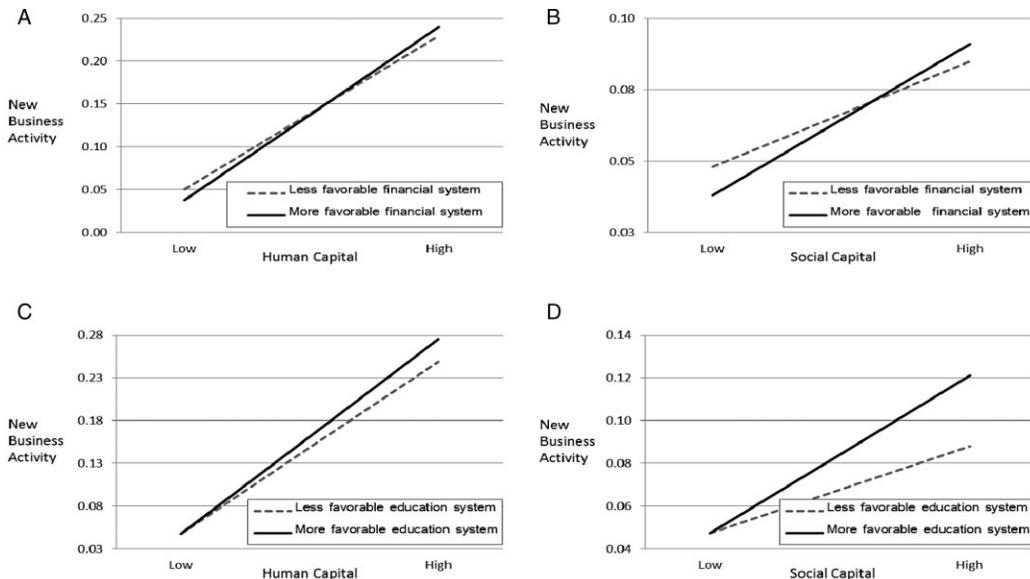
Using a unique multisource panel data set, we investigated the cross-level interaction effects between individual-level resources and country-level institutions on the likelihood that a person starts a new business. As expected, our results indicated that access to the different capital types (financial, human, and social) increases new business creation (Bhagavatula et al., 2010; Chandler & Hanks, 1998; Cooper et al., 1994; Davidsson & Honig, 2003). More importantly, however, this study contributes to comparative international entrepreneurship literature by shedding light on how the potency of such forms of capital may depend on the broader institutional context in which entrepreneurs undertake their new business endeavors. Overall, a country's institutions appear to leverage both individual human capital (i.e., knowledge, skills, and experience) and social capital (i.e., exposure to entrepreneurial role models) for the decision to start a new business. Yet, the effect of individual financial capital on the likelihood to start a new business does not vary across different institutional settings.

Entrepreneurs often resort to personal financial resources when developing a business plan and launching a new organization (Bhide, 1992; Winborg & Landstrom, 2000), with the hope of receiving external capital from investors later (Rea, 1989). Such reliance on personal income may be warranted, even in the presence of an entrepreneurship-oriented financial system, because banks tend to have unduly high collateral requirements (Berger & Udell, 1998; Evans & Jovanovic, 1989). The information asymmetry between entrepreneurs and providers of equity capital also means that only very few have access to such capital (Arthurs et al., 2009). Our findings suggest that entrepreneurs with abundant personal income—either their income or that of other household members—are not greatly affected by their institutional context when they decide to start a new business. Personal financial capital provides a direct impetus to start a new business, irrespective of whether the institutional conditions are favorable. Perhaps these conditions become more important in the later stages of the venture, as entrepreneurs' income is not sufficient to support their business and needs to be complemented with external resources (e.g., finance, high-quality employees, collaboration with other stakeholders).

In contrast, our results show that the exploitation of people's human and social capital to start a new business depends on the institutional context. First, these two individual-level resources become more important to the extent that they can be complemented with access to the external resources provided by a country's financial and educational systems. To clarify these findings, we plot the significant interactions in Figure 2A–D. The plots show that in countries in which the financial and educational systems attend *less* to the specific needs of new businesses, the possession of knowledge, skills, and experiences relevant to entrepreneurship, as well as direct exposure to entrepreneurial role models, become less instrumental for the decision to start a new business. In contrast, in the presence of a financial and educational infrastructure that is more oriented toward

Figure 2

(A) Moderating Effect of Financial System on Human Capital–New Business Activity Relationship. (B) Moderating Effect of Financial System on Social Capital–New Business Activity Relationship. (C) Moderating Effect of Educational System on Human Capital–New Business Activity Relationship. (D) Moderating Effect of Educational System on Social Capital–New Business Activity Relationship

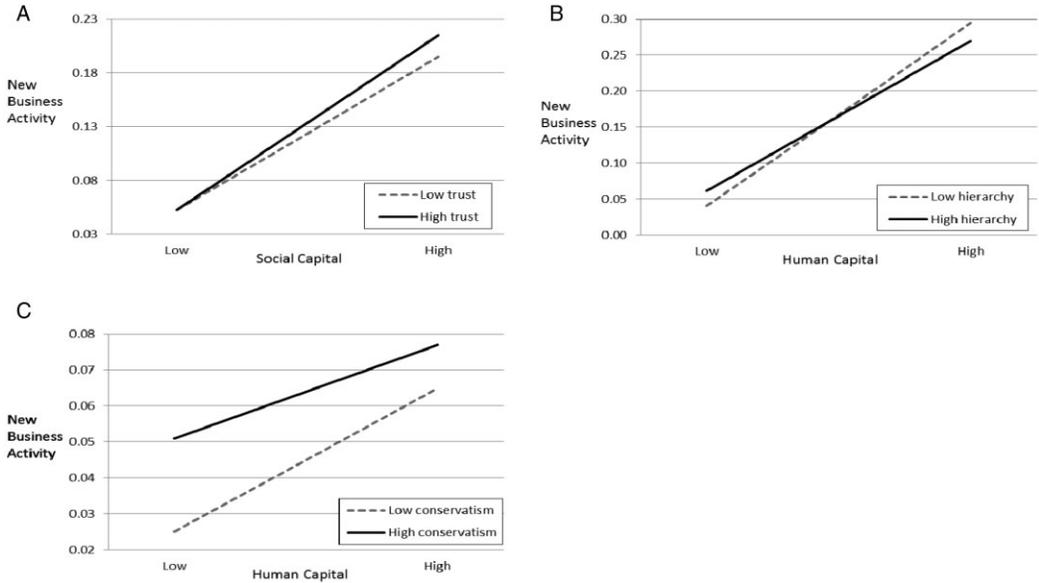


entrepreneurship, entrepreneurs can complement their skills and relationships easily with resources that they might not possess personally but are embedded in their country’s formal institutions. We further note that the moderating effect of the educational system on the exploitation of people’s exposure to role models ( $p < .001$ ) is stronger than for the exploitation of personal skills ( $p < .05$ ), possibly because such role models can make entrepreneurs particularly aware of the advantages of hiring high-quality employees.

We also plot the significant moderating effects of the informal institutions ( $p < .05$ ) in Figure 3A–C. The level of trust only weakly increases the importance of individual skills and experiences (model 5,  $p < .10$ ), but its role is particularly important for leveraging individual exposure to entrepreneurial role models (Figure 3A). Thus, the anticipation that trust will reduce the uncertainty and coordination costs of economic transactions with exchange partners (Chiles & McMackin, 1996; Kwon & Arenius, 2010) may be most salient when other entrepreneurs offer evidence of such trust-based advantages in their interactions with stakeholders. In contrast, the cultural values that we studied are more influential for exploiting individual skills and experiences rather than relationships with other entrepreneurs. Exposure to entrepreneurial role models could reduce the anticipated uncertainty so much that its effect on the likelihood to start a new business prevails, *irrespective* of whether the cultural norms impose rigidities on the ease of resource exchange. In turn, the usefulness of personal skills and experiences appears most subject to cultural boundary conditions. Individual human capital is less likely to lead to new

Figure 3

(A) Moderating Effect of Trust on Social Capital–New Business Activity Relationship. (B) Moderating Effect of Hierarchy on Human Capital–New Business Activity Relationship. (C) Moderating Effect of Conservatism on Human Capital–New Business Activity Relationship



business creation when the country’s general norms either emphasize stratification between the entrepreneur and powerful incumbents (Figure 3B) or hamper resource exchanges between the entrepreneur and actors outside his or her referent groups (Figure 3C).

### Limitations and Future Research

We acknowledge that this study is not without limitations. First, the data come from secondary sources, so we cannot capture the decision dynamics that underlie the hypothesized relationships—that is, the individual *cognitive* processes by which the macro-level factors we study affect and complement people’s resources in their decision to engage in new business activity (Lim et al., 2010). Additional research might use qualitative interviews with entrepreneurs, as well as other stakeholders involved in entrepreneurship support or policy making, to capture and measure individual-level cognitive mechanisms that facilitate, or hamper, the full exploitation of their and others’ resources to support new business endeavors. For example, in the future, researchers could examine how entrepreneurs’ different cognition types explain the effectiveness of combinations of individual-level resources with institutional conditions, such as “arrangements cognitions,” which refer to mental maps of the resources deemed necessary to engage in new business activity; “willingness cognitions,” or mental maps that support high levels of commitment to new business creation; and “ability cognitions” or

knowledge scripts that support certain capabilities and skills to create a new business (Mitchell et al., 2000).

Second, we treat a country's level of trust and its cultural values as static in our panel analyses, with the implicit assumption that they do not vary over time. This approach follows the assumption that societal-level trust and national culture are relatively stable (Hofstede, 1980; Knack & Keefer, 1997; Kwon & Arenius, 2010). Yet, general belief systems about the quality and rigidity of interpersonal relationships may be influenced by macro-level factors, such as the political and regulatory system (Whitley, 1999), and therefore could change over time (Oyserman, Coon, & Markus, 2002). The relationships we examine also are cross-sectional in nature and span a relatively short period of time. Additional research should use longitudinal research designs that span a longer time frame to unpack the complex and dynamic relationships among individual-level resources, institutional dimensions, and new business activity further.

Third, the individual-level resources and macro-level institutions we study do not include all possible micro- and macro-level conditions that may be of importance for new business creation. For instance, some recent studies highlight the roles of people's cultural and symbolic capital in new venture creation (De Clercq & Voronov, 2009; Elam, 2006), which could be considered in addition to the conventional resource types such as financial, human, and social capital (e.g., Chandler & Hanks, 1998; Davidsson & Honig, 2003). The consideration of entrepreneurs' access to cultural and symbolic capital may be particularly interesting for future studies that focus on the interplay between individual-level resources and macro-level conditions. These capital types tap directly into the extent to which individuals are embedded in a network of power-driven relationships with other institutional actors (Bourdieu, 1986). Cultural capital encompasses a person's automatic "knowing" about how to behave and present him- or herself according to the expectations held by powerful incumbent actors. Symbolic capital represents the ability to use and manipulate symbolic resources such as language, writing, and myth to convince others about their own competencies (Everett, 2002). Researchers could examine not only how cultural and symbolic capital complement institutional factors to increase new business creation but also whether their potency as a means to convince resourceful third parties to support entrepreneurs in their start-up endeavors might be stronger than that of the three individual resource types studied herein.

Further, the extent to which the educational system attends to issues specific to entrepreneurship is only one component of the human capital that resides within a country; research should also consider the roles played by various other facets of the qualities of its labor force, such as its number of scientists and engineers. In a similar vein, research could investigate whether the potency of a country's level of "general" human capital (e.g., overall quality of its educational system and graduates) versus that of its entrepreneurship-specific human capital (e.g., number of entrepreneurial role models from which an individual entrepreneur can draw) differs for leveraging individual-level resources toward new business creation.

In addition, our study relies on Schwartz's cultural value dimensions. Despite their arguable advantages over Hofstede's (1991) widely studied cultural values—for example, they are theoretically rather than empirically derived, are not limited to data from one particular company, are more recent and more comprehensive, and include a more diverse set of countries (Magnusson, Wilson, Zdravkovic, Zhou, & Westjohn, 2008; Ng et al., 2007)—Schwartz's value dimensions have limitations, too. Notably, they are developed based on teacher–student samples (Ng et al.) and originally were developed to assess individual- rather than country-level values (Steenkamp, 2001). We included two of Hofstede's measures that have conceptual overlap with our focal Schwartz values in the

aforementioned *post hoc* analysis (Wu et al., 2008), but future research may consider a wider set of cultural values. For example, the level of normative support for entrepreneurship—as manifested in the extent to which people view starting a new business as a desirable career choice, and the general status and respect that entrepreneurs earn from the public and media (Busenitz, Gomez, & Spencer, 2000)—may facilitate the exploitation of individual-level resources toward new business creation. In contrast, it could be that uncertainty avoidance that marks a country's culture (Hofstede) functions as an important impediment that prevents individual entrepreneurs from complementing their resources with those of others: not only might entrepreneurs be less willing to reach out to resourceful third parties in such cultures, but these third parties also may be less inclined to share their resources with those in the process of setting up a new business, for fear of losing those resources. Finally, the inclusion of a wider set of formal and informal institutions in multi-level studies would clarify which of these two institution types is more instrumental for the exploitation of entrepreneurs' individual resource bases.

## Implications

Despite these limitations, we believe that this study offers important theoretical and practical implications. In particular, our study contributes to comparative international entrepreneurship literature by investigating the interactions between individual-level resources and country-level institutional factors on the likelihood to start a new business. Despite a wealth of studies on the role of individual resources in the creation of new businesses, empirical investigations of the impact of a country's institutional environment on the contributions of such resources to the decision to start a new business are scarce (Autio & Acs, 2010; Elam, 2006). Studies that focus solely on one level cannot make accurate inferences about the dependence of entrepreneurial decisions on the higher-level contexts that encompass those decisions (Autio & Acs; Klein & Kozlowski, 2000). Such omissions may paint an incomplete picture of the new business creation process, because the uncertainty and hurdles that block new business creation, even among resourceful entrepreneurs, can be overcome only to the extent that the institutional environment (1) provides complementary resources that individuals do not possess and (2) facilitates the easy distribution and combination of resources across actors. Thus, our study illustrates how both formal and informal institutions function as critical contingencies of the relationship between individuals' resources and the likelihood that they start a new business.

For policy makers, our study points to different levers that governments might use to promote entrepreneurship. Institutional qualities are not identical across different types of institutions, and significant time and efforts are needed to improve such qualities (Baumol, 1990; Levie & Autio, 2008; van Stel, Carree, & Thurik, 2005). Our study reinforces this argument by showing that a country's institutional arrangements may complement the instrumentality of *individual* resources, such as human and social capital. Thus, policy makers could take a targeted approach to stimulate and sustain new business activity by implementing specific policy tools to promote new businesses, depending on the individual resource they want to leverage the most. For example, when the emphasis is on leveraging networks of entrepreneurs who live in close proximity (i.e., social capital), the customization of both the financial and educational systems to support entrepreneurship and the promotion of trust-based relationships may be effective. In cultures characterized by high levels of hierarchy and conservatism, government should focus not just on providing people with easier access to different capital types but also ensure that external resources can be combined effectively with the skills and experiences that aspiring entrepreneurs already possess. Otherwise, their knowledge, even if inherently useful for

entrepreneurship, may be channeled toward alternative activities that demand less effort and confront less uncertainty.

To conclude, this study is among the first to explain the decision to start a new business as an outcome of the interplay between micro- and macro-level factors. Such attention is warranted, in that the potency with which individual resource availability enhances new business creation may depend on how broader institutional conditions unlock and complement such resources. By explaining variations in individuals' propensity to launch a new business across different institutional settings, our study may provide a stepping stone toward a more comprehensive understanding of how to help a country's members realize their entrepreneurial aspirations.

## Appendix 1

### Country List

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Argentina*	Denmark	Israel*	Singapore*
Australia	Finland	Italy	Slovenia*
Austria	France	Netherlands	South Africa*
Belgium	Germany	New Zealand	Spain
Brazil*	Greece	Norway	Switzerland
Chile*	Hungary	Peru*	Turkey
China*	India*	Romania*	United Kingdom
Croatia*	Ireland	Russia*	United States

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*Note:* 32 countries total.

\* Emerging economies, which do not have OECD membership.

## Appendix 2

### Financial System (1–5 Likert Scale)

- In my country, there is sufficient equity funding available for new and growing firms.
- In my country, there is sufficient debt funding available for new and growing firms.
- In my country, there are sufficient government subsidies available for new and growing firms.
- In my country, there is sufficient funding available from private individuals (other than founders) for new and growing firms.
- In my country, there is sufficient venture capitalist funding available for new and growing firms.
- In my country, there is sufficient funding available through initial public offerings (IPOs) for new and growing firms.

### Educational System (1–5 Likert Scale)

- In my country, teaching in primary and secondary education encourages creativity, self-sufficiency, and personal initiative.
- In my country, teaching in primary and secondary education provides adequate instruction in market economic principles.
- In my country, teaching in primary and secondary education provides adequate attention to entrepreneurship and new firm creation.

- In my country, colleges and universities provide good and adequate preparation for starting up and growing new firms.
- In my country, the level of business and management education provide good and adequate preparation for starting up and growing new firms.
- In my country, the vocational, professional, and continuing education systems provide good and adequate preparation for starting up and growing new firms.

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