



On Cultural and Macroeconomic Contingencies of the Entrepreneurial Orientation–Performance Relationship

Saadat Saeed
Shumaila Y. Yousafzai
Andreas Engelen

The relationship between entrepreneurial orientation (EO) and firm performance is among the best-researched topics in entrepreneurship research. These studies have been conducted in various national contexts. While a first meta-analysis by Rauch et al. finds no significant difference between EO's effects based on the continent in which the firm is based, the present study considers how national cultural and macroeconomic drivers impact the EO–performance relationship. Building upon 177 studies with data from 41 countries, the meta-analysis consolidates this literature stream, contributing to the evidence-based entrepreneurship research.

Entrepreneurial orientation (EO), typically encompassing an innovativeness, proactiveness, and risk-taking dimension, was introduced three decades ago to measure the degree of entrepreneurial behavior in strategy making (Miller, 1983). Since then, a significant number of empirical studies have examined the EO–performance relationship. While most studies find a positive performance relationship, the strength of this relationship varies significantly across various studies and contexts (Wales, Gupta, & Moussa, 2013). Based on these studies, Rauch, Wiklund, Lumpkin, and Frese (2009) conducted the first meta-analysis on the EO–performance relationship ($k = 51$; $N = 14,259$; $\bar{r}_c = .242$) and found that firm size and industry adherence were major moderators of the EO–performance relationship. However, considerable variance across studies remained in their meta-analysis, so further examination of the possible determinants of the EO–performance relationship is warranted.

Please send correspondence to: Saadat Saeed, tel.: +39-049-8276722; e-mail: saeed.saadat@hotmail.com, to Shumaila Y. Yousafzai at YousafzaiS@cardiff.ac.uk, and to Andreas Engelen at andreas.engelen@tu-dortmund.de.

The present study complements Rauch et al. (2009), as it conducts a meta-analysis to determine whether national-level factors impact the EO–performance relationship. This determination would be a promising development in EO research since there is a theoretical reasoning that institutions at the national level impact the effectiveness of strategic postures (Burgess & Steenkamp, 2006; Scott, 2001). This reasoning suggests that some of the unexplained variance in Rauch et al.’s meta-analysis might be explained by national-level factors. The first step in Rauch et al.’s meta-analysis was an examination of geographic regions—in their case, continents—as moderators of the EO–performance relationship. The authors found no moderating effect, perhaps because there is a need for a more detailed analysis since there are multiple, possibly independent national-level institutional factors that impact EO’s effectiveness. An aggregation of countries, with all their divergent characteristics, may hide their differences. More concretely, institutional theory argues that informal institutions like national culture, and formal institutions like economic, political, and regulatory environments determine the context in which strategic postures are implemented (Bruton, Ahlstrom, & Li, 2010; Hoskisson, Eden, Lau, & Wright, 2000).

To address this research gap, the present study conducts a meta-analysis that extends Rauch et al.’s (2009) database from 51 studies linking EO and performance from 14 countries to 177 studies from 41 countries. The increased number of countries is a result of recent quantitative studies on EO’s performance consequences that have been conducted in additional national contexts. In particular, our meta-analysis includes more studies from outside the United States and Europe than Rauch et al.’s study does, increasing the cross-national heterogeneity of our database. To get a comprehensive picture of which national-level contextual factors impact the EO–performance relationship, we investigate how four major national cultural dimensions from cross-cultural psychology literature (House, Javidan, & Dorfman, 2001)—uncertainty avoidance, power distance, in-group collectivism, and assertiveness—as informal elements of national institutions, impact the EO–performance relationship. Our study also examines the economic, political, and regulatory environments as formal factors in order to clarify their influence on the EO–performance relationship. Figure 1 depicts the research framework of our meta-analysis.

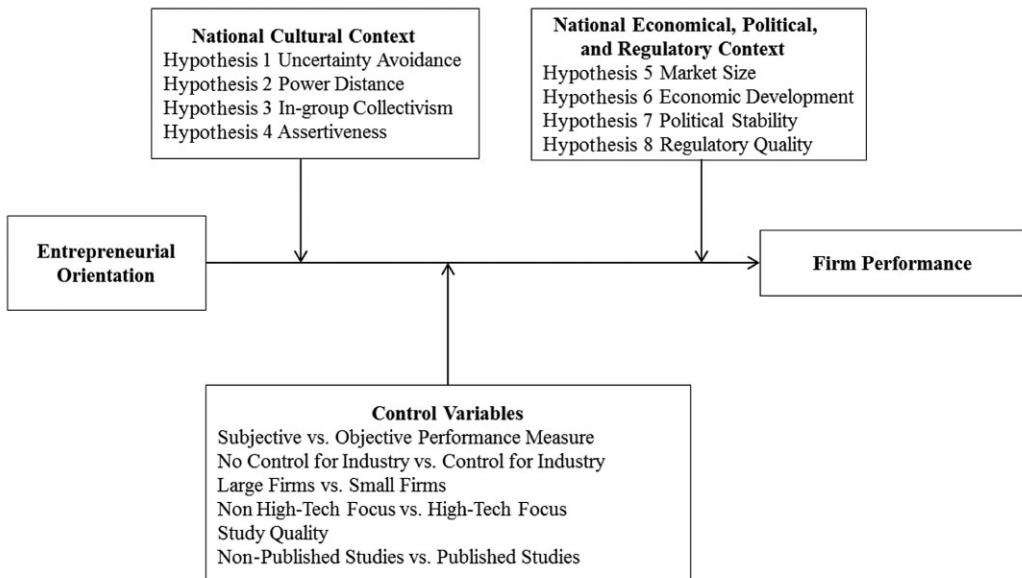
This study contributes to EO research in several ways. First, it consolidates the existing research on EO’s performance consequences that has been conducted in various countries (Wales et al., 2013). To date, it has been possible to compare the strength of coefficients across studies in various countries only by “visual inspection,” rather than through statistical inferences to determine whether significant differences exist.

Second, the present study shows which national-level factors moderate the EO–performance relationship, taking national cultural dimensions and economic, political, and regulatory factors into account. Comparing geographic entities like continents may not be detailed enough since there are multiple relevant nation-level characteristics that should be taken into account (Tsui, Nifadkar, & Ou, 2007).

Third, this meta-analysis contributes to the evidence-based approach in empirical entrepreneurship research. Good evidence is given when empirical relationships are based on several studies and several observations, rather than on just one study and one observation (Frese, Bausch, Schmidt, Rauch, & Kabst, 2012). Such evidence-based research may be particularly important for EO research since existing empirical studies on EO’s performance consequences tend to be heterogeneous, especially in terms of the national settings in which the EO–performance relationship has been examined (Wales et al., 2013). Our meta-analysis provides decision makers with recommendations on the aggregate strength of the EO–performance relationship and on the national-level contingency factors of this relationship.

Figure 1

Research Model for Meta-Regression Analysis



The paper is organized as follows. First, we lay out the theoretical foundations and derive the moderating hypotheses. Next, we describe our methodology. Then, we present the results of the meta-analysis. Finally, we discuss our findings and the implications of our study, and identify gaps that can be addressed in future research.

Theoretical Background and Hypotheses

EO, Firm Performance, and National Dependency of the Performance Effects

Since EO's origins in strategic-choice theory (Child, 1972), a large body of research has contributed to the development of the EO posture such that it is now understood to comprise all "processes, practices, and decision-making activities that lead to new entry" (Lumpkin & Dess, 1996, p. 136). In most cases, in line with Miller's (1983) seminal work on the topic, EO has been conceptualized along three subdimensions: innovativeness, proactiveness, and risk taking. A unidimensional view of these subdimensions dominates since extant research has shown that they tend to correlate positively and strongly (Wales et al., 2013). Innovativeness refers to a willingness to depart from proven practices, while proactiveness means "taking initiative by anticipating and pursuing new opportunities" (Lumpkin & Dess, p. 146). Risk taking is associated with significant debt and commitments of resources (Lumpkin & Dess). In 1996, Lumpkin and Dess added two subdimensions: autonomy and aggressiveness. Aggressiveness refers to a firm's endeavors to outperform industry rivals while they define autonomy as "independent action (...) aimed at bringing forth a business concept or vision and carrying it out to completion" (Lumpkin & Dess, 2001, p. 431).

A large body of research in EO literature has been dedicated to the question concerning how EO improves firm performance. Entrepreneurial organizations have the ability to be the first to market a new product that matches changed customer preferences and to use this first-mover advantage to translate their actions into superior performance (Lumpkin & Dess, 1996). Building upon these conceptual arguments, most of the studies in a large body of quantitative research conducted in various industry and national contexts have confirmed the positive performance consequences of EO (e.g., Wiklund & Shepherd, 2005). However, extant research also indicates that the strength of the EO–performance relationship depends on contextual moderators. In an effort to clarify the EO–performance relationship, we seek to determine the extent to which this relationship depends on moderators at the national level.

The national level appears to be particularly promising as a determinant of the EO–performance relationship. Extant research has almost exclusively examined the performance consequences individually in single-country settings, such as in the United States (e.g., Covin, Green, & Slevin, 2006), in European countries (e.g., Wiklund & Shepherd, 2005), or in Asian countries (e.g., Tang, Tang, Marino, Zhang, & Li, 2008). Some of these studies are even motivated by their assumption that the EO–performance relationship is special in a particular context (e.g., EO study from Tang et al. in China). Another reason that the national level appears to be promising as a determinant of this important relationship is that the meta-analysis from Rauch et al. (2009) finds no significant differences in the EO–performance relationship among four continents (the United States, Europe, Asia, and Australia). The aggregation of countries into these groups may have hidden differences between countries. Research in the international business area has shown that various factors at the nation level are important to understanding the EO–performance relationship fully (Burgess & Steenkamp, 2006). Therefore, a deeper examination of the national-level factors that may drive the EO–performance relationship is called for.

To detect the relevant national-level factors, we take an institutional perspective, which has often been employed to investigate the prevalence and effectiveness of various types of strategies across national contexts (e.g., Bruton et al., 2010; Hoskisson et al., 2000). The institutional perspective assumes that there are informal institutions (national cultural dimensions) and formal institutions (the economic, regulatory, and political environment) at the national level that determine the “rules of the game” in strategy implementation (North, 1991; Peng, Wang, & Jiang, 2008). While the institutional theory is our umbrella perspective that informs us about relevant drivers at the national level, we integrate insights from cross-cultural psychology in investigating the informal institutions. We follow Roberts and Greenwood (1997) and Brouthers (2002) in arguing that the performance impact of a strategic orientation like EO is strongest when strategic choices fit well with institutional variables. In what follows, we explain how the informal and formal institutional factors impact the EO–performance relationship.

Contextual Moderators of the EO–Performance Relationship

National Cultural Context. Culture is the “collective programming of the human mind that distinguishes the members of one group from those of another” (Hofstede, 1981, p. 24). Extant research indicates that a nation typically has a homogeneous culture, whereas culture tends to vary from nation to nation, making nations suitable criteria for examining culture (Minkov & Hofstede, 2012). The cross-cultural psychology literature provides national cultural dimensions along which the differences among national

cultures can be examined. National-cultural dimensions relate to situations and problems all cultures confront, but how they deal with and react to them varies (Lytle, Brett, Barsness, Tinsley, & Janssens, 1995).

We argue that national cultural differences impact the EO–performance relationship in two major ways. First, differences in national cultural dimensions impact the behavior of buyers in markets such that buyers in national culture A could be more likely to buy products from entrepreneurial firms than are buyers in culture B, improving the performance consequences of EO in culture A over those in culture B (Cano, Carrillat, & Jaramillo, 2004). Second, differences in national cultural dimensions lead to differences in the practices of individuals in firms, so the dimensions can influence the effectiveness with which a strategic posture like EO is implemented (Kirca, Jayachandran, & Bearden, 2005). Cross-cultural research has generally found that the effect of management levers on desired outcomes increases when these levers fit with the national culture because individuals feel comfortable with them and act accordingly (e.g., Lachman, Nedd, & Hinings, 1994; Newman & Nollen, 1996).

Following Rauch, Frese, Wang, and Unger (2010), we examine the national cultural dimensions of uncertainty avoidance, power distance, in-group collectivism, and assertiveness, the first three of which stem from Hofstede's (2001) original set of dimensions and have been examined in the more recent GLOBE study (House et al., 2001), and have been related to entrepreneurship and innovation in extant research (e.g., Hayton, George, & Zahra, 2002; Mueller & Thomas, 2001). We also include assertiveness, a dimension uniquely examined in the GLOBE study, as it encompasses elements of aggressiveness that have been associated with strategic behavior in markets (Rauch et al.).

Uncertainty avoidance refers to the ease with which people deal with situations that they perceive as ambiguous, unknown, unstructured, and unpredictable (Hofstede, 2001). According to cross-cultural psychology literature, individuals in countries characterized by high uncertainty avoidance avoid risks and prefer structure and regulations (Luque & Javidan, 2004). We expect buyers in countries with high uncertainty avoidance to be less likely than those in other countries to adopt the innovative products entrepreneurial firms are likely to offer since these buyers tend to focus on the risks associated with these products (van Everdingen & Waarts, 2003). Since such buyers stick with established products, the performance potential of innovative products brought to the marketplace by entrepreneurial firms ahead of competition is reduced. The resistance against switching among suppliers is also higher in countries characterized by high uncertainty avoidance, so an entrepreneurial firm that brings a novel product or service to the marketplace is less likely to win buyers from competitors that offer less innovative products.

Clearly, there are more obstacles to implementing an entrepreneurial strategy in countries characterized by high uncertainty avoidance than in countries characterized by low uncertainty avoidance. Firms in settings characterized by high uncertainty avoidance tend to have high levels of internal formalization and bureaucracy (Luque & Javidan, 2004), rendering flexible implementation and commercialization of EO, which often encompasses trial and error, less effective (Covin et al., 2006). Furthermore, extant research argues that individual champions (i.e., individuals who push and implement entrepreneurial ideas) are more likely and more effective in countries with low uncertainty avoidance since high uncertainty avoidance imposes strict rules and regulations on individual behavior, which inhibits EO's effective implementation (Shane, 1994). Further, risky ideas from individual champions are more likely in low-uncertainty-avoidant national cultures to be smoothly implemented and commercialized by top management and other employees.

Overall, both market-related and implementation-related factors suggest that the relationship between EO and firm performance is stronger when uncertainty avoidance is low than when it is high. Therefore:

Hypothesis 1: The EO–performance relationship is stronger in national cultures characterized by low uncertainty avoidance than in those characterized by high uncertainty avoidance.

The second cultural dimension we examine is power distance, which refers to the degree to which individuals accept and expect that power is unequally distributed (Hofstede, 2001). High power distant cultures are characterized by centralization, authority, dominance of formal rules, and little sharing of information between functional departments. Van Everdingen and Waarts (2003) argue theoretically and validate empirically that these cultures have comparatively low rates of adoption of new innovative product ideas since top management of potential customers typically does not identify operational problems at lower hierarchical levels and, therefore, rarely pursues the introduction of new, innovative solutions brought proactively to the market by entrepreneurial firms. For their part, subordinates in these high power distant cultures do not take the initiative to push the introduction of new, innovative solutions (Hofstede). This situation reduces the performance potential of the innovative products entrepreneurial firms offer ahead of their competition in cultures with high levels of power distance. In low power distant cultures, subordinates are more likely to report (and to be heard) on operational problems (Carl, Gupta, & Javidan, 2004), which increases the likelihood that innovative products will be adopted, strengthening the EO–performance relationship. In a similar vein, Singh (2006) finds a negative relationship between power distance and innovation adoption in the consumer context.

While market adoption of innovative products is less strong in high power distance cultures, we also argue that the timely and effective implementation and commercialization of entrepreneurial ideas is inhibited in these cultures. In the course of EO’s implementation, Covin et al. (2006) argue, the firm must have the strategic reactivity and responsiveness that is required to react to the new circumstances that often occur in uncertain entrepreneurial contexts. Since EO is a firm-wide phenomenon (Wales, Monsen, & McKelvie, 2011), pronounced reactivity and responsiveness is likely to be possible only when rank-and-file employees have at least a minimum level of flexibility in making decisions, which flexibility is likely in countries characterized by low power distance. Furthermore, the hierarchical structures in high power distant cultures typically inhibit the communication between functions, such as that between marketing and R&D, that is important for the effective implementation and commercialization of a given degree of EO (De Clercq, Dimov, & Thongpapanl, 2010). Overall, then, we argue that:

Hypothesis 2: The EO–performance relationship is stronger in low power distant national cultures than in high power distant national cultures.

The degree of in-group collectivism refers to the extent to which collective action, cohesiveness, and the collective distribution of resources is appreciated and to the extent to which individuals assume they are interdependent with the organization (Gelfand, Bhawuk, Nishii, & Bechthold, 2004; Triandis, 1995). According to the cross-cultural psychology literature, cultures that are characterized by in-group collectivism have a “we” mentality, while low in-group collectivism fosters an “I” mentality (Hofstede, 2001). We argue that potential customers in cultures characterized by low in-group collectivism

are more open to adopting innovative products, which increases the performance potential for entrepreneurial firms (Steenkamp, ter Hofstede, & Wedel, 1999). As for collectivistic cultures, van Everdingen and Waarts (2003) argue that innovative products are invested in or purchased in a delayed manner, if at all, because of complicated collective decision making, which limits EO's performance impact. Further, in contrast to when in-group collectivism is low, collectivists differentiate sharply between in-groups and out-groups (Triandis, 1994), which may lead to ignorance of or skepticism toward innovations and proactive market introductions from out-groups, which entrepreneurial firms often are since they typically enter new markets with so far unknown potential customers.

However, strong in-group collectivism provides a more beneficial environment for EO's effective implementation than low in-group collectivism does. Collectivistic cultures support collaboration and the subordination of personal preferences in the organization (Nakata & Sivakumar, 2001), thereby facilitating the effectiveness of EO's commercialization as a strategic posture implemented by the entire firm (De Clercq et al., 2010). Coordinated, timely implementation and commercialization is particularly important if an entrepreneurial firm is to reap the full performance potential from first-mover advantages (Covin et al., 2006).

It follows that we have opposing arguments for whether the EO–performance relationship is stronger in cultures characterized by high or low in-group collectivism. We argue that the positive effect of in-group collectivism on the effective and timely implementation of innovative products outweighs weaker market reaction in these cultures since extant EO research shows that entrepreneurial firms, which are inherently proactive, are likely to suffer when there are internal obstacles to timely implementation (Covin et al., 2006; De Clercq et al., 2010). Further, empirical evidence from related research on the innovation–performance relationship in various cultures suggests that collectivistic cultures offer beneficial settings in which to reap innovation's full effects (Rauch et al., 2010; Rosenbusch, Brinckmann, & Bausch, 2011). Therefore, we state:

Hypothesis 3: The EO–performance relationship is stronger in national cultures characterized by high in-group collectivism than in those characterized by low in-group collectivism.

Finally, we examine the national cultural dimension of assertiveness, which the GLOBE study (Hartog, 2004) introduced to refer to the extent to which individuals are assertive, confrontational, and aggressive. In assertive cultures, business relationships are based on economic calculations, a factor that can become a problem when the economic value of new products from entrepreneurially oriented firms cannot be evaluated completely, preventing potential customers in assertive cultures from taking these products into consideration. In cultures with low levels of assertiveness, trust in business relationships plays a major role, which can increase the acceptance of novel products or services (Hartog).

Firms in assertive cultures have more internal competition and conflicts than do those in nonassertive cultures; meetings often become lengthy and end in “war games” (Hartog, 2004, p. 425), which can inhibit EO's timely implementation, thereby reducing its performance effects. Conflicts may lead to a “turf-protection” attitude that prevents entrepreneurial ideas from other functional departments from being assessed objectively. Organizations in less assertive cultures tend to value and pursue cooperation (Hartog), which strengthens EO's effect since EO is a firm-wide phenomenon that depends on collaboration between functional departments (Covin & Slevin, 1991). Further, trust is more pronounced in cultures with low levels of assertiveness than in those with high levels

of assertiveness, making access to resources, combining resources, and open information exchanges between functions easier and facilitating the joint implementation and commercialization of EO (De Clercq et al., 2010; Mueller, Rosenbusch, & Bausch, 2013). Therefore, both market-related and implementation-related arguments suggest:

Hypothesis 4: The EO–performance relationship is stronger in national cultures characterized by low levels of assertiveness than in those characterized by high levels of assertiveness.

The Economic, Political, and Regulatory Context. Beyond the national–cultural dimensions, we examine economic, political, and regulatory factors at the national level as formal institutional characteristics (Busenitz, Gomez, & Spencer, 2000). The four national-level factors we examine—the size of the country’s domestic market (e.g., Ellis, 2006), the country’s stage of economic development (e.g., Cano et al., 2004), the country’s political stability, and the country’s regulatory quality (e.g., Ellis)—have been employed in previous meta-analyses that studied the effect of other types of strategic postures, such as market orientation, in various countries.

We argue that the effect of the EO–performance relationship depends on the size of the home market. Large home markets expose firms to more diverse types of customers, increasing the likelihood that entrepreneurial firms will find customers who are open to innovative ideas brought to the market (Ellis, 2006). In small markets, however, entrepreneurial firms may be less successful since the target group may be restricted, limiting the potential return from investments in resource-intensive entrepreneurial activities (Covin & Slevin, 1991). Further, in small home markets, entrepreneurial firms must internationalize early to be successful on a large scale. The international business literature indicates that internationalization is associated with transaction costs, such as search, negotiation, and contracting costs, which are particularly high because of the internationalizing firm’s typical lack of knowledge about conditions in the host country (Brouthers, 2002; Brouthers & Nakos, 2004). As a result, language barriers and unknown cultural properties might lengthen product introductions, inhibiting EO’s performance potential (Meyer, 2001). In addition, products from entrepreneurially oriented firms might need adaptations to meet the host country’s needs and requirements, further inhibiting timely introductions (Katsikeas, Samiee, & Theodosiou, 2006). Therefore:

Hypothesis 5: The EO–performance relationship is stronger in countries with large home markets than in those with small home markets.

Economies differ in terms of their stage of development such that developed economies typically have stable demand and intense competition, while developing economies feature uncertain demand, dynamic market trends, and rapid growth (Burgess & Steenkamp, 2006; Gu, Hung, & Tse, 2008). These dynamic environments provide ample new opportunities for entrepreneurial firms, in terms of both the number and the quality of opportunities, so the performance effect of EO is also strong (Rauch et al., 2009). Since developed nations are characterized by stable demand and certainty, fewer opportunities arise, as saturated customers tend to stay with their existing circumstances, often blocking entrepreneurial firms’ innovative and risky product ideas (Burgess & Steenkamp). Competition is also typically less intense in developing countries, so the time span in which an entrepreneurial firm can profit from its first-mover advantages tends to be longer than it is in more competitive developed environments (Burgess & Steenkamp). Entrepreneurially oriented firms face more competition in developed environments, so the opportunity for

a unique or novel product or service is generally limited or at least endangered early. Therefore:

Hypothesis 6: The EO–performance relationship is stronger in developing economies than in developed economies.

Next, we examine the extent to which political stability influences the EO–performance relationship. Political stability refers to a situation in which the government is unlikely to be destabilized by unconventional means (Kaufmann, Kraay, & Mastruzzi, 2010). In countries with strong political stability, firms can be reasonably sure of minimal political turmoil. We argue that the EO–performance relationship is stronger when political stability is high, as entrepreneurially oriented firms that bring new innovations to the marketplace depend on stable political situations that minimize the risk of losing property rights on ideas or the monetary benefit generated by entrepreneurial ideas (Wright, Filatotchev, Hoskisson, & Peng, 2005). In unstable political environments, expropriation may put the returns from entrepreneurial activities at risk. In addition, firms that rely on EO, which is inherently a resource-intensive strategy, need ample resources, such as financial capital, human capital, and raw materials (Wiklund & Shepherd, 2005) to implement the EO strategy, but reliable access to such resources can be problematic in countries with political instability, where more “informal” ways of assigning resources often dominate (Peng, 2001; Tang et al., 2008). Therefore:

Hypothesis 7: The EO–performance relationship is stronger when the level of political stability is high than when it is low.

Finally, we examine the regulatory quality at the country level as a moderator of the EO–performance relationship. Regulatory quality refers to the degree to which a government promotes policies that allow smooth development of the private sector (Kaufmann et al., 2010). High regulatory quality ensures the development and maintenance of a private sector in which the benefits from entrepreneurial activities accrue to the firms that undertake them such that entrepreneurial firms receive the monetary and other benefits from their endeavors. In countries with poor regulatory quality, the government does not provide regulations that ensure that the benefits of entrepreneurial activities accrue to the firms that undertake them; for example, ideas are not protected by patents (Khanna & Palepu, 1997). Where there is low regulatory quality, it is likely that benefits from entrepreneurial activities will be “socialized” to a large extent, inhibiting the performance effect of EO and limiting the development of the private sector. Therefore:

Hypothesis 8: The EO–performance relationship is stronger when the level of regulatory quality is high than when it is low.

Methods

Literature Search and Selection Strategy

We conducted a comprehensive search for studies published before May 2013 in ABI/INFORM, PsycINFO, EBSCO (Business Source Elite), EconLit, ERIC (Expanded Academic Index), JSTOR Databases, Science Direct, and Wilson Business Abstracts using variations of keywords of EO (e.g., entrepreneurial orientation, entrepreneurial behavior, strategic orientation, strategic posture, corporate entrepreneurship) and

performance (e.g., performance, growth, profit, ROI, ROE, ROA, and ROS). Then we manually searched relevant journals, including *Entrepreneurship Theory and Practice*, *Journal of Business Venturing*, *Strategic Management Journal*, *Journal of Small Business Management*, *Academy of Management Journal*, *Journal of Applied Psychology*, *Administrative Science Quarterly*, and the *Entrepreneurship and Regional Development*. Finally, we examined the reference lists from the studies identified for additional studies. We used the following selection criteria to frame the scope of our study:

1. Studies had to assess the performance effect of EO at the organizational level;
2. EO had to address the strategy-making process at the organizational level, so studies that test individual-level entrepreneurship were excluded;
3. We included only studies that used either the Miller (1983) or the Covin and Slevin (1989) measurement instruments to operationalize the EO construct and those that developed refined and extended alternatives to these scales, such as the two sub-dimensions of autonomy and aggressiveness from Lumpkin and Dess (1996);
4. We did not consider qualitative research. To be included in the meta-analysis, the study had to report the Pearson correlation coefficient for the specified relationship or provide sufficient statistical information that allowed us to compute a correlation coefficient with the formulas provided by Hunter and Schmidt (1990) (e.g., r , univariate F , t , χ^2).

On completion of our search process in May 2013, our database consisted of 177 studies, each representing an independent sample ($N = 47,140$), so we had a strong empirical base for a meta-analysis (Brinckmann, Grichnik, & Kapsa, 2010; Read, Song, & Smit, 2009). Twenty-six of the studies in our sample reported two or more performance measures. In these cases, we estimated the average of the effect sizes for the meta-regression and the bivariate analysis, except when we compared different performance measures in the bivariate analysis (Ellis, 2006; Rauch et al., 2009; Unger, Rauch, Frese, & Rosenbusch, 2011). We could not assign all studies country classifications. Eleven studies did not report the country origin of their data or built on a sample that included more than one country without reporting the effects individually. This issue reduced the number of studies to a maximum of 166 for our cross-national analyses.

Sample sizes range from 25 (Fairoz, Hirobumi, & Tanaka, 2010) to 3,562 (Chow, 2006), and effect sizes range from $r = -.25$ (Soininen, Martikainen, Puumalainen, & Kyläheiko, 2012) to $r = .53$ (Galetić & Milovanović, 2008). Table 1 provides a list of studies included in the meta-analysis. A complete bibliography is available from the authors.

Coding

To reduce coding errors, we prepared a coding manual that was developed and iteratively revised to incorporate details of the studies included in the analysis (Lipsey & Wilson, 2001; Stock, 1994). The first author and one nonauthor initially coded all of the studies, resolving differences in coding by consensus. The main data items extracted from the studies were the methodological factors (e.g., sample size, EO measures, and performance measures) and statistics necessary for calculating effect sizes (e.g., Pearson's correlation coefficient). An inter-rater reliability analysis using an intra-class correlation coefficient (ICC) statistic (two-way mixed model, absolute agreement) to determine consistency among raters (McGraw & Wong, 1996; Shrout & Fleiss, 1979) revealed that

Table 1

List of Studies Included in the Meta-Analysis

Year	Authors	Country	Sample size	Journal	Performance scope (type)	UA	PD	CL	AS	Market size	Economic development	Political stability	National cultural context ^{††}		National economic, political, and regulatory context		
													Low	Low	High	High	
1986	Covin and Slevin [§]	United States	76	<i>Frontier of Entrepreneurship Research</i>	Mix (S)	Low	Low	Low	High	Large	Large	Large	Developed	Low	High	High	High
1986	Miller and Toulouse [§]	Canada	97	<i>Management Science</i>	FP & FG (O)	High	Low	High	High	Large	Large	Large	Developed	High	High	High	High
1988	Covin and Slevin	United States	80	<i>Journal of Management Studies</i>	Mix (S)	Low	Low	Low	High	Large	Large	Large	Developed	Low	High	High	High
1989	Covin and Slevin	United States	161	<i>Strategic Management Journal</i>	Mix (S)	Low	Low	Low	High	Large	Large	Large	Developed	Low	High	High	High
1989	Venkatesan [§]	United States	202	<i>Management Science</i>	FP & Mix (S)	Low	Low	Low	High	Large	Large	Large	Developed	Low	High	High	High
1990	Covin and Covin [§]	United States	143	<i>Entrepreneurship Theory & Practice</i>	FP (S)	Low	Low	Low	High	Large	Large	Large	Developed	Low	High	High	High
1990	Covin, Prescott, and Slevin [§]	United States	113	<i>Journal of Management Studies</i>	Mix (S)	Low	Low	Low	High	Large	Large	Large	Developed	Low	High	High	High
1991	Davis, Morris, and Allen	United States	93	<i>Journal of the Academy of Marketing Science</i>	Mix (S)	Low	Low	Low	High	Large	Large	Large	Developed	Low	High	High	High
1991	Zahra [§]	United States	119	<i>Journal of Business Venturing</i>	FP & FG (O)	Low	Low	Low	High	Large	Large	Large	Developed	Low	High	High	High
1993	Naman and Slevin [§]	United States	82	<i>Strategic Management Journal</i>	Mix (S)	Low	Low	Low	High	Large	Large	Large	Developed	Low	High	High	High
1993	Zahra and Covin [§]	United States	103	<i>Strategic Management Journal</i>	FP (O)	Low	Low	Low	High	Large	Large	Large	Developed	Low	High	High	High
1994	Covin, Slevin, and Schultz [§]	United States	91	<i>Journal of Management Studies</i>	Mix (S)	Low	Low	Low	High	Large	Large	Large	Developed	Low	High	High	High
1994	Smart and Jeffrey [§]	United States	599	<i>Journal of Applied Business Research</i>	Mix (S)	Low	Low	Low	High	Large	Large	Large	Developed	Low	High	High	High
1996	Zahra [§]	United States	127	<i>Academy of Management Journal</i>	FP (O)	Low	Low	Low	High	Large	Large	Large	Developed	Low	High	High	High
1997	Becherer and Mauer	United States	215	<i>Entrepreneurship Theory & Practice</i>	FG (S)	Low	Low	Low	High	Large	Large	Large	Developed	Low	High	High	High
1997	Dess, Lumpkin, and Covin	United States	32	<i>Strategic Management Journal</i>	FP, Mix & FG (S)	Low	Low	Low	High	Large	Large	Large	Developed	Low	High	High	High
1997	Dickson and Weaver	Norway	433	<i>Academy of Management Journal</i>	FG (O)	High	Low	Low	Low	Small	Small	Small	Developed	High	High	High	High
1998	Zahra and Neubaum [§]	United States	99	<i>Journal of Management, Entrepreneurship & Development</i>	FP (O)	Low	Low	Low	High	Large	Large	Large	Developed	Low	High	High	High
1999	Barrett and Weinstein [§]	United States	142	<i>Entrepreneurship Theory & Practice</i>	Mix (S)	Low	Low	Low	High	Large	Large	Large	Developed	Low	High	High	High
1999	Barringer and Bluedorn	United States	169	<i>Strategic Management Journal</i>	FP & FG (S & O)	Low	Low	Low	High	Large	Large	Large	Developed	Low	High	High	High
1999	Becherer and Mauer [§]	United States	215	<i>Journal of Small Business Management</i>	FG (S)	Low	Low	Low	High	Large	Large	Large	Developed	Low	High	High	High
1999	Chadwick, Barnett, and Dwyer [§]	United States	535	<i>Journal of Applied Management & Entrepreneurship</i>	FP (O)	Low	Low	Low	High	Large	Large	Large	Developed	Low	High	High	High
1999	Luo	China	63	<i>Journal of Small Business Management</i>	FP (S)	High	Low	High	Low	Large	Large	Large	Less Developed	Low	Low	Low	Low
1999	Richter [§]	Germany	208	<i>Unpublished</i>	Mix (S)	High	High	Low	High	Large	Large	Large	Developed	High	High	High	High
2000	Haiyane, Kwaku, and Yan [§]	China	184	<i>Academy of Management Journal</i>	Mix (S)	High	Low	High	Low	Large	Large	Large	Less Developed	Low	High	High	High
2000	Slater and Narver [§]	United States	53	<i>Journal of Business Research</i>	Mix (S)	Low	Low	Low	High	Large	Large	Large	Developed	Developed	Low	High	High
2000	Sietz, Howell, Stewart, Blair, and Fottler [§]	United States	865	<i>Frontier of Entrepreneurship Research</i>	Mix (S)	Low	Low	Low	High	Large	Large	Large	Developed	Developed	Low	High	High
2000	Zahra and Garvis [§]	United States	149	<i>Journal of Business Venturing</i>	FP & FG (S)	Low	Low	Low	High	Large	Large	Large	Developed	Low	High	High	High
2001	Attahene-Gima and Ko [§]	Australia	151	<i>Organization Science</i>	FP (O)	High	Low	Low	High	Large	Large	Large	Developed	Developed	Low	High	High
2001	George, Wood, and Khan [§]	United States	70	<i>Entrepreneurship & Regional Development</i>	FP (O)	Low	Low	Low	High	Large	Large	Large	Developed	Developed	Low	High	High
2001	Hult and Ketchen	Dun & Bradstreet	181	<i>Strategic Management Journal</i>	FP (O)	Low	High	High	High	Large	Large	Large	Less Developed	—	—	—	—
2001	Lee, Lee, and Penning [§]	Korea	137	<i>Strategic Management Journal</i>	FG (O)	Low	Low	Low	High	Large	Large	Large	Less Developed	Low	Low	Low	Low
2001	Lumpkin and Doss [§]	United States	124	<i>Journal of Business Venturing</i>	FP & FG (S)	Low	Low	Low	High	Large	Large	Large	Developed	Low	High	High	High

Table 1

Continued

Year	Authors	Country	Sample size	Journal	Performance scope (type)				Market size	Economic development	Political stability	Regulatory quality
					UA	PD	CL	AS				
2001	Yoo [§]	Korea	277	<i>Frontier of Entrepreneurship Research</i>	Mix (S)	Low	High	High	Large	Less Developed	Low	Low
2002	Cartana, Ewing, and Ramaeshan [§]	Australia	136	<i>The Service Industries Journal</i>	Mix (S)	High	Low	High	Large	Developed	High	High
2002	Fress, Brantjes, and Hoorn	Africa	87	<i>Journal of Development Entrepreneurship</i>	FG (O)	High	Low	High	Large	Less Developed	Low	Low
2002	Kemelgor [§]	United States	86	<i>Entrepreneurship & Regional Development</i>	FP (O)	Low	Low	High	Large	Developed	Low	High
2002	Kemelgor [§]	Netherlands	91	<i>Entrepreneurship & Regional Development</i>	FP (O)	High	Low	High	Large	Developed	High	High
2002	Kreiser, Marino, and Weaver [§]	Six countries	1,067	<i>Entrepreneurship Theory & Practice</i>	Mix (S)	—	—	—	—	—	—	—
2002	Marino, Strandholm, Steensma, and Weaver [§]	Six countries	647	<i>Entrepreneurship Theory & Practice</i>	Mix (S)	—	—	—	—	—	—	—
2002	Yusuf	Oman	228	<i>International Journal of Commerce & Management</i>	Mix (S)	High	Low	High	Small	Less Developed	High	Low
2003	Balabanis and Katsikea	UK	82	<i>International Business Review</i>	Mix (S)	High	High	Low	Large	Developed	Low	High
2003	Harms and Ehrmann [§]	Germany	71	<i>Rabson-Kaufman Foundation Conference</i>	FP (S)	High	High	Low	High	Developed	High	High
2003	Hult, Snow, and Kandemir [§]	Global	764	<i>Journal of Management</i>	Mix (S)	—	—	—	—	—	—	—
2003	Liu, Liu, and Shi [§]	China	304	<i>Journal of Business Research</i>	Mix (S)	High	Low	High	Large	Less Developed	Low	Low
2003	Morgan and Strong [§]	UK	149	<i>Journal of Business Research</i>	Mix (S)	High	High	Low	Large	Developed	Low	High
2003	Sadler-Smith, Hampson, Cheston, and Badger	UK	156	<i>Journal of Small Business Management</i>	Mix (S)	High	High	Low	Large	Developed	Low	High
2003	Swierczek and Ha [§]	Vietnam	478	<i>Journal of Entrepreneurial Culture</i>	PP & FG (O)	Low	High	Low	Small	Less Developed	Low	Low
2003	Vitale, Giglierano, and Miles [§]	United States	89	Unpublished	Mix (S)	Low	Low	High	Large	Developed	Low	High
2003	Weerawardena	Australia	326	<i>Journal of Strategic Marketing</i>	Mix (S)	High	Low	High	Large	Developed	High	High
2003	Wiklund and Shepherd [§]	Sweden	384	<i>Strategic Management Journal</i>	Mix (S)	High	Low	High	Small	Developed	High	High
2004	Dimitratos, Lioukas, and Carter [§]	Greece	152	<i>International Business Review</i>	FG (O)	Low	High	High	High	Developed	Low	Low
2004	Hult, Hurley, and Knight [§]	Dun & Bradstreet	181	<i>Industrial Marketing Management</i>	Mix (S)	—	—	—	—	—	—	—
2004	Knight and Cavusgil	United States	203	<i>Journal of International Business Studies</i>	Mix (S)	Low	Low	High	Large	Developed	Low	High
2004	Richard Barnett, Dwyer, and Chadwick [§]	United States	153	<i>Academy of Management Journal</i>	PP & FG (S & O)	Low	Low	High	Large	Developed	Low	High
2004	Weerawardena and O'Cass	Australia	326	<i>Industrial Marketing Management</i>	Mix (S)	High	Low	High	Large	Developed	High	High
2004	Zahra, Hayton, and Salvato	United States	536	<i>Entrepreneurship Theory & Practice</i>	FP (O)	Low	Low	High	Large	Developed	Low	High

2005	Arbaugh, Cox, and Camp	17 countries	1,045	<i>The Journal of Business Inquiry</i>	FP (S)	—	—	—	—	—	—
2005	Bhutian, Menguc, and Bell [§]	United States	231	<i>Journal of Business Research</i>	Mix (S)	Low	Low	High	Large	Large	High
2005	De Clercq, Sapienza, and Criqui [†]	Belgium	92	<i>Small Business Economics</i>	FG (S)	High	High	Low	Developed	Developed	High
2005	Jantunen, Puustinen, and Liu	Finland	217	<i>Journal of International Entrepreneurship</i>	Mix (S)	High	Low	Low	Small	Developed	High
2005	Saareketo, and Kyllonen [§]	China	184	<i>Journal of High Technology Management Research</i>	Mix (S)	High	Low	High	Low	Less Developed	Low
2005	Li, Zhang, and Chan	China	233	<i>Journal of the Academy of Marketing Science</i>	FG (O)	High	Low	High	Large	Less Developed	Low
2005	Luo, Sivakumar, and Liu	China	218	<i>Journal of Business Research</i>	FG (O)	High	Low	High	Large	Less Developed	Low
2005	Luo, Zhou, and Liu	China	1,055	<i>Unpublished Strategic Management Journal</i>	Mix (S)	Low	Low	High	Large	Developed	Low
2005	3. Monsen [§]	United States	104	<i>Journal of Business Venturing</i>	FP (O)	High	Low	High	Low	Less Developed	Low
2005	Tan and Tan [§]	China	419	<i>Journal of Entrepreneurial Culture</i>	Mix (S)	High	Low	Low	Small	Developed	High
2005	Wiklund and Shepherd [§]	Sweden	350	<i>Journal of Entrepreneurship</i>	Mix (S)	High	Low	High	Large	Less Developed	Low
2005	Zhou, Yim, and Tse	Slovenia	449	<i>Journal of Applied Mgmt. & Entrepreneurship</i>	FP & FG (O)	Low	High	High	Low	Small	High
2006	Antonicic	Italy	223	<i>Journal of Marketing</i>	Mix (S)	Low	High	Low	Large	Less Developed	Low
2006	Carraher, Parnell, Carraher, Carraher, and Sullivan	United States	284	<i>Journal of Applied Management & Entrepreneurship</i>	Mix (S)	Low	Low	High	Large	Developed	Low
2006	Carraher et al.	UK	239	<i>Journal of Applied Management & Entrepreneurship</i>	Mix (S)	High	High	Low	Large	Developed	Low
2006	Carraher et al.	New Zealand	177	<i>Journal of Applied Management & Entrepreneurship</i>	Mix (S)	High	High	Low	Small	Developed	High
2006	Carraher et al.	Hong Kong	180	<i>Journal of Applied Management & Entrepreneurship</i>	Mix (S)	High	Low	High	High	Less Developed	High
2006	Chow, Covin, Green, and Stevin [§]	China	3,562	<i>SAM Advanced Management Journal</i>	FP (S)	High	Low	High	Low	Less Developed	High
2006	2006 Davis, Marino, and Aaron	United States	110	<i>Entrepreneurship Theory & Practice</i>	FG (O)	Low	Low	High	Large	Developed	Low
2006	2006 Griffith, Noble, and Chen	United States	141	<i>International Journal of Organizational Analysis</i>	Mix (S)	Low	Low	High	Large	Developed	Low
2006	2006 Jogaratnam and Tse	Four countries	269	<i>Journal of Retailing</i>	Mix (S)	Low	Low	High	Large	Developed	Low
2006	Kaya	Turkey	187	<i>International Journal of Contemporary Hospitality Management</i>	Mix (S)	—	—	—	—	—	—
2006	Kropp, Lindsay, and Shoham	South Africa	124	<i>International Journal of Contemporary Hospitality Management</i>	Mix (S)	Low	High	High	Large	Less Developed	Low
2006	Li, Liu, and Zhao	China	477	<i>International Marketing Review</i>	Mix (S)	High	Low	High	Large	Less Developed	Low
2006	Poon, Aminuddin, and Junii [§]	Malaysia	585	<i>International Small Business Journal</i>	Mix (S)	High	Low	High	Large	Less Developed	Low
2006	Rauch, Frese, Koenig, and Wang [§]	China, Germany	96	<i>Babson Kaufman Foundation Conf.</i>	Mix (S)	—	—	—	Small	Less Developed	—
2006	Walter, Auer, and Ritter [§]	Germany	364	<i>Journal of Business Venturing</i>	FG & FP (O)	High	High	Low	Large	Developed	High
2007	2007 Aylonitis and Salavou	Greece	149	<i>Journal of Business Research</i>	Mix (S)	Low	High	High	Small	Developed	Low
2007	2007 Chen, Tzeng, Ou, and Chang	Taiwan	149	<i>Contemporary Management Research</i>	Mix (S)	Low	Low	High	Large	Developed	High
2007	2007 De Clercq and Rius	Mexico	863	<i>Journal of Small Business Management</i>	Mix (O)	Low	Low	High	High	Less Developed	Low
2007	Gabrielson	Sweden	175	<i>International Small Business Journal</i>	FG (O)	High	Low	Low	Large	Developed	High
2007	Holt, Rutherford, and Clossessy	United States	151	<i>Journal of Leadership & Organizational Studies</i>	Mix (S)	Low	Low	High	Large	Developed	Low
2007	Hughes, Hughes, and Morgan	UK	211	<i>British Journal of Management</i>	Mix (S)	High	High	Low	Large	Developed	High
2007	Hughes and Morgan	Singapore	211	<i>Industrial Marketing Management</i>	Mix (S)	High	Low	Low	Large	Developed	Low
2007	Keh, Nguyen, and Madsen	Norway	294	<i>Journal of Business Venturing</i>	Mix (S)	High	Low	High	Small	Developed	High
2007	Madsen	168	168	<i>Entrepreneurship & Regional Development</i>	Mix (S)	High	Low	Low	Low	Developed	High

Table 1

Continued

Year	Authors	Country	Sample size	Journal	Performance scope (type)				Market size	Economic development	Political stability	Regulatory quality	National cultural context ^{††}		National economic, political, and regulatory context	
					UA	PD	CL	AS					National cultural context ^{††}	National economic, political, and regulatory context		
2007	Morris, Coombes, and Schindehutte	United States	145	<i>Journal of Leadership and Organizational Studies</i> Unpublished	FP (O)	Low	Low	High	Large	Developed	Low	High	Low	High		
2007	Pett and Wolff	United States	117	<i>Journal of International Entrepreneurship</i>	Mix (S)	Low	Low	High	Large	Developed	Low	High	Low	High		
2007	Ripolles-Meléa, Menuzato-Boulard, and Sánchez-Péñado	Spain	155	<i>Journal of International Entrepreneurship</i>	FG (O)	Low	High	High	Large	Developed	Low	Low	Low	High		
2007	Tang, Tang, Zhang, and Li	China	166	<i>Journal of Developmental Entrepreneurship</i>	Mix (S)	High	Low	High	Large	Less Developed	Low	Low	Low	Low		
2007	Zhou	Hong Kong	775	<i>Journal of World Business</i>	FG (S)	High	Low	High	High	High	High	High	High	Low		
2008	Galević and Milovanović	Croatia	150	<i>Unpublished</i>	FG & FP (S)	Low	High	Low	High	Small	Less Developed	High	High	Low		
2008	González-Padón, Hult, and Calantone	United States	200	<i>Industrial Marketing Management</i>	Mix (S)	Low	Low	High	High	Small	Less Developed	Low	Low	High		
2008	Hansfield, Johansen, and Knight	United States	195	<i>International Business: Research Teaching Practice</i>	Mix (S)	Low	Low	High	Large	Developed	Low	Low	High	High		
2008	Li, Gao, Liu, and Li	China	607	<i>Journal of product Innovation Management</i>	Mix (S)	High	Low	High	Low	Large	Less Developed	Low	Low	Low		
2008	Li, Poppo, and Zhou	China	280	<i>Strategic Management Journal</i>	FP (O)	High	Low	High	Low	Large	Less Developed	Low	Low	Low		
2008	Li, Zhao, Tan, and Liu	China	213	<i>Journal of Small Business Management</i>	Mix (S)	High	Low	High	Low	Large	Less Developed	Low	Low	Low		
2008	Lin, Peng, and Kao	Taiwan	333	<i>International Journal of Manpower Entrepreneurship Theory & Practice</i>	Mix (S)	Low	Low	High	Low	Large	Developed	High	High	High		
2008	Moreno and Casillas	Spain	434	<i>Entrepreneurship Theory & Practice</i>	FG (O)	Low	High	High	High	Large	Developed	Low	High	High		
2008	Stam and Elfring [§]	Netherlands	90	<i>Academy of Management Journal</i>	FG & Mix (O & S)	High	Low	High	High	Large	Developed	High	High	High		
2008	Tang, Tang, Marino, Zhang, and Li	China	185	<i>Entrepreneurship Theory & Practice</i>	Mix (S)	High	Low	High	Low	Large	Less Developed	Low	Low	Low		
2008	Wang	UK	231	<i>Entrepreneurship Theory & Practice</i>	Mix (S)	High	High	Low	Low	Large	Developed	Low	High	High		
2008	Zahra	United States	457	<i>Journal of Strategy and Management</i>	FP (O)	Low	Low	High	High	Large	Developed	Low	High	Low		
2009	Awang et al.	Malaysia	210	<i>Int'l Journal of Business and Mgmt.</i>	FP & FG (O)	High	Low	High	Low	Small	Less Developed	Low	Low	High		
2009	Baker and Sinkula	United States	88	<i>Journal of Small Business Management</i>	FP (S)	Low	Low	High	High	Large	Developed	Low	Low	High		
2009	Frischmann and Andersson	Sweden	188	<i>Journal of International Entrepreneurship</i>	FG & Mix (S)	High	Low	Low	Low	Small	Developed	High	High	High		
2009	Gürbüz and Aykol	Turkey	221	<i>Management Research News</i>	FG (O)	Low	High	High	Low	Large	Less Developed	Low	Low	High		
2009	Heavey, Simsek, Roche, and Keely	Ireland	349	<i>Journal of Management Studies</i>	FG (S)	Low	High	High	Low	Small	Developed	Low	Low	High		
2009	Hooi and Che Ha	Bangladesh	321	ANZMAC-conference paper	Mix (S)	Low	High	High	Low	Large	Less Developed	Low	Low	Low		
2009	Kaya and Ağca	Turkey	94	Unpublished	Mix (S)	Low	High	High	High	Large	Less Developed	Low	Low	Low		

2009	Li, Huang, and Tsai	Taiwan	165	<i>Industrial Marketing Management</i>	FG & FP (S)	Low	Low	Large	Developed	High	High
2009	Li, Liu, Wang, Li, and Guo	China	607	<i>Systems Research and Behavioral Science</i>	Mix (S)	High	Low	Large	Less Developed	Low	Low
2009	Li, Tse, and Zhao	United States	104	<i>International Journal of Hospitality & Tourism Research</i>	FP (O)	Low	Low	High	Developed	Low	High
2009	Liu, Manolova, and Edelman	China	195	<i>Frontiers of Entrepreneurship Research</i>	Mix (S)	High	Low	Low	Less Developed	Low	Low
2009	Merlo and Auh	Australia	112	<i>Market Letters</i>	Mix (S)	High	Low	High	Developed	High	High
2009	Renko, Carsrud, and Brämbäck	Three countries	85	<i>Journal of Small Business Management</i>	FP (O)	—	—	—	—	—	—
2009	Richard, Wu, and Chadwick	United States	579	<i>The International Journal of Human Resource Mgmt.</i>	FP (O)	Low	Low	High	Large	Developed	Low
2009	Tang and Rothenberg	China	207	<i>Journal of Enterprising Culture Entrepreneur & Regional Development</i>	Mix (S)	High	Low	High	Large	Less Developed	Low
2010	Casillas and Moreno	Spain	449	<i>Journal of International Marketing</i>	FG (O)	Low	High	High	Large	Developed	Low
2010	Colton, Roth, and Bearden	Cross country	174	<i>Journal of Business Venturing</i>	Mix & FG (S)	—	—	—	—	—	—
2010	De Clercq, Dimov, and Thomopoulos	Canada	232	<i>Journal of Business Venturing</i>	Mix (S)	High	Low	High	Large	Developed	High
2010	Fairoz, Hirobumi, and Tanaka	Sri Lanka	25	<i>Asian Social Science</i>	FG & FP (S)	Low	High	High	Low	Small	Developed
2010	Ferreira, Azevedo, and Ortiz	Portugal	168	<i>Cuadernos de Gestión</i>	FG (O)	Low	High	Low	Small	Developed	Low
2010	Frank, Kesse, and Fink	Austria	125	<i>Schmalenbach Business Review</i>	Mix (S)	High	Low	High	Small	Developed	High
2010	Li, Wei, and Liu	China	140	<i>Journal of Management Studies</i>	Mix (S)	High	Low	High	Large	Less Developed	Low
2010	Menguc, Auh, and Ozanne	New Zealand	150	<i>Journal of Business Ethics</i>	FG & FP (S)	High	Low	Low	Small	Developed	High
2010	Rhee, Park, and Lee	Korea	333	<i>Strategic Management Journal</i>	Mix (O & S)	Low	High	High	Large	Less Developed	Low
2010	Simscek, Heavey, and Veiga	Ireland	129	<i>Tourism Management Journal</i>	FG (O)	High	Low	Low	Small	Developed	High
2010	Tajeddini	Switzerland	156	<i>Journal of International Business Studies</i>	FP & FG (S)	High	Low	High	Large	Developed	High
2010	Zhou, Barnes, and LU	China	436	<i>Journal of International Business Studies</i>	Mix (S)	High	Low	High	Large	Less Developed	Low
2010	Andersen	Sweden	172	<i>International Journal of Entrepreneurial Behavior & Research</i>	FP & FG (O)	High	Low	Low	Small	Developed	High
2011	Anderson and Eshima	Japan	230	<i>Journal of Business Venturing</i>	FP & FG (O & S)	Low	High	Low	Large	Developed	High
2011	Hayat and Riaz	Pakistan	150	<i>Unpublished Conference paper</i>	Mix (S)	Low	High	Low	Small	Less Developed	Low
2011	Idar and Mahmood	Malaysia	356	<i>International Journal of Business and Management</i>	Mix (S)	High	Low	High	Small	Less Developed	Low
2011	Islam, Khan, Obaidullah, and Alam	Bangladesh	95	<i>Journal of Business Research</i>	FG (O)	Low	High	Low	Large	Developed	Low
2011	Javalgi and Todd	India	150	<i>African Journal of Business Management</i>	Mix (S)	Low	Low	High	Large	Less Developed	Low
2011	Lee and Chu	Taiwan	201	<i>Journal of Operations Management</i>	Mix (S)	High	Low	High	Large	Developed	High
2011	Li, Liu, and Liu	China	225	<i>Journal of Industrial Marketing Management</i>	Mix (S)	Low	High	Low	Large	Less Developed	Low
2011	Lisbo, Skarneas, and Lages	Portugal	254	<i>Unpublished Journal</i>	Mix (S)	Low	High	Low	Small	Developed	High
2011	Lisboa, Lages, and Skarneas	Portugal	263	<i>African Journal of Business Management</i>	FP (S)	Low	High	Low	Large	Less Developed	High
2011	Liu, Hou, Yang, and Ding	China	119	<i>Journal of World Business</i>	Mix (S)	High	Low	High	Large	Less Developed	Low
2011	Liu, Li, and Xue	Iran	607	<i>Journal of Management Research</i>	Mix (S)	High	Low	High	Large	Less Developed	Low
2011	Maaotoli and Tajeddini	United States	71	<i>International Small Business Journal</i>	FG (O)	Low	Low	Low	Large	Developed	High
2011	Messersmith and Wales	United States	119	<i>Industrial Marketing Management</i>	Mix (S)	Low	High	Low	Large	Less Developed	Low
2011	Nasution, Mavondo, Matanda, and Ndubisi	Indonesia	231	<i>Canadian Journal of Admin. Sciences</i>	FG (O)	Low	High	High	Large	Developed	High
2011	O'Cass and Ngoo	Vietnam	259	<i>Industrial Marketing Management</i>	Mix (S)	Low	High	Low	Small	Less Developed	Low
2011	O'Cass and Ngoo	Australia	300	<i>Canadian Journal of Admin. Sciences</i>	Mix (S)	High	Low	High	Large	Developed	High
2011	Rodrigues and Raposo	Portugal	212	<i>Journal of Small Business Management</i>	Mix (S)	High	Low	High	Large	Less Developed	Low
2011	Su, Xie, and Li	China	223	<i>Procedia—Social and Behavioral Sciences</i>	Mix (S)	Low	High	High	Large	Less Developed	Low
2011	Tayauova	Turkey	114								

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Year	Authors	Country	Sample size	Journal	Performance scope (type)				Market size	Economic development	Political stability	Regulatory quality
					UA	PD	CL	AS				
2012	Boohene, Marfo-Yiadom, and Yehoah	Ghana	118	<i>Developing Country Studies</i>	Mix (S)	High	Low	High	Small	Less Developed	Low	Low
2012	Boso, Cadogan, and Story	UK	212	<i>International Business Review</i>	Mix (S)	High	Low	Large	Large	Developed	Low	High
2012	Chen, Li, and Evans	Taiwan	159	<i>Industrial Marketing Management</i>	PG & Mix (S)	Low	High	Low	Large	Developed	High	High
2012	Clausen and Koenenissen	Norway	207	<i>Innovation</i>	PG (S)	High	Low	Low	Small	Developed	High	High
2012	Dada and Watson	UK	95	<i>International Small Business Journal</i>	Mix (S)	High	Low	Large	Large	Developed	Low	High
2012	Kollmann and Stockmann	Germany	228	<i>Entrepreneurship Theory & Practice</i>	Mix (S)	High	Low	High	Large	Developed	High	High
2012	Kraus, Rügsering, Hughes, and Hosman	Netherlands	111	<i>Review of Management Science</i>	Mix (S)	High	Low	High	Large	Developed	High	High
2012	Lechner and Gundmundsson	France	385	<i>International Small Business Journal</i>	Mix (S)	High	Low	High	Large	Developed	High	High
2012	Ma, Kim, Heo, and Jang	Korea	107	<i>Conference paper</i>	Low	High	High	High	Large	Less Developed	Low	Low
2012	Monferrer, Blesa, and Ripolles	Spain	135	<i>Economics Research International</i>	Low	High	High	High	Large	Developed	Low	High
2012	Partman, Holloway, and Sebastian	United States	122	Unpublished	Mix (S)	Low	Low	High	Large	Developed	Low	High
2012	Ripolles, Blesa, and Monferrer	Spain	135	<i>International Business Review</i>	PG (O)	Low	High	High	Large	Developed	Low	High
2012	Sciasci, Mazzola, and Chirico	Switzerland	199	<i>Entrepreneurship Theory & Practice</i>	Mix (S)	High	Low	High	Small	Developed	High	High
2012	Soininen, Martikainen, Puimalainen, and Kyllonenko	Finland	194	<i>International Journal of Production Economics</i>	PP & FG (O)	High	Low	Low	Small	Developed	High	High
2012	Spillecke and Bretel	Germany	268	<i>Journal of Small Business Management</i>	PP (S)	High	High	Low	High	Large	Developed	High
2012	Wong	China	244	<i>Journal of Chinese Entrepreneurship</i>	Mix (S)	High	Low	High	Low	Large	Less Developed	Low
2012	Yu	China	181	<i>African Journal of Business Mgmt.</i>	Mix (S)	High	Low	High	Low	Large	Less Developed	Low
2013	Engelen, Gupta, Strenger, and Bretel	Six countries	790	<i>Journal of Management</i>	Mix (S)	—	—	—	—	—	—	—
2013	Shirokova, Vega, and Sokolova	Russia	500	<i>Critical Perspectives on International Business</i>	PG & Mix (O & S)	Low	High	High	Low	Large	Less Developed	Low

[§] Included in Rauch et al. (2009) meta-analysis.^{††} Based on the country's sample information of each study, we assigned a respective uncertainty avoidance (UA), power distance (PD), in-group collectivism (CL), and assertiveness (AS) index (House et al., 2004).

ICC = .95 (95% CI .91–.99), which is considered to indicate a high level of consistency (Perreault & Leigh, 1989).

Independent Variable—EO. Although there has been debate about the dimensionality of the EO construct (Lumpkin & Dess, 1996), the majority of studies in the EO domain have conceptualized EO as a unidimensional construct (Covin et al., 2006; Rauch et al., 2009). Moreover, the high inter-correlation among the three most commonly used subdimensions of EO—innovativeness, risk taking, and proactiveness—is consistent with Miller's (1983) unidimensional conceptualization of firm-level entrepreneurship. In our database of 177 studies, 133 studies operationalize EO as a unidimensional construct and 35 as a multidimensional construct, while nine studies employ both. We also noticed that EO was measured using a variety of combinations: innovativeness, risk taking, and proactiveness (116 studies); innovativeness and risk taking (13 studies); risk taking and proactiveness (8 studies); innovativeness, risk taking, proactiveness, competitive aggressiveness, and autonomy (5 studies). Several other combinations are used once (i.e., risk taking, proactiveness, and competitive aggressiveness; innovativeness and proactiveness, etc.). We coded an overall value of EO for each study.

Dependent Variable—Performance. First, we differentiated between growth and profitability performance measures (“performance scope”). Further, as Rosenbusch, Rauch, and Bausch (2013) and Kirca et al. (2005) do, we added the category of “overall business performance” since some studies in the EO literature employ composite performance scores of facets of performance. Table 2 indicates the performance measures that were subsumed under the three categories; 26 studies report more than one of these performance measures. We employed these performance measures only in the bivariate analysis, since we needed to build the mean effect size per study for the meta-regression, and in these cases a clear classification into one of the three categories is no longer possible or would substantially reduce the number of studies. (See also Brinckmann et al., 2010.)

Further, we differentiated between subjective and objective performance measures as performance types (Brinckmann et al., 2010; Cano et al., 2004; Mueller et al., 2013),

Table 2

Coding of Performance Measures in Three Categories for Bivariate Analysis

Growth	Profitability	Overall business performance
<ul style="list-style-type: none"> Employment growth (e.g., Fairoz et al., 2010) Sales growth (e.g., Messersmith & Wales, 2013) Firm growth (e.g., Anderson & Eshima, 2011; Antoncic, 2006) General business growth (e.g., Gürbüz & Aykol, 2009) Growth in ROS (e.g., Gabrielsson, 2007) Growth in cash flow (e.g., Griffith, Noble, & Chen, 2006) Growth in revenue (e.g., Griffith et al., 2006) Growth in net income (e.g., Miller & Toulouse, 1986) Growth in profit (e.g., Zahra & Garvis, 2000) International sales growth (e.g., Ripolles, Blesa, & Monferrer, 2012) 	<ul style="list-style-type: none"> ROS (e.g., Zahra, Hayton, & Salvato, 2004) ROA (e.g., Andersen, 2010) Profitability (e.g., Antoncic, 2006) ROI (e.g., Miller & Toulouse, 1986) Cash flow (e.g., Renko, Carsrud, & Bräinback, 2009) Sale per employee (e.g., Walter, Auer, & Ritter, 2006) 	<ul style="list-style-type: none"> Overall business performance (e.g., Barret & Weinstein, 1998; Covin & Slevin, 1989; De Clercq et al., 2010; Wiklund & Shepherd, 2003)

speaking of subjective performance (coded as 0 in the meta-regression) when respondents in the firm were asked to assess their performance relative to competition or their own plans. Objective performance measures (coded as 1) refer to reports from respondents on absolute values of performance or secondary data sources are used (Harris, 2001). Seven studies could not be classified clearly as covering either subjective or objective measures since they used both. These studies were left out of the meta-regression analysis, but they were considered twice in the bivariate analysis.

Moderator Variables.

National Cultural Context. While national cultural dimensions are typically empirically captured by Hofstede's (2001) scores which have been initially employed for a consulting project, the more recent Global Leadership and Organizational Behavior Effectiveness (GLOBE) study provides measures developed in the literature and theory driven by a global team of researchers (Javidan, House, Dorfman, Hanges, & Luque, 2006). Moreover, the GLOBE study offers more recent classifications of 62 countries. For these reasons, we chose the GLOBE scores for measuring uncertainty avoidance, power distance, in-group collectivism, and assertiveness at the country level in the 166 from our 177 studies which report the sample's national background (House, Hanges, Javidan, Dorfman, & Gupta, 2004). The GLOBE study measures cultural dimensions from two perspectives: "should be," society members' values regarding what should be the practices in their society, and "as is," society members' perceptions of current practices. We used the "as is" perspective for the bivariate and meta-regression analysis. Country classifications for each study are presented in Table 1.

Although most of the countries in our sample of EO studies match the country classification included in the GLOBE study, there are slight differences in five cases. First, the GLOBE study includes separate scores for the former East Germany and the former West Germany. When there was no information on whether a study in our sample was limited to the former East or West Germany, we estimated a single weighted average measure for Germany by taking into account the population in each subgroup. Second, the GLOBE scores for South Africa include scores derived from a "black sample" and a "white sample." We estimated a single weighted average score by taking into account the population in each subgroup. Third, the GLOBE study includes separate measures for the French-speaking and German-speaking populations of Switzerland, while we estimated a single weighted average measure by taking the average of the subgroups but only when the study does not provide information on the concrete setting in Switzerland. Fourth, the GLOBE study measures the culture of England but not the other countries in the UK, so we used England's score for the other UK countries. Fifth, the GLOBE study provides no data for Bangladesh, Belgium, Sri Lanka, Iran, Norway, Pakistan, Vietnam, Ghana, Croatia, or Oman, so we used the scores of neighboring countries as GLOBE scores for these countries.

Macroeconomic Factors. We operationalized market size through the Global Competitiveness Index, which is the sum of domestic and foreign market size. Domestic market size is constructed by adding the natural log of the sum of the gross domestic product valued at Purchasing Power Parity (PPP) to the total value (PPP estimates) of imports of goods and services, minus the total value (PPP estimates) of exports of goods and services. Data are then normalized on a 1-to-7 (small to large) scale. Foreign market size is estimated as the natural log of the total value (PPP estimates) of exports of goods and services, normalized on a 1-to-7 scale. We preferred this method to other methods of calculating market size that are based on gross national income (GNI) and gross domestic product (e.g., Cano et al., 2004; Ellis, 2006) because other methods are less

accurate in representing the market size. (For example, on the basis of GNI data, Hong Kong, Malaysia, and Africa would be considered small markets in comparison to Austria, Norway, and Sweden's large markets.) Therefore, considering domestic and foreign market sizes provided a more effective measure of market size. For each country, we calculated an average of the last 25 years, the period in which the empirical research on EO was conducted, and ranked all relevant countries along these averages.

We followed Unger et al.'s (2011) method for categorizing countries into developing nations (coded as 0 in meta-regression) and developed nations (coded as 1) based on whether a country received development assistance and aid in 2003 (Manning, 2005).

To operationalize political and regulatory stability, we used the Worldwide Governance Indicators (WGI) data developed by the World Bank (Kaufmann et al., 2010). The WGI, which are based on one of the largest compilations of cross-country data on governance, consist of six variables: voice and accountability, political stability and absence of violence, political and government effectiveness, regulatory quality, rule of law, and control of corruption. Among these six variables, we employed the two that are most closely associated with our understanding of the moderating variables. Political stability refers to "the likelihood that the government will be destabilized by unconstitutional or violent means, including terrorism" (Kaufmann et al., p. 4), while regulatory quality refers to "the government's ability to formulate and implement sound policies and regulations that permit and promote private sector development" (Kaufmann et al., p. 4). We calculated the average of these values for each country for the relevant period of time. We checked to determine whether countries fell into one category in 1 year (e.g., stable country in terms of regulations) and into another category (e.g., unstable country in terms of regulations) in another year and found that classifications were highly stable across the relevant period. Classifications of the countries in the 166 studies with information on the national background of the samples in terms of these variables are presented in Table 1.

Control Variables. We considered "large vs. small firms" as control, differentiating between studies with large firms (more than 500 employees; coded as 0) and studies with small firms (fewer than 500 employees; coded as 1 in the meta-regression analysis) (Rosenbusch et al., 2013). Seventy-three studies cover both small and large firms or do not report the sizes of the surveyed firms at all, nor were these data available elsewhere, so we cannot use these studies in either the bivariate or the meta-regression analyses.

We coded all 177 studies for whether they have a non-high-tech focus (coded as 0 in meta-regression) or a high-tech focus (coded as 1). This approach is in line with Rauch et al. (2009), whose classifications for a study we adopted if it was in both our sample and theirs. We also control for whether the primary study controls for industry or not ("no control for industry vs. control for industry" with "no control for industry" coded as 0 in meta-regression) (Brinckmann et al., 2010).

The study quality was assessed independently by two raters using 14 survey research-related statements from the quality assessment scale from Downs and Black (1998) (see Table 3), which assesses four main areas of bias—reporting (e.g., Has the data collection approach been made transparent?), external validity (e.g., Is the sample representative?), internal validity (e.g., Is the outcome variable clearly defined?), and selection bias (e.g., Are there controls for possible confounds?)—yielding total quality assessment scores that range from 0 to 42, where a higher score indicates higher study quality. There was 77–100% agreement between the two raters on the individual quality items. An inter-rater reliability analysis using an ICC statistic (two-way-mixed model, absolute agreement) to determine consistency among raters revealed a high ICC of .90 (95% CI .85–.95) (Bliese, 1998). We preferred this study quality measure over citation-based or journal-related

Table 3**Statements/Questions to Measure Study Quality****Reporting:**

- (1) Research question(s) are clearly stated
- (2) Participants in sample were described
- (3) Type of facility where study was conducted was stated (i.e., industry type and business sector)
- (4) Method of data collection was described

External validity:

- (5) Response rate was provided
- (6) Were those subjects prepared to participate representative of the entire population from which they were recruited?

Internal validity:

- (7) Operational definition of the outcome variable was clearly stated
- (8) Instrument used to measure entrepreneurial orientation was described or identified
- (9) Other instruments used to measure concepts were described or identified
- (10) Sample reliability for the entrepreneurial orientation instrument was provided
- (11) Sample reliability for the firm performance instrument was provided
- (12) Were the statistical tests used to assess the main outcomes appropriate?

Selection bias:

- (13) Were the respondents in different groups recruited from the same population?/Are there appropriate control variables?

Overall:

- (14) Overall study quality rating

quality scores for articles (e.g., Geyskens, Steenkamp, & Kumar, 2006) since our pool includes some unpublished studies and a large number of comparatively recent studies published after the first meta-analysis in this area (Rauch et al., 2009). Therefore, citation-based measures on study level do not seem appropriate for our purpose (Stremersch, Verniers, & Verhoef, 2007).

Finally, we coded all 177 studies according to whether they were non-published studies (coded as 0 in meta-regression) or published studies (coded as 1 in the meta-regression), which enabled us to control statistically for publication bias.

Meta-Analytic Procedures

The Pearson product-moment correlation coefficient r is the most widely used metric in the sample studies, and we gathered correlations for the EO–performance relationship from each study. When required, we converted other statistics (e.g., t -test, χ^2) to an r statistic using the Wilson effect size determination program recommended by Lipsey and Wilson (2001). The meta-analyses literature uses two methods for combining study estimates (Hedges & Olkin, 1985; Hedges & Vevea, 1998): the fixed effects model assumes no heterogeneity between study results and collected effect sizes are corrected only for sampling error to explain variability in effect sizes, while the random-effects model assumes that studies estimate effect sizes that are corrected for sampling error plus a value that represents other sources of variability that are assumed to be randomly distributed (Kisamore & Brannick, 2008). Following Lipsey and Wilson, we corrected effect sizes for sampling errors, for measurement errors and plus a value (\hat{v}_θ) that represents other sources of variability that are assumed to be randomly distributed in the underlying studies. We calculated this value by dividing the correlation coefficient by the product of the square root of the reliabilities of the two constructs (Hunter & Schmidt, 2004). When a study did not indicate measure reliabilities, we computed the average reliability of measures across the sample and used it as the best estimate (Hunter &

Schmidt, 1990). The average reliability indices, weighted by sample size, were .83 for the subjective measures of performance, .73 for the objective measures of performance, and .81 for the EO construct. On average, then, the scales used to measure the relationship between EO and performance had relatively strong internal consistency (Nunnally & Bernstein, 1994).

Further, we computed a 95% confidence interval (CI) around the estimated population correlation. We used a random-effects model to calculate the mean correlations (Schmidt, Oh, & Hayes, 2009), which allows generalizations to be made for a population of studies, provides more realistic estimates of average effect sizes, and indicates the variability in true effect sizes across studies (Raudenbush, 2009). Table 4 reports the sample-size-weighted effect sizes (\bar{r}) and the reliability corrected, random-effect effect size (\bar{r}_c). The statistical tests of significance, heterogeneity, and moderator effects are based on the sizes of the sample size's weighted effects (Hunter & Schmidt, 1990; Unger et al., 2011).

To examine the hypothesized moderating relationships between effect sizes and contingency variables in the bivariate analysis, we dichotomized all variables and divided the studies into mutually exclusive groups on the basis of their underlying hypothesized moderators (Lipsey & Wilson, 2001). In doing so, we ranked all countries covered in the EO studies according to the moderator variables and computed the median value for each moderator (Brinckmann et al., 2010). Based on the 41 countries represented in our meta-analysis sample, we obtained a cutoff value of 4.15 for uncertainty avoidance, 5.07 for power distance, 5.09 for in-group collectivism, and 4.04 for assertiveness. The high uncertainty avoidance group contained countries with scores of 4.17–5.42, and the low uncertainty avoidance group contained studies carried out in countries with scores of 3.52–4.15. Regarding the power distance dimension, the high power distance group contained countries with scores of 5.08–5.69, and the low power distance group contained countries with scores of 4.32–5.05. For the in-group collectivism dimension, the higher in-group collectivism group contained countries with scores of 5.12–5.86, and the lower in-group collectivism group contained countries with scores of 3.46–5.07. Finally, for the assertiveness dimension, the higher assertiveness group contained countries with scores of 4.05–4.7, and the lower assertiveness group contained countries with scores of 3.41–4.01. The high political stability group contained countries with scores of .61–1.52, and the low political stability group contained countries with scores of –2.09–53. The high regulatory quality group contained countries with scores of 1.01–1.90, and the low regulatory quality group contained countries with scores of –1.51–.92. In terms of study quality, studies with a quality score lower than 21 were considered low quality studies (scores between 8 and 20.9), while studies with a quality factor larger than 21 were considered high quality studies (scores between 21.2 and 41.80). For all other control variables, we built the subgroups according to the 0/1-variable coding outline above.

We tested the hypothesis related to the homogeneity of the population correlations using the Q -statistic [$Q = \sum(n_i - 3)(z_i - z)^2$], which has a χ^2 distribution with $k - 1$ degrees of freedom. We partitioned total variance (Q) into within-groups (Q_w) and between-groups (Q_B) components. A significant Q_B statistic suggests that size estimates at the study level do not estimate a common population effect size, so a subsequent search for the moderating effects is warranted. Since the Q statistics rely on a traditional significance test in which Type II error rates are often high, we also considered the 75% rule of thumb as an additional indicator of the presence of unsuspected moderators (Hunter & Schmidt, 1990). If the error variance accounted for less than 75% of the uncorrected variance, we assumed systematic variations among the studies and that the results were heterogeneous, indicating the potential presence of moderator variables (Hunter & Schmidt, 2004). To determine the nature of this variability across effect sizes, we first divided the full sample into

Table 4

Correlations Between Entrepreneurial Orientation and Performance: Main Effect and Bivariate Moderator Analysis

	<i>K</i>	N	\bar{r}	\bar{r}_c	SE	95% CI	$Q_{w(k-j)}^{\dagger}$	$Q_{B(I-j)}^{\ddagger}$
EO→Overall performance	177	47,140	.250	.268	26.20	.161 to .289	1,575.77 (176)	
National cultural context								
H1: Uncertainty avoidance								
1. Low	86	19,611	.269	.276	30.20	.260 to .278	852.56 (85)	9.26*** (1)
2. High	80	22,044	.240	.253	43.50	.222 to .258	614.06 (79)	
H2: Power distance								
1. Low	115	30,824	.260	.278	40.25	.250 to .270	1,002.43 (114)	13.50*** (1)
2. High	51	10,831	.221	.230	41.47	.207 to .235	452.85 (50)	
H3: In-group collectivism								
1. Low	97	20,705	.231	.235	43.45	.218 to .244	576.63 (96)	10.20*** (1)
2. High	69	20,950	.261	.290	39.40	.228 to .294	881.52 (68)	
H4: Assertiveness								
1. Low	74	21,000	.279	.288	38.90	.270 to .288	738.53 (73)	1.54 (1)
2. High	92	20,655	.248	.261	41.20	.218 to .278	728.23 (91)	
National economic, political, and regulatory context								
H5: Market size								
1. Small	39	9,224	.245	.265	39.22	.215 to .275	301.08 (38)	0.95 (1)
2. Large	127	32,431	.254	.272	40.73	.225 to .283	1,162.14 (126)	
H6: Economic development								
1. Developing nations	55	18,073	.260	.280	46.76	.239 to .281	698.47 (54)	6.45** (1)
2. Developed nations	111	23,582	.230	.240	44.60	.220 to .240	763.22 (110)	
H7: Political stability								
1. Low	116	30,425	.231	.242	35.33	.214 to .248	1,008.35 (115)	28.20*** (1)
2. High	50	11,230	.288	.298	42.67	.260 to .316	429.22 (49)	
H8: Regulatory quality								
1. Low	57	17,667	.240	.255	33.53	.225 to .255	724.24 (56)	1.50 (1)
2. High	109	23,988	.241	.258	30.87	.217 to .265	741.90 (108)	
Controls								
Performance measure (scope) [§]								
1. Firm profitability	45	12,711	.145	.184	55.88	.099 to .191	208.72 (44)	14,530 (1)***††
2. Firm growth	49	10,470	.220	.235	61.02	.195 to .245	267.93 (48)	164.55 (1)***‡‡
3. Overall performance	109	28,569	.286	.304	43.08	.257 to .315	1,105.01 (108)	50.200 (1)***§§
Performance measure (type) [¶]								
1. Objective performance	50	11,497	.206	.224	45.60	.154 to .258	575.95 (49)	213.50*** (1)
2. Subjective performance	134	37,171	.290	.310	39.10	.265 to .315	1,707.40 (133)	
Firm size								
1. Small firms	64	15,044	.309	.318	41.00	.280 to .338	1,040.72 (63)	245.37** (1)
2. Large firms	40	9,640	.252	.264	45.76	.225 to .280	890.25 (39)	
High-tech focus								
1. Non-high-tech focus	147	40,528	.255	.271	88.90	.235 to .276	1,101.56 (146)	208.40*** (1)
2. High-tech focus	30	6,612	.301	.321	60.60	.275 to .327	155.60 (29)	
Study quality								
1. Low quality	88	21,675	.231	.242	45.50	.211 to .251	570.25 (87)	2.01 (1)
2. High quality	89	25,465	.223	.238	30.25	.206 to .240	1,003.45 (88)	
Publication bias								
1. Published	159	41,810	.230	.248	57.25	.145 to .315	1,310.60 (158)	0.001 (1)
2. Unpublished	18	5,330	.235	.255	48.38	.151 to .319	123.28 (17)	

[†] $Q_{w(k-j)}$ refers to the residual pooled within-groups share of the variance with $(k - j)$ degrees of freedom, where k and j denote the number of effect sizes and categories, respectively.

[‡] $Q_{B(I-j)}$ refers to the residual variance between-groups with $(I - j)$ degrees of freedom. All values are significant at $p < 0.05$ unless otherwise indicated.

[§] One hundred fifty-one studies report only one type of performance scope measure, so we took the mean of these relationships, resulting in one effect size per study. Twenty-six studies report more than one different performance scope measures. In these cases, we build two or more mean effect sizes per study along the categories of growth, profitability, and overall performance, leading to 203 effect sizes in total. Findings remain the same in terms of direction and significance of coefficients when only comparing the 151 studies which focus on one performance scope type.

[¶] One hundred seventy studies report only subjective or objective performance measures, so we took the mean of these relationships between EO and the performance per study, resulting in one effect size per study. Seven studies report both subjective and objective measures. In these cases, we counted these studies twice, computing two means per study, one for the EO's relationship with the subjective measures and one with the objective measures, leading to 184 effect sizes in total. Findings remain the same in terms of direction and significance of coefficients when only comparing the 170 studies which employ either subjective or objective measures only.

^{††} Profitability vs. Growth.

^{‡‡} Profitability vs. Overall.

^{§§} Growth vs. Overall.

* $p < .05$; ** $p < .01$; *** $p < .001$. K = number of effect sizes N = overall number of observations; \bar{r} = sample weighted correlation; \bar{r}_c = reliability corrected random-effect mean effect size; SE = sampling error (% variance).

subsamples of studies based on the moderators they examined and conducted a set of subgroup bivariate meta-analyses for each moderator.

Bivariate meta-analysis is often criticized as unsuitable for assessing multivariate relationships. To address this criticism, we proceeded with the meta-regression approach, which uses the absolute exact value of each metric moderator variable (e.g., for the GLOBE scores) and 0/1-variables for the categorical variables. It simultaneously scrutinizes the significance and relative explanatory power of each contingency variable in the presence of other variables (Balkundi & Harrison, 2006; Cooper, Hedges, & Valentine, 2009; Hedges & Olkin, 1985). Meta-regressions use effect size as the dependent variable and contextual factors as independent variables to predict the inverse-coefficient-adjusted effect sizes of the individual studies. We adopted a random-effects model, in which variability in the effect size is attributed to randomly distributed sources of variance (systematic between-study differences), sampling error, and the remaining unmeasured random component (Sterne, 2009). The random-effects model permits inferences to be generalized to studies that use the same population from which the studies included in the review were sampled, and it permits a range of effect sizes likely to be seen in future studies to be predicted by explicitly including between-study variability (Borenstein, Hedges, Higgins, & Rothstein, 2009; Hedges & Olkin; Lipsey & Wilson, 2001).

In the meta-analytic regression models, the EO–performance correlation was treated as the dependent variable, and the proposed moderators were treated as independent variables. We employed two indicators for testing the overall heterogeneity: (1) adjusted R^2 , the proportion of between-study variance that is explained by the covariates or the moderators and (2) I^2_{res} , a measure of the percentage of the residual variation that is attributable to between-study heterogeneity (Higgins, Thompson, Deeks, & Altman, 2003). Before conducting the meta-regression, we ensured that all assumptions (e.g., no multicollinearity, independence of the errors, and normality of the error distribution) were satisfied.

Results

Table 4 summarizes the bivariate correlations and other statistics for the EO–performance relationship. We obtained a significant random-effects effect size for the relationship between EO and overall performance ($\bar{r}_c = .268$). The significant Q-statistic (1,575.77, $df = 176$; $p < .001$) reveals variability across the effect sizes, which suggests the presence of theoretically relevant moderators and confirms our conjecture that contextual factors influence the EO–performance relationship (Hunter & Schmidt, 1990).

Bivariate Moderator Analysis

A bivariate analysis (Table 4) revealed that the EO–performance relationship has statistically significant Q between-group statistics and significantly larger effect sizes for cultures characterized by low uncertainty avoidance ($\bar{r}_c = .276$, $k = 86$) than for those characterized by high uncertainty avoidance ($\bar{r}_c = .253$, $k = 80$), low power distant cultures ($\bar{r}_c = .278$, $k = 115$) than for high power distant cultures ($\bar{r}_c = .230$, $k = 51$), and cultures with high in-group collectivism ($\bar{r}_c = .290$, $k = 69$) than for those with low in-group collectivism ($\bar{r}_c = .235$, $k = 97$). However, we also find that effect sizes in cultures characterized by low levels of assertiveness ($\bar{r}_c = .288$, $k = 74$) are not significantly different from those in cultures characterized by high levels of assertiveness ($\bar{r}_c = .261$, $k = 92$).

In terms of the moderating effect of national economic, political, and regulatory contexts, the bivariate results indicate that the EO–performance relationship has statistically significant Q between-group statistics, revealing larger effect sizes for developing nations ($\bar{r}_c = .280$, $k = 55$) than for developed nations ($\bar{r}_c = .240$, $k = 111$) and larger effect sizes for high levels of political stability ($\bar{r}_c = .298$, $k = 50$) than for low levels of political stability ($\bar{r}_c = .242$, $k = 116$). On the other hand, we find that the EO–performance relationship in large markets ($\bar{r}_c = .272$, $k = 127$) does not differ from that in small markets ($\bar{r}_c = .265$, $k = 39$) and that the relationship in nations with high regulatory quality ($\bar{r}_c = .258$, $k = 109$) does not differ from that in nations with low regulatory quality ($\bar{r}_c = .255$, $k = 57$).

Control Variables. The bivariate results indicate that the EO–performance relationship has significant moderator effects and larger effect sizes for firm growth ($\bar{r}_c = .235$, $k = 49$) than for firm profitability ($\bar{r}_c = .184$, $k = 45$), for subjective performance measures ($\bar{r}_c = .310$, $k = 134$) than for objective performance measures ($\bar{r}_c = .224$, $k = 50$), for small firms ($\bar{r}_c = .318$, $k = 64$) than for large firms ($\bar{r}_c = .264$, $k = 40$), and for firms with a high-tech focus ($\bar{r}_c = .321$, $k = 30$) than for firms with a non–high-tech focus ($\bar{r}_c = .271$, $k = 147$). The effect sizes we find for large and small firms and for high-tech and non–high-tech firms are in line with the findings from Rauch et al.’s (2009) meta-analysis. We find nonsignificant moderator effects for high study quality ($\bar{r}_c = .238$, $k = 89$) and low study quality ($\bar{r}_c = .242$, $k = 88$) and for published studies ($\bar{r}_c = .248$, $k = 159$) and unpublished studies ($\bar{r}_c = .255$, $k = 18$). The moderator effect for published and unpublished studies indicates that publication bias is not a significant issue in our data.

Meta-Regression Results

The meta-regression approach allows the relative explanatory power of each contingency variable to be investigated in the presence of other variables. We first ran the meta-regression with the 102 studies that report all necessary control variables and moderators (model 2 in Table 5); the remaining 75 studies are missing country background, firm size, and/or a focus on subjective or objective performance.

The results of the multivariate meta-regression analysis for the national cultural context moderators demonstrate that the proposed model is significant and that the eight hypothesized national moderators account for 25% ($p < .001$) of the between-study variance in EO–performance correlations. I^2_{res} declines from 85.27% to 66.68% when eight national-level factors are introduced, showing that less remaining residual variation is attributable to between-study heterogeneity in model 2. According to Higgins et al. (2003), a value below 75% is considered a moderate remaining residual variation. The Q_{res} -value proposed by Lipsey and Wilson (2001) is significant, indicating that there are still more moderators. These findings indicate that our meta-analysis covers relevant moderators of the EO–performance relationship, but that a variance remains that has not been explained (Luo, Huang, & Wang, 2011).

The regression results suggest that the EO–performance relationship is stronger in cultures characterized by low uncertainty avoidance than in those characterized by high uncertainty avoidance ($\beta = -.259$, $p < .05$) and is also stronger in low power distant cultures than in high power distant cultures ($\beta = -.195$, $p < .10$). There is no significant influence of in-group collectivism ($\beta = .184$, n.s.) or levels of assertiveness ($\beta = -.048$, n.s.) on the EO–performance relationship. The regression results also indicate that the strength of the EO–performance relationship does not vary between firms that operate in small home markets and those that operate in large home markets ($\beta = .054$, n.s.) and that

Table 5

Meta-Analytic Regression Results on Moderators of the Entrepreneurial Orientation–Performance Relationship

Predictor variables [†]	Model 1		Model 2		Model 3	
	$\beta(B)$	SE	$\beta(B)$	SE	$\beta(B)$	SE
Control variables						
Subjective vs. objective performance measure	-.202 (-.054)*	.046	-.198 (-.04)*	.066	-.183 (-.092)**	.041
No control for industry vs. control for industry	.005 (.001)	.041	.002 (.038)	.078	.037 (.014)	.070
Large firms vs. small firms	.075 (.038)	.044	.066 (.036)	.065	—	—
Non-high-tech focus vs. high-tech focus	.124 (.071)	.059	.098 (.031)	.079	.098 (.032)	.079
Study quality	.023 (.002)	.034	.011 (.001)	.055	.023 (.0005)	.065
Non-published studies vs. published studies	-.103 (-.029)	.065	-.096 (-.027)	.063	-.084 (-.030)	.071
National cultural context						
Hypothesis 1: Uncertainty avoidance			-.259 (-.105)*	.053	-.162 (-.071)*	.036
Hypothesis 2: Power distance			-.195 (-.099) ^t	.058	-.339 (-.215)**	.066
Hypothesis 3: In-group collectivism			.184 (.075)	.057	.264 (.101)**	.035
Hypothesis 4: Assertiveness			-.048 (-.013)	.059	-.049 (.018)	.056
National economic, political, and regulatory context						
Hypothesis 5: Market size			.054 (.007)	.063	.083 (.013)	.063
Hypothesis 6: Developing vs. developed nations			-.690 (-.190)*	.085	-.123 (-.120)*	.056
Hypothesis 7: Political stability			.922 (.255)**	.096	.280 (.166)**	.051
Hypothesis 8: Regulatory quality			.056 (.010)	.094	.079 (.009)	.049
K	102		102		159	
Adjusted R^2	.102		.352		.325	
Change in adjusted R^2 (compared to model 1)			.250***		.223***	
F-statistic (degrees of freedom)	5.22* (6, 95)		10.07*** (14, 87)		9.68*** (13, 145)	
I^2_{res}	85.27%		66.68%		72.31%	
Max variance inflation factor (VIF)	2.22		5.01		5.01	

^t $p < .10$; * $p < .05$; ** $p < .01$; *** $p < 0.001$

[†] The categorical predictor variables are coded as follows: subjective performance measure = 0, objective performance measure = 1; no control for industry = 0, control for industry = 1; large firms = 0, small firms = 1; non-high-tech focus = 0, high-tech focus = 1; non-published studies = 0, published studies = 1; developing nations = 0, developed nations = 1. All other predictors are metric. As all national cultural dimensions, the in-group collectivism dimension is measured based on the GLOBE study in which high values reflect strong in-group collectivism. For all categorical predictor variables, a positive (negative) regression coefficient implies that the EO–performance relationship is stronger at the right (left) pole of the predictor variable name.

β = Standardized beta coefficient (B = Unstandardized beta coefficient); standard error and p -value are presented; K = number of studies (included in analysis); Adjusted R^2 = Proportion of between-study variance explained; $I^2_{\text{res}} = \max[0, \{Q_{\text{res}} - (n - k)\}/Q_{\text{res}}]$, % residual variation attributed to between-study heterogeneity.

it is significantly stronger for firms in developing nations than for those in developed nations ($\beta = -.690, p < .05$) and for firms in countries with high levels of political stability ($\beta = .922, p < .01$). Differences in regulatory quality lead to no difference in the strength of the EO–performance relationship ($\beta = .056, \text{n.s.}$).

Control Variables. The regression results reveal that the EO–performance relationship is stronger for subjective than for objective performance measures ($\beta = -.198, p < .05$). Finally, the controls “no control for industry vs. control for industry” ($\beta = .002, \text{n.s.}$), “large vs. small firms” ($\beta = .066, \text{n.s.}$), “non-high-tech vs. high-tech focus” ($\beta = .098,$

n.s.), study quality ($\beta = .011$, n.s.), and “non-published vs. published studies” ($\beta = -.096$, n.s.) do not affect our results.

Running the meta-regression model without the control variable of firm size increased our primary EO study pool to 159 studies. (The country background and/or the classification of a study as using only subjective or objective performance measures were missing from the remaining 18 studies.) Findings, shown as model 3 in Table 5, remain the same in terms of the direction and significance of regression coefficients, except that a positive moderating effect of in-group collectivism becomes significant ($\beta = .264$, $p < .01$).

In order to validate our hypotheses, we followed the following algorithm (Table 6): A hypothesis is confirmed when confirmation is achieved by bivariate analysis and the two major meta-regression analyses (models 2 and 3 in Table 5). A hypothesis is partly confirmed when confirmation is achieved by the bivariate analysis and at least one regression analysis. Therefore, hypothesis 1 is confirmed since the bivariate analysis and both meta-regression analyses reveal a significantly stronger relationship between EO and firm performance when uncertainty avoidance is low. The same applies to hypothesis 2 since there are consistently stronger relationships between EO and firm performance when power distance is low. In line with our arguments in hypothesis 3, the bivariate analysis and the meta-regression in model 3 (on 159 studies) find support for stronger EO–performance relationships in cultures with high in-group collectivism. However, since model 2 in the meta-regression on 102 studies does not reveal a significant relationship, hypothesis 3 is only partly confirmed. Hypothesis 4 is rejected since neither the bivariate analysis nor either of the meta-regression analyses reveals a significant moderating effect of assertiveness.

Hypothesis 5 is rejected since there is no significant moderating effect of market size in either the bivariate or the meta-regression analyses; the same is the case for regulatory quality, so hypothesis 8 is also rejected. Hypothesis 6 is accepted since the bivariate analysis and both meta-regressions reveal significantly stronger relationships between EO and firm performance in developing nations compared to developed nations. In the same way, hypothesis 7, on the positive moderation of political stability on the EO–performance relationship, is also accepted.

Discussion

In an overall effort to contribute to evidence-based research in entrepreneurship, the present study complements the first meta-analysis on the EO–performance relationship from Rauch et al. (2009). The studies have some similarities in that both find similar effect sizes for the general EO–performance relationship (.268 and .242, respectively). However, the studies differ in terms of their methodological approach, in the number of studies, and in the number of countries in which the study’s surveys were conducted (Rauch et al.: 51 studies from 14 countries; the present meta-analysis: 177 studies from 41 countries). The higher number of countries addressed in the present study leads to a major difference in findings: Rauch et al. can compare effect sizes only among continents, finding no significant difference among them, while the present study, based on studies from many more, especially non-Western, countries, finds more nuanced moderators at the national level to explain the EO–performance relationship.

Our theoretical arguments and empirical findings indicate that the national-level dependence of the EO–performance relationship is complex since single factors at the national level appear to play individual roles in determining the relationship. EO is related to firm performance more strongly in national cultures that are characterized by low

Table 6

Overview of Hypotheses Treatment According to Bivariate and Meta-Regression Analyses

	Confirmed in . . .			
	Bivariate analysis	Meta-regression (model 2) [†]	Meta-regression (model 3) [‡]	Conclusion for hypothesis
Hypothesis 1	The EO–performance relationship is stronger in national cultures characterized by low uncertainty avoidance than in those characterized by high uncertainty avoidance.	Yes	Yes	Yes
Hypothesis 2	The EO–performance relationship is stronger in low power-distant national cultures than in high power-distant national cultures.	Yes	Yes	Yes
Hypothesis 3	The EO–performance relationship is stronger in national cultures characterized by high in-group collectivism than in those characterized by low in-group collectivism.	Yes	No	Yes
Hypothesis 4	The EO–performance relationship is stronger in national cultures characterized by low levels of assertiveness than in those characterized by high levels of assertiveness.	No	No	No
Hypothesis 5	The EO–performance relationship is stronger in countries with large home markets than in those with small home markets.	No	No	No
Hypothesis 6	The EO–performance relationship is stronger in developing economies than in developed economies.	Yes	Yes	Yes
Hypothesis 7	The EO–performance relationship is stronger when the level of political stability is high than when it is low.	Yes	Yes	Yes
Hypothesis 8	The EO–performance relationship is stronger when the level of regulatory quality is high than when it is low.	No	No	No

[†] Based on 102 studies.
[‡] Based on 159 studies.

uncertainty avoidance, low power distance, high in-group collectivism (partly confirmed), high political stability, and when the country is a developing nation. These findings indicate for EO research that the trend toward examining the EO construct with its nomological net in nations other than the typical Western contexts in which the EO construct has traditionally been empirically examined (Wales et al., 2013) is important. Despite globalization and the growing similarities among national settings, there remain enough differences in national cultural and macroeconomic moderators to create differences in the EO–performance relationship.

Not all of our hypotheses were supported. Both the bivariate analysis and the meta-regressions consistently reveal that assertiveness, market size, and regulatory quality are not relevant moderators of the EO–performance relationship. Perhaps, assertiveness does not moderate the EO–performance relationship because internal conflict can also be a source of creativity and innovation (De Dreu, 2006), strengthening the implementation of EO. Also, contrary to our expectation is the finding that market size does not positively moderate the EO–performance relationship. Perhaps such is the case because today’s technological advancements in communication and transportation reduce transaction costs to the degree that there are no longer differences between the cost of expanding in a larger home market and entering a foreign market after a small home market is exhausted. In addition, as opposed to our expectations, the degree of regulatory quality does not facilitate the EO–performance relationship. This may be because some entrepreneurial firms are better off when there are no or only a few regulations that limit their freedom in implementing and commercializing risky entrepreneurial endeavors.

Our hypothesis 3, which expected a stronger relationship between EO and firm performance in cultures characterized by strong in-group collectivism, is partly confirmed. The bivariate analysis and the meta-regression in model 3 (on 159 studies) support hypothesis 3, while there is no support in the meta-regression in model 2 (based on 102 studies). It appears that the nonsignificant effect in the meta-regression analysis based on the 102 studies is due to the smaller sample size since the moderation of in-group collectivism becomes significant when the regression is extended to 159 studies. The finding that strong in-group collectivism strengthens the EO–performance relationship is in line with recent studies that have found a stronger relationship between innovation and firm performance in collectivistic settings (e.g., Rosenbusch et al., 2011). We learn that the collective implementation and commercialization that results from subordination of individual interests in collectivistic cultures plays an important role in strengthening the EO–performance relationship and outweighs more market-related obstacles, such as that potential customers in collectivistic cultures tend to delay adopting innovative and entrepreneurial products (e.g., because of lengthy decision making).

The present meta-analysis explains only some of the variances in the EO–performance relationship. Beyond the 10.2% of the variance that our control variables can explain, 25% of the variance can be explained by our national-level factors (model 2 in Table 5). Further, the degree of residual variation that can be attributed to between-study heterogeneity in the meta-regression (indicated by I^2_{res}) is moderate. Overall, these numbers indicate that our study covers important moderators of the EO–performance relationship but also that there are moderators that our study did not cover. Our study has in common with Rauch et al. (2009) a clear focus on external moderators. Perhaps both meta-analyses ignore internal factors that could explain the EO–performance relationship. In their seminal work, Lumpkin and Dess (1996) argue theoretically that beyond the environment, there are other firm-level factors—strategy, resources, firm structure, corporate culture, and top management characteristics—that may play a moderating role on the EO–performance relationship. These internal factors may be equally as or even more

important than the environmental factors that Rauch et al.'s and our meta-analysis confirm, such that the performance effects of a given degree of EO depend more on the "home-made" internal factors a company typically impacts. This notion is in line with some recent studies that show that the EO–performance relationship depends on the tangible and intangible resources and capabilities of the entrepreneurial firm (Anderson & Eshima, 2011; Engelen, Gupta, Strenger, & Brettel, 2013).

Implications for Managers and Policy Makers

In line with the objective of evidence-based entrepreneurship, we derive some implications for managers and policy makers. Both have been confronted with a multitude of studies on the EO–performance relationship conducted in various contexts. Our findings based on a meta-analysis of 177 studies provide managers with the message that EO is generally associated with increased performance. Given that implementing EO can be a resource-intensive endeavor, this study provides solid evidence that implementing EO is worthwhile. Internationally operating managers in particular learn that entrepreneurial activities pay off differently in different national contexts, a conclusion that can hardly be derived from one or two of the single-country studies that so far dominate the EO literature. More concretely, firms that operate internationally learn the advantages of locating their entrepreneurial activities in countries characterized by low uncertainty avoidance, and low power distance, high in-group collectivism as well as in developing countries and countries with political stability. The environment in these countries (e.g., the behavior of buyers in the marketplace) is particularly beneficial for translating EO into superior performance.

Policy makers learn that political stability is important so that entrepreneurial firms can leverage the full performance benefit from their EO. Policy makers in developing countries are advised to set up programs for firms in their countries, such as the provision of funding or easier access to credits to firms which want to pursue new business ideas. Since entrepreneurial activities are particularly beneficial in these environments, overall economic advancement could be achieved if firms in developing countries implement entrepreneurial activities.

Limitations and Avenues for Further Research

The present meta-analysis has some limitations that offer useful avenues for future research. First, it employs a composite score for the EO construct, in which employment is in line with the seminal unidimensional understanding of EO from Miller (1983) and extant research that reports strong positive interrelationships among the three subdimensions. However, the conceptualization of EO from Lumpkin and Dess (1996) adds two subdimensions to those stipulated by Miller, aggressiveness and autonomy, and states that a firm can be entrepreneurial even when it does not score high on all five subdimensions. As Lumpkin and Dess argue, what qualifies a firm as entrepreneurial, according to its scores on the five subdimensions, depends on its context. Kreiser, Marino, and Weaver (2002) argue that the performance effects of the five subdimensions can differ, and Kreiser, Marino, Dickson, and Weaver (2010) find that the antecedents of these five subdimensions can also differ. As for our findings, which are based on the unidimensional view of EO, it follows that the moderating effects of the national-level variables on the relationships among the five subdimensions of firm performance could

differ, putting into context our findings and presenting useful options for future research. However, as our method section explains, only a few studies have examined EO at the level of individual subdimensions, so more work is needed before evidence-based methods can be employed.

We also acknowledge that there may be confounding effects among our national-level variables, which have some high correlations. The mean of all correlations between moderators is .280, with correlations ranging from .012 (uncertainty avoidance and market size) to .855 (political and regulatory quality). While we control for these confounding effects in our regression analysis, future research could elaborate on these issues. Further, there may be even more factors at the national level, such as the law system, which have not been examined in this study and that could impact the EO–performance relationship.

Some limitations of this study are linked to the limitations of the primary studies addressed in this meta-analysis. For example, none of the EO studies included an investigation of survivor bias, perhaps because pursuing an entrepreneurial strategy is associated with extreme (positive and negative) levels of performance such that some entrepreneurial firms disappear quickly and are not part of the primary studies' samples, thereby impacting our findings in the meta-analysis.

We also observe that quantitative EO research is dominated by cross-sectional studies. However, longitudinal studies could reveal that an EO has positive long-term effects, so the cross-sectional primary studies that dominate the present meta-analysis might have underestimated performance effects. It may also be productive to investigate whether the strength of long-term effects differs across national cultures and economic factors at the national level.

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Saadat Saeed is PhD Researcher in the Department of Industrial Engineering, University of Padua, Italy and Lecturer at COMSATS Institute of Information Technology, Pakistan.

Shumaila Y. Yousafzai is Lecturer in Marketing & Strategy, Cardiff Business School, Cardiff University, Cardiff CF10-3EU, UK. <http://www.cardiff.ac.uk/carbs/faculty/yousafzais/index.html>

Andreas Engelen is Full Professor in the Department for Strategic and International Management, TU Dortmund, Martin-Schmeißer-Weg 12, 44227 Dortmund, Germany.