Operationalization of corporate entrepreneurship and its performance implications in China
An empirical study

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Abstract

Purpose – It is intended in this paper to develop a reliable and valid measurement of corporate entrepreneurship (CE) and identify the key dimensions based on evidence of the largest transitional and fast growing economy, China, given that no agreement has been reached and much less is known about the generalizability of related research findings in emerging economies.

Design/methodology/approach – The eight-step procedure for scale development was followed in this study, which is based on questionnaire survey and statistical analysis.

Findings – A four-dimension measurement model for CE was developed and validated. Furthermore, the authors also find that not all dimensions of CE have statistically significant impacts on firm performance in China.

Originality/value – Nowadays, more and more studies have been conducted on entrepreneurship, entrepreneurial orientation, intrapreneurship or CE. However, no agreement has been reached about the key dimensions of CE and much less is known about the generalizability of related research findings in emerging economies. This paper is intended to bridge these gaps.

Keywords Entrepreneurialism, Business performance, China

Paper type Research paper

1. Introduction

Nowadays, more and more studies have been conducted on entrepreneurship, entrepreneurial orientation, intrapreneurship or corporate entrepreneurship (CE). Much evidence has shown that entrepreneurial orientations or activities always lead to superior business performance in the western and developed countries. On the contrary, much less is known about the increasing importance of entrepreneurial orientations or activities and their performance impacts in emerging economies, with a few exceptions (Antonicc and Hisrich, 2001; Zahra et al., 1999; Luo et al., 2005), although developing countries are characterized by social and economic
transformations in market environment that is substantially, if not totally, different from that in western developed world. Furthermore, it seems that existing CE literature lacks an integrated framework that conceptualizes and operationalizes the multi-dimensional construct of CE, which inspires the philosophy and the argument of this study. Furthermore, the research findings are rather mixed although many studies have been conducted to explore or verify the possible positive impact of CE on firm performance. One plausible reason for different empirical results may be that researchers choose different measurement of CE (Covin and Slevin, 1991; Zahra and Covin, 1995; Luo et al., 2005).

This paper aims at bridging this gap by operationalizing CE and exploring its key dimensions based on evidence of the entrepreneurial firms in a largest transitional and fast growing economy, China. Specially, the goal and potential contributions of our research are threefold. First, this paper proposes and empirically tests an integrative framework for the measurement of CE in China by integrating previous research findings. Such an integrated framework is much needed for theory building and empirical testing in the field of CE. Second, this paper helps overcome the limitations of extant studies of CE, but also will reinforce attempts to test the generalizability of relevant research findings in a transitional economy (Luo et al., 2005) given the cultural difference between China and western counties (Hofstede, 1983), the derived differences in service expectations and preferences, and the relatively lower income levels of Chinese customers, etc. which may influence the behaviors of China firms. Third, the paper explores the performance implications of CE by taking a disaggregated approach. This may help drive markets and strength competitive advantages of both western firms that have invested heavily in the Chinese market and private and state-owned Chinese enterprises by providing them more useful suggestions about the priorities during the process of activating CE. Furthermore, this may also provide valuable insights on how foreign enterprises may adapt the transitional environments of China and make full use of their resources and practices concerning entrepreneurship activities to improve their performance and generate acceptable returns within the Chinese market.

The paper is organized as follows. Following the introduction, conceptual background is provided, in which CE and its key dimensions are reviewed and discussed. The next section presents the process of item generation, pre-testing and data collection for exploratory factor analysis, which is followed by the description of scale purification and validation. For the construct validation process, the second round of firm survey was conducted and confirmatory factor analysis was applied by using the partial least square (PLS) method and for nomological validity and the performance implications of CE, a structural equation models was developed by taking a disaggregated approach. Based on exploratory factor analysis and confirmatory factor analysis, four different dimensions of CE, i.e. proactive, innovativeness, new business venturing, and self-renewal, are identified empirically. Finally, conclusions and implications are presented, and limitations and future research directions are discussed.

2. Conceptual background

2.1 Corporate entrepreneurship

As a firm-level phenomenon, CE evolved from the innovation, strategic change, and strategic management literature (McDougall and Oviatt, 2000). For example,
Burgelman and Sayres (1986) proposed the concept of corporate R&D in exploring corporate innovation. In fact, CE has been used by some authors (Morris and Paul, 1987; Zahra, 1993, 1995) and there are also many similar or even synonymous labels used by other authors: entrepreneurship (Miller, 1983), intrapreneurship (Kuratko, 1993), entrepreneurial posture (Covin and Slevin, 1991), strategic posture (Covin and Slevin, 1988; Merz et al., 1990), and entrepreneurial orientation (Dess et al., 1997), and corporate innovation that links to a linkage to corporate R&D (Burgelman and Sayres, 1986). However, increased consensus have been attained on the concept of CE. From a resource-based perspective, CE is a key means of accumulating, converting, and leveraging resources for competitive purposes (Floyd and Wooldridge, 1999) such as developing and using product, process, and administrative innovations to rejuvenate and redefine the firm and its markets or industries (Covin and Miles, 1999). Churchill (1992) defines entrepreneurship as the process of uncovering and developing an opportunity to create value through innovation and seizing that opportunity without regard to either resources (human and capital) or the location of the entrepreneur in a new or existing company. Sharma and Chrisman (1999) also define CE as the process whereby an individual or a group of individuals, in association with an existing organization, create a new organization, or instigate renewal or innovation within that organization.

In conceptualizing CE, corresponding with most of definitions of CE in China, we follow the perspective of intrapreneurship proposed by Antoncic and Hisrich (2001) and define it as entrepreneurship with an existing organization. It refers to a process that goes on inside an existing firm, regardless of its size, and leads not only to new business ventures but also to other innovative activities and orientations such as development of new products, services, technologies, administrative techniques, strategies, and competitive postures, etc.

### 2.2 Dimensions of CE

Similar with the definition of CE, no agreements have been reached about what the key dimensions of CE. For example, some studies view CE in terms of entrepreneurial orientation and emphasize five characteristics as innovativeness, proactiveness, risk taking, autonomy and competitive aggressiveness (Lumpkin and Dess, 1996), while others consider it as 3D construct, for instance, venturing, innovation and self-renewal (Zahra, 1993, 1995), or proactiveness, risk taking and innovativeness (Luo et al., 2005), or 4D construct (Antoncic and Hisrich, 2001). However, less is known about what constitutes the key dimensions of CE in transitional economies up to now.

### 3. Item generation, pretesting and data collection

To generate a suitable bank of items for each of the constituent elements of CE, most of studies of CE were reviewed to identify previous operationalizations. Subsequently, items from several existing scales were modified and complemented by further items generated from qualitative interviews with managers of Chinese entrepreneurial firms. Throughout this process, care was taken to avoid redundancy among items as well as exceptionally lengthy items, multiple negatives, double barreled items, colloquialisms, or agreement bias.

The item pools for the components of CE were included in a questionnaire, which was reviewed by:
colleagues undertaking research on CE, innovation and firm strategy; and
academics proficient in questionnaire design and measure development.

Then the Chinese version of the instrument was developed by translation and back translation (Brislin, 1976), and protocols were undertaken with ten managers of entrepreneurial firms. Subsequently, the questionnaire was pre-tested with managers of Chinese entrepreneurial firms and items were further refined. In doing so, a firm survey was conducted face-to-face in North China after a pilot study of identifying and refining measurement items used in this study. Totally senior managers of 167 entrepreneurial firms in China were reached and interviewed successfully, most of which are senior managers and those responding firms are from various sections. Statistical analysis shows no response bias was detected.

4. Scale purification and validation

4.1 Item analysis and reliability assessment

Having generated data using the pools of items described earlier, the following task was to refine the scale by determining which items may be problematic and thus removed, and which should be retained. In doing so, exploratory factor analysis was conducted in order to identify the factor structure of CE. Totally four factors were initially identified. Each of these factors has an eigenvalue greater than 1.0, and together they explain 78 per cent of the total variance. The items retained based on factor loadings, coefficient $\alpha$ and inter-item correlation, etc. comprise the final scales, which are listed in Table I. The internal consistencies of the 4Ds comfortably exceed the minimum level of 0.70 recommended by Nunnally (1978), and the Cronbach $\alpha$ is 0.92. Then unidimensionality was assessed and items comprising each dimension were subjected to principal axis factoring. As suggested by Hair et al. (1992), unidimensionality would be indicated if all items load significantly on the single factor. Such evidence was indeed obtained since all items within each dimension of CE loaded highly and significantly on a pre-specified single factor. Furthermore, given that the item pools developed to tap each dimension of CE construct were derived from a thorough literature review as well as interviews with senior managers of entrepreneurial firms, there are strong confidences that the items generated cover the domain of the construct being measured. In addition, pretest respondents indicated that the content of each dimension was well represented by the items included in the questionnaire. These procedures are entirely consistent with attaining high-content validity.

4.2 Data collection and construct validation

In order for construct validation, confirmatory factor analysis is needed. So we conducted the second round of firm survey in south China. By collecting data from entrepreneurial firms from different industries in South China, it is expected that the representativeness would be improved, compared with the case of focusing on a single industry given the explorative nature of this study to operationalize CE in a transitional economy in Asia and this also makes it possible to see whether the factor structure identified coincides with that obtained by EFA on the basis of data from entrepreneurial firms in North China. Totally 300 firms were reached, the retrospective reporting method was adopted, based on procedures established in the literature.
Furthermore, confidentiality was also promised since the respondents were more likely to provide reliable data with such assurance (Li and Atuahene-Gima, 2001). The potential respondents were the key informants of the firm, who were either the CEO, presidents or vice presidents or senior managers responsible for marketing or strategy.

Table I. Confirmatory factor analysis results and relevant composite reliability

<table>
<thead>
<tr>
<th>Constructs and items</th>
<th>Loading</th>
<th>t-value</th>
<th>α</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Corporate entrepreneurship</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New business venturing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Broadening business lines in current industries</td>
<td>0.79</td>
<td>17.54</td>
<td></td>
</tr>
<tr>
<td>Pursuing new businesses in new industries that are related to current business</td>
<td>0.80</td>
<td>15.47</td>
<td></td>
</tr>
<tr>
<td>Finding new niches for products in current markets</td>
<td>0.79</td>
<td>11.33</td>
<td></td>
</tr>
<tr>
<td>Entering new businesses by offering new lines and products</td>
<td>0.84</td>
<td>18.72</td>
<td></td>
</tr>
<tr>
<td><strong>Innovativeness</strong></td>
<td></td>
<td></td>
<td>0.86</td>
</tr>
<tr>
<td>Company’s spending on new product development activities (R&amp;D)</td>
<td>0.63</td>
<td>6.77</td>
<td></td>
</tr>
<tr>
<td>The number of new products added by the company</td>
<td>0.63</td>
<td>6.15</td>
<td></td>
</tr>
<tr>
<td>Investment in developing proprietary technologies</td>
<td>0.69</td>
<td>7.26</td>
<td></td>
</tr>
<tr>
<td>Company’s emphasis on technological innovation</td>
<td>0.84</td>
<td>21.48</td>
<td></td>
</tr>
<tr>
<td>Company’s emphasis on pioneering technological developments in its industry</td>
<td>0.87</td>
<td>26.52</td>
<td></td>
</tr>
<tr>
<td>Percent of the company’s revenue generated from products that did not exist three years earlier</td>
<td>0.86</td>
<td>18.15</td>
<td></td>
</tr>
<tr>
<td><strong>Self renewal</strong></td>
<td></td>
<td></td>
<td>0.84</td>
</tr>
<tr>
<td>Reorganizing units and divisions to increase innovation</td>
<td>0.63</td>
<td>5.46</td>
<td></td>
</tr>
<tr>
<td>Coordinated activities among units to enhance company innovation</td>
<td>0.70</td>
<td>8.10</td>
<td></td>
</tr>
<tr>
<td>Increasing the autonomy (independence) of different units to enhance their innovation</td>
<td>0.72</td>
<td>12.61</td>
<td></td>
</tr>
<tr>
<td>Establishing procedures to examine new innovation ideas</td>
<td>0.78</td>
<td>14.97</td>
<td></td>
</tr>
<tr>
<td>Designating formal idea (project or venture) champions</td>
<td>0.74</td>
<td>11.10</td>
<td></td>
</tr>
<tr>
<td><strong>Proactiveness</strong></td>
<td></td>
<td></td>
<td>0.80</td>
</tr>
<tr>
<td>New techniques (first to introduce new/products services, administrative techniques, operating technologies, etc.)</td>
<td>0.74</td>
<td>9.90</td>
<td></td>
</tr>
<tr>
<td>Competitive posture (“undo-the-competitors” posture)</td>
<td>0.77</td>
<td>9.90</td>
<td></td>
</tr>
<tr>
<td>Decision-making style (bold, aggressive posture)</td>
<td>0.76</td>
<td>12.14</td>
<td></td>
</tr>
<tr>
<td><strong>Firm performance</strong></td>
<td></td>
<td></td>
<td>0.92</td>
</tr>
<tr>
<td>The increment of sales relative to largest competitor</td>
<td>0.93</td>
<td>52.05</td>
<td></td>
</tr>
<tr>
<td>The increment of market share relative to largest competitor</td>
<td>0.95</td>
<td>88.29</td>
<td></td>
</tr>
<tr>
<td>The increment of profit relative to largest competitor</td>
<td>0.92</td>
<td>41.34</td>
<td></td>
</tr>
<tr>
<td>The increment of new product introduction relative to largest competitor</td>
<td>0.77</td>
<td>15.13</td>
<td></td>
</tr>
</tbody>
</table>

Note: Only 18 items were retained and eights were removed during confirmatory factor analysis.

(Huber and Power, 1985; Li and Calantone, 1998; Miller et al., 1997).
development, and this approach is well-established in the literature (John and Reve, 1982; Venkatraman and Ramanujam, 1986). The quality of informants in terms of their self-reported knowledge about issues under study was examined (Conant et al., 1990). We asked each informant to indicate on a ten-point scale his (her) degree of knowledge about investigated questions. Most of them think they know very well, and 80.8 per cent of them gave a score over “7” and four informants scoring 5 and below on this question were not included in the final analysis. Besides, unlike all other variables measured on the five-point scale, we measured firm performance on a ten-point scale, providing a psychological frame hindering common method bias (Podsakoff and Dennis, 1986). Firm performance was measured using four items (Narver and Stanley, 1990; Slater and Narver, 1995; Jaworski and Ajay, 1993). Given the limitations of data availability and accessibility to generating objective performance assessment, perceptual performance was used in our study (Dess and Beard, 1984; Golden, 1992; Venkatraman and Ramanujam, 1986). To test the validity of self-reported perceptions, we added a relatively objective question in the firm survey and asked respondents to evaluate the actual profit increment of his (her) firm on a five-point Likert scale (“below 1 per cent” = 1, “from 1 to 5 per cent” = 2, “from 5 to 10 per cent” = 3, “from 10 to 20 per cent” = 4, to “over 20 per cent” = 5). Our analysis indicated a correlation coefficient of 0.59 ($p < 0.01$) with the subjective evaluation of profit increment relative to the major, direct competitor of the firm. Such evidence implies that the adoption of subjective measures would not be a problem.

For our final analysis, 131 responses were considered valid, representing a valid response rate of 43.67 per cent, all of which were subjected to confirmatory factor analysis. The final sample included both manufacturing and service firms. Among the 131 respondents, 74.2 per cent are presidents or vice presidents while the rest 25.8 per cent are senior managers responsible for marketing, strategy development, or finance. Furthermore, among those responding firms, 57.6 per cent exist for less than six years, 31.2 per cent for more than six but less than ten years. Besides, the number of employees is less than 100 in 52.8 per cent responding firms, 12 per cent are between 101 and 200, 13.6 per cent is between 201 and 500, 7.2 per cent is between 501 and 1,000 and 14.4 per cent is over 1,000. In addition, 9.7 of them are state-owned enterprises, 7.1 per cent are collectively-owned enterprises, 59 per cent joint-equity enterprises or joint-equity cooperative enterprises in China, and 6.3 per cent are enterprises with foreign investment and foreign enterprises.

Similar to the first round of firm survey, no response bias was found as well. In doing so, a multivariate analysis of variance was conducted to compare the possible differences in total assets and number of employees among both responding firms and non-responding firms. The results were not significant at the 99 per cent confidence level, suggesting no significant difference between the two groups. Furthermore, besides additional measures taken to avoid any distorted self-reports and socially desirable answers (Podsakoff and Dennis, 1986), Harman’s (1967) one-factor test was used, and an five-factor solution emerged, explaining 78 per cent of the variance with no single factor explaining more than 20 per cent of the variance. Thus, common method variance was not a problem in our study. Then confirmatory factor analysis was conducted by using PLS-Graph 3.0 and results and relevant composite reliability are shown in Table I.
The adequacy of each multi-item scale in capturing its construct was assessed using the measurement model of all constructs by checking internal consistency reliability, convergent validity and discriminant validity. First, the composite reliability for internal consistency is demonstrated, since values for all constructs are above the suggested threshold of 0.70, with a minimum of 0.80 (Table I). Second, the standardized factor loadings for all items are above the suggested cut-off of 0.60 (Hatcher, 1994), with a minimum of 0.628, and are all significant with strong evidence of convergent validity. At the same time, the average variance extracted (AVE) of each construct in our model is more than 0.50, which meets the criterion that a construct’s AVE should be at least higher than 50 per cent to guarantee more valid variance explained than error in its measurement (Fornell and Larcker, 1981). Third, apart from the above-mentioned convergent validity, the constructs should also show high-discriminant validity. According to Fornell and Larcker (1981), this can be evidenced by the fact that the square root of AVE of each construct is generally higher than the correlations between it and any other constructs in the model (Table II). That is, the constructs are both conceptually and empirically distinct from each other. Besides, the $R^2$ for the endogenous variable, firm performance is 0.348, which indicates a strong predictive power of our structural equation model. In addition, as shown in Table II, all correlations are significant at $p = 0.001$ and the coefficients are large and positive, indicating that the four subscales converge on a common underlying construct.

4.3 Nomological validity and performance implications
At the same time, a measure has nomological validity if it “behaves as expected with respect to some other construct to which it is theoretically related” (Churchill, 1995). There are well-grounded theoretical reasons to expect a positive relationship between CE and firm performance, and, indeed, a growing body of empirical evidence supports this notion (Covin and Slevin, 1991; Zahra and Covin, 1995; Luo et al., 2005). In fact, many studies argue that CE is a good predictor of growth of firms (Covin, 1991). For example, Antoncic and Hisrich (2001) found that CE is related to the growth of Slovenian and US established firms of various sizes, and to profitability of Slovenian. Similarly, Morris and Sexton (1996) discovered that there is a significant positive relationship between entrepreneurial intensity and increased growth. Other studies suggest that entrepreneurship tends to have long-term effects on growth and financial performance (Zahra and Covin, 1995). Thus, in the current context, nomological
validity would be demonstrated if dimensions of CE are positively and significantly correlated with firm performance.

We chose to employ an accepted, general measure of firm performance to capture any effect of CE with four items (i.e. “The increment of sales relative to largest competitor”, “The increment of market share”, “The increment of profit relative to largest competitor”, and “The increment of new product introduction”) (Narver and Stanley, 1990; Slater and Narver, 1995; Jaworski and Ajay, 1993). Rather than measuring firm performance on the five-point scale, we measured it on a ten-point Likert-type scale anchored by low-high, providing a psychological frame hindering common method bias (Podsakoff and Dennis, 1986). Given the limitations of data availability and accessibility to generating objective performance assessment, perceptual performance was used in our study since many other studies have shown that this is acceptable (Venkatraman and Ramanujam, 1986).

Table III shows the path coefficients of between each dimension of CE and firm performance. All but one coefficient are positive and significant (at $p < 0.05$ or better). Thus, as expected, CE has a beneficial impact on firm performance and the nomological validity of the proposed measures is supported. However, it has to be noted that no evidence support the statistically significant impact of new business venturing on firm performance.

5. Conclusions and discussions
This study extended the work of Antoncic and Hisrich (2001) by reporting on the development and validation of a measure of CE in a transitional economy. Our study demonstrates high reliability and validity, as well as stability across the two regional samples investigated. The proposed measure is more comprehensive in its coverage than existing CE scales since it integrates previous operationalizations. To the authors’ best knowledge this is the first study to provide a psychometrically sound[1] and operationally valid measure of CE in transitional economies in general and China in particular.

We find that the key dimensions of CE in China include new business venturing, innovativeness, self renewal and proactiveness while Lumpkin and Dess (1996) emphasize five characteristics of CE (innovativeness, proactiveness, risk taking, autonomy and competitive aggressiveness), Zahra (1993, 1995) considers it as 3D construct (venturing, innovation and self-renewal), and Luo et al. (2005) also regard it as 3D construct but the 4Ds (proactiveness, risk taking and innovativeness) is different from that of Zahra (1993, 1995). Therefore, although the essence of the construct shows good stability, the composition of the various dimensions of CE does change in different context and this is, to some extent, why researchers’ conclusion of the number

<table>
<thead>
<tr>
<th>Proposed relationships</th>
<th>Path coefficient</th>
<th>$t$-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm performance $&lt;$ New business venturing</td>
<td>$-0.01$</td>
<td>0.08</td>
</tr>
<tr>
<td>Firm performance $&lt;$ Innovativeness</td>
<td>$0.42$</td>
<td>$4.90^{**}$</td>
</tr>
<tr>
<td>Firm performance $&lt;$ Self renewal</td>
<td>$0.16$</td>
<td>$1.69^*$</td>
</tr>
<tr>
<td>Firm performance $&lt;$ Proactiveness</td>
<td>$0.14$</td>
<td>$1.78^*$</td>
</tr>
</tbody>
</table>

Notes: $^* p < 0.05$; $^{**} p < 0.025$ (one tail test); $R^2$ is 0.348

Table III. PLS path analysis results: the direct-effect model
of key dimensions of CE is different. Thus, it is further needed to conduct similar research in broader contexts.

Furthermore, most of extant studies argue and witness that CE has statistically significant and positive impact on firm performance no matter the aggregated approach or disaggregated approach was taken, which results in the belief that firm with higher CE will always achieve better firm performance (Antoncic and Hisrich, 2001; Zahra et al., 2000; Luo et al., 2005). However, we failed to find that all dimensions of CE have statistically significant and positive impacts on firm performance. In particular, we find no evidence to show the significant impact of new business venturing on firm performance. In order to find the possible reasons, several interviews with senior managers of entrepreneurial firms in China were conducted and finally we find that this may be due to the nature of each new business venturing project. In other words, this may be due to that the newness of most of new business venturing projects is relative lower in the market to some extent (they are only relative new as far as the products a firm offers is concerned), and this may imply that these so-called new business venturing projects deliver competitive offerings that already exist in the market, which were produced and delivered by other firms. Such a finding is very instructive and it may stimulate further studies to explore the research questions as follows: does CE always leads to superior firm performance? Does each dimension of CE always lead to superior firm performance? If no, then under which conditions they will have positive and significant impacts? How can entrepreneurial managers make full use of CE to improve firm performance?

These findings are also useful for managers. For example, during the course of making full use of CE for superior firm performance, priority has to be given to innovativeness as far as its overall effect size on firm performance is concerned. It is worth noting that, by contrast, new business venturing has no statistically influence on business performance in China, which is not consistent with existing findings achieved mainly based on developed economies. If newness really plays a significant role in the driving process of new business venturing on firm performance, managers should pay more attention to the newness of new business venturing in practice to drive superior firm performance. And this may also provide insightful thinking that there may be other important factors that may moderate the relationship between CE and firm performance.

6. Limitations and future research directions

Although the measure of CE developed in this study offers researchers a valid and reliable tool with which to investigate the causes and effects of showing higher CE and it also offers managers a comprehensive inventory of entrepreneurial behaviors and activities, caution has to be given in interpreting and applying these research findings. For example, common method variance may exist since the key informant approach is adopted in data collection process in order to examine nomological validity of the newly developed measure although it has been found this is not a significant problem by Harman’s one factor test. Second, although our sample has acceptable representativeness, it will be helpful to study each category of entrepreneurial firms in China by taking a random sampling technique in future studies since different groups of entrepreneurial firms may behave very differently with respect to CE. Such studies may contribute more not only in theories and practices of entrepreneurial firms in
China. Furthermore, several substantive issues can be addressed by utilizing the proposed measures. First, the performance implications of CE need to be assessed. Given the multidimensional nature of firm performance, care must be taken to ensure that the range of firm success indicators used is sufficiently broad to reflect the possible differentiated impacts of each dimension of CE as shown in Table III. Secondly, since not all studies conclude the same impact of CE on firm performance, it is useful future research to explore the potential influence of situational factors on the relationship between CE and firm performance, which may be able to contribute to this debate. Thirdly, the determinants (i.e. antecedents) of CE of a firm also require investigation besides its performance implications on which most of related studies focus. After all, managers need to know how they can be instrumental in shaping and activating CE in their operations. In addition, studies focusing on one specific industry may be also useful since it will provide more specific suggestions for firms to cultivate and make full use of CE.

Note

1. Here, it refers to producing measures with desirable psychological properties, for instance, the measure should have consistency, reliability and validity. For example, each of the measures loaded satisfactorily on their respective first-order factors in exploratory factor analysis, and such loadings are strong and highly significant in confirmatory factor analysis with acceptable level of composite reliability coefficient or $\alpha$ coefficient for each construct showing good reliability and convergent validity. Furthermore, the measure should also show acceptable discriminant validity. We acknowledge the comment of the anonymous reviewer to give more explanation of psychologically sound.

References


Further reading


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