



Corporate entrepreneurship: Current research and future directions

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A B S T R A C T

In this paper, we suggest future research on the processes and knowledge-based resources in corporate entrepreneurship (CE), argue for the need to appreciate the heterogeneity of CE in relation to new contexts, and suggest appropriate strategies for such contexts. First, we highlight the key contributions of the papers in this special issue, with a particular focus on how they provide insights into structural and process contingencies, the role of management at multiple levels, and organizational and managerial capabilities. We then discuss the limits to the applicability of theories developed in other contexts to CE. Finally, we suggest some future research, with particular emphasis on the corporate governance mechanisms that foster CE and the requisite managerial roles and skills in instigating and supporting entrepreneurial activities at different levels of the organization.

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1. Executive summary

A longstanding literature has highlighted significant challenges and shortcomings in the corporate entrepreneurship (CE) activities of firms. Previous reviews have emphasized the need for further research on the processes and knowledge-based resources involved in CE, as well as the heterogeneous nature of CE. The scope of CE is also becoming wider as organizations, not previously recognized as entrepreneurial, need to become so in order to survive and succeed in increasingly competitive and financially constrained environments. This raises important questions concerning the applicability of the structures and processes developed in traditional corporations to these new contexts and how the appropriate strategies and mechanisms can be developed. A third motivation concerns the need for understanding the link between CE and corporate governance, in part because CE activities can be costly and have significant impact on the future value of the enterprise.

In this paper, we first outline the dimensions of CE in terms of corporate venturing (CV) and strategic entrepreneurship. These two dimensions incorporate new business development and various dimensions of organizational renewal in established corporations. We elaborate on the heterogeneity of CE forms to include new internal businesses, corporate joint ventures, corporate and university spin-offs and start-ups by former employees. We also elaborate the heterogeneity of CE forms in established corporations to include ambidextrous organizational structures, autonomous divisions mandated to undertake CE, and the leveraged buyout (LBO) divisions of corporations.

This is followed by a short review of the papers contained in the special issue, with a particular focus on how they provide insights into neglected dimensions of the CE literature. We particularly focus on how they provide insights into structural and

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process contingencies, the role of management at multiple levels, and organizational and managerial capabilities. The papers in this volume suggest that both bottom up and top down processes are important. The studies also indicate that not only do actors at different levels of the organization have CE roles but that they are not independent of each other.

In the final section, we suggest an agenda for future research. With respect to structures and processes, we identify a need for research on the role of corporate governance mechanisms. We also need to consider such issues at different stages of the corporate life cycle. While the papers presented here discuss the influence of different contexts on the nature of CE, there is a need for further theorizing and empirical analysis of these different contexts including service sectors and areas that have traditionally been non-commercial.

With respect to the roles of managers at different levels of the organization, researchers need to ask questions related to their roles in instigating and supporting entrepreneurial activities. This research could usefully consider whether individual managers need to be specialists in CE or whether they should be ambidextrous, and whether this varies according to the level in the organization occupied by a particular manager.

Finally, future research needs to consider the limits to the applicability of theories developed in other contexts to CE. For example, there may be limits to how far theories of radical innovation and venture capital can be applied to CE and corporate venture capital (CVC), respectively.

2. Introduction

When applied against the classic definition of entrepreneurship, the identification and exploitation of opportunity in the face of resource constraints, corporate entrepreneurship is a contradiction in terms. Relative to emergent firms, corporations are replete with human and financial capital. They possess large networks from which project managers can draw ideas, technology, and raw materials to bring their businesses to fruition. The relatively comprehensive environmental scanning capabilities of corporations function to mitigate the risks of mis-identifying opportunities. In sum, one could question the entire premise of the concept of 'corporate entrepreneurship'. Yet, the process of exploiting new opportunities in corporations is fraught with the same risks as those facing start ups and smaller enterprises. This is partly because the outcomes of innovation, which is a core entrepreneurial activity, are difficult to predict. Indeed, a longstanding literature has highlighted significant challenges and shortcomings in the corporate entrepreneurship (CE) activities of firms.

Recent reviews have highlighted the need for further research on the processes and knowledge-based resources and capabilities involved in CE (Dess et al., 2003). A first motivation for this special issue, therefore, is to provide new insights into these aspects. More recently, it has become clear that CE activities within corporations are heterogeneous and we need to know more about this variety (Narayanan et al., 2009). The scope of CE is also widening as organizations that have not previously been recognized as entrepreneurial begin to do so in order to survive and succeed in increasingly competitive and financially constrained environments. The role of private and public universities has also become more important, as a result of government encouragement and the need to diversify sources of revenue. As they seek to commercialize research through licensing and the creation of spin-off companies, they have tightened their relationships to companies (Wright et al., 2008).

An important aspect of the extensive restructuring activities undertaken by corporations over the past two decades has been the divestment of divisions to create new independent or quasi-independent firms, many of which are backed by private equity partnerships. These leveraged buyouts (LBOs) are usually regarded seen as devices to engender efficiency gains, but are increasingly seen as platforms for entrepreneurial activity by large corporations (Zahra, 1995; Wright et al., 1992, 2000). The need to understand the structures, processes and capabilities of CE in these newer organizational contexts and forms presents a second motivation for this special issue. For example, corporate entrepreneurship is usually modelled as a learning process, in which firms alternately engage in exploration followed by the exploitation of resulting discoveries. The Burgers et al. paper reflects this perspective but takes it further by framing it in a contingency framework that offers greater explanatory power. Similar approaches are evident in all the papers, so that familiar theoretical frameworks are combined by newer approaches to hypotheses testing and theorizing.

A third motivation for the special issue concerns the notion of CE for whom? CE potentially contributes to a firm's competitive advantage. Competitive advantage ensures the security and growth of the firm's enterprise value, a major concern of its stakeholders. Yet there are well-known agency problems between owners and managers that may affect whether the latter undertake CE that benefits the former. There is, therefore, a need for greater understanding of the link between CE and corporate governance.

Overall, this special issue represents an attempt to extend the literature on corporate entrepreneurship by advancing the empirical evidence and theoretical frameworks. This special issue offers a range of papers examining different structures, players and processes in CE.

3. Reflections on the nature of corporate entrepreneurship

Corporate entrepreneurship (CE) refers to the process of organizational renewal and relates to two distinct but related phenomena (Guth and Ginsberg, 1990). First is innovation and corporate venturing (CV) activities. Narayanan et al. (2009) state that CV focuses on the various steps and processes associated with creating new businesses and integrating them into the firm's overall business portfolio. In Sharma and Chrisman's (1999) hierarchy of CE, CV can be divided into internal and external CV. Internal CV involves the creation of new businesses that generally reside within the corporate structure although they may be

located outside the firm as semi-autonomous entities, such as spin-offs. Pre-existing internal organization structures may accommodate these new ventures or newly created organizational entities may be created within the corporate structure (Kuratko, 2007). Corporations may also invest in young, early growth-stage businesses created by external parties (external CV), which includes Corporate Venture Capital (CVC), licensing, acquisitions and joint ventures.

Second, CE embodies renewal activities that enhance a corporations' ability to compete and take risks, which may or may not involve the addition of new businesses to a corporation. Morris et al. (2008) and Kuratko and Audretsch (2009) define this aspect of CE as *strategic entrepreneurship*. Strategic entrepreneurship has been defined as involving the identification and exploitation of opportunities, while simultaneously creating and sustaining a competitive advantage (Ireland et al., 2003). It may involve strategic renewal, sustained regeneration, domain redefinition, organizational rejuvenation, and business model reconstruction (Covin and Miles, 1999). Dess et al. (2003) in their review focus on only the first four of these. Organizational learning, either acquisitive or experimental, is a key aspect of CE. CE activities may take place at the corporate, division (business), functional, spin-out venture or project levels (Zahra, 1991). Most previous CV research has focused on the parent corporation level rather than the venture unit or spin-out level (Narayanan et al., 2009).

Dess et al. (2003) suggest that we should examine and document the types of entrepreneurial activities in established corporations. Narayanan et al. (2009) also stress a need to consider the heterogeneity of CV programs. They note that work on CVCs and spin-offs from incumbent organizations has rarely been connected to the broader study of CV, leading to potentially biased insights into the contribution of CV.

New businesses created through CV may be heterogeneous in terms of their markets, products and innovativeness, as well as in terms of the nature of their 'parent' incubator organizations. A literature has already developed concerning corporate spin-offs (CSOs) involving high tech ventures. Corporations and universities represent distinct environments for CV and the creation of spin-off ventures. University spin-offs typically develop innovations that are far from commercialization since their innovations tend to hinge on basic research and raw science (Wright et al., 2008). In contrast, corporate spin-offs are driven by the necessity to differentiate themselves from their parent corporation, yet remain useful to customers (Van de Velde et al., 2008). Further, since corporations tend to support applied research, their spin-off ventures are based on narrower technological developments and are closer to commercial potential, relative to university spin-offs.

A further possibility arises where parent organizations are unwilling or unable to support all entrepreneurial initiatives that emerge from the technology and knowledge generated within the corporation. Agarwal et al. (2004) state that established firms with abundant, but underexploited knowledge are especially fertile grounds for new ventures created by employees who wish to pursue business ideas that are not supported by the parent company. Hence, rather than the parent corporation developing a spin-off, employees leave the firm and establish an independent new venture. Hence, studies of corporate spin-offs show that their development is contingent upon the resources inherited from the parent incubator organization (Klepper and Sleeper, 2005; Sapienza et al., 2004); the overlap of knowledge between parent and the spin-off being especially important.

A further dimension of greater heterogeneity concerns CE in established corporations, especially in respect of entrepreneurial opportunities that may not necessarily involve high tech exploration. Corporations may need to give subsidiaries greater autonomy to pursue local entrepreneurial opportunities where the parent possesses little knowledge of local markets. The developing literature on subsidiary mandates, has stressed the need for more autonomy to enable overseas subsidiaries in particular to be more entrepreneurial (Birkinshaw, 1996). Local knowledge may enable subsidiaries to identify new market opportunities that the parent company cannot achieve directly (London and Hart, 2004).

CE may also involve the divestment of divisions/subsidiaries as leveraged buyouts. Divisional buyout opportunities often represent under-investment situations by the parent firm, especially where the division is not regarded as strategically central to the parent organization and where the organization structure limits the scope for divisional-level initiatives (Hoskisson and Hitt, 1988). While LBOs are usually regarded as mechanism for efficiency improvements (Phan and Hill, 1995), divisional managers with idiosyncratic skills may recognize new entrepreneurial opportunities but be prevented by a bureaucratic corporate control structure from implementing them (Busenitz and Barney, 1997). Severing corporate ties can increase LBO managers' discretion to pursue entrepreneurial opportunities which may range from incremental to radical new product and market developments (Wright et al., 2000). Corporations may also divest activities to an LBO buyout where there is a trading relationship between the corporation and the division. Equity-owning managers have both the incentive and the greater discretion to pursue entrepreneurial opportunities. Where the former division is more heavily dependent on its former parent than vice versa, the latter may have greater bargaining power to ensure that the buy-out delivers an improved customer/supplier relationship, including for example novel ways of product delivery (Wright, 1986; Wright et al., 1990).

4. Contributions of this special issue

The papers presented in this special issue are summarized in Table 1.

4.1. Structural and process contingencies

Dess et al. (2003) highlight research on the content and process of CE activities in both new ventures and established corporations but devote little attention to structural aspects. In this special issue, we deal with the latter. From the demand side of corporate venturing (CV), Burgers et al. look at how organizations structure their activities for successful CV. They highlight the tension between giving autonomy to new ventures (i.e. using structural differentiation) while ensuring that the parent derives the

Table 1
Summary of papers in the special issue.

Authors	Theme	Research question	Theoretical framework	Data and sample	Analytical method	Findings and conclusions
Burgers et al.	Corporate venturing (CV)	How can structural differentiation be effectively combined with formal and informal organizational and TMT integration mechanisms to facilitate CV?	Ambidexterity and explorative/exploitative learning (March, 1991)	Survey of 240 Dutch companies. Respondents were executive directors. Data for independent and dependent variables collected at two points in time to reduce common methods bias.	Moderated regression analyses including adding the inverse Mill's ratio to correct for potential non-response bias.	Structural differentiation is positively related to CV. Relationship is strongly influenced by the use of integration mechanisms. Formal organizational integration impedes CV in structurally differentiated units, while informal organizational integration enables CV. Informal TMT social integration has a negative impact on the relationship between structural differentiation and CV. Hence, mix of differentiation and integration mechanisms should be carefully chosen.
Hornsby et al.	Corporate entrepreneurial action	Do different managerial levels provide a differential structural ability to capitalize on a supportive organizational environment to act entrepreneurially?	Differential roles of managers (Floyd and Lane, 2000).	Survey of 458 managers from different levels in their organization participating in executive management education programs conducted by a large Midwestern public university.	Moderated Poisson regression analysis.	Managerial level moderates relationship between TMT support and the number of ideas implemented, and moderates the relationship between work discretion and the number of ideas implemented. Managers at higher levels appear to be better able to make the most of TMT support and of work discretion. Finding question the view that corporate entrepreneurship is a bottom-up process.
Kelley et al.	Innovation-based corporate entrepreneurship (ICE)	1. What are the different factors contributing to network activities across firms with ICE programs? 2. What are the relationships among these factors?	Network theory with emphasis on how networks are formed and how they shift and adapt for non-routine phenomena.	143 interviews with employees of 12 multinationals from a wide range of sectors. Firms had to have a declared strategic intent to develop ICE capability. The key informant was the person(s) with primary responsibility for developing and maintaining the ICE initiative. Other data from different managerial levels, functional backgrounds and business groups.	Longitudinal (4 years) multiple case study method. Qualitative data analysis using NVivo. Data analysis conducted by a multi-disciplinary team of researchers. Multiple checks for reliability and validity.	Three network constructs emerge as important for ICE: Organizational network capacity (ONC), individual network capacity (INC) and program network capacity (PNC). Current individual network structure less important for ICE than the firm's ability to form new networks. ONC may be difficult to change in the short-run but managers may focus on INC and PNC to facilitate network building for non-routine activities. Organizations should view ONC as requiring both shorter-term and longer-term practices.

Maula et al.	Corporate venture capital (CVC)	1. How do technology-based new firms (TBNFs) manage the trade-off between collaboration and control in CVC relationships? 2. How do complementarities between the CVC investor and its portfolio firm influence levels of control in the relationship?	Organizational learning and agency theory	Survey of 91 CEOs and founders of US CVC-financed TBNFs.	Confirmatory factor analysis and structural equation modelling using maximum likelihood estimation.	Complementarities between the investee firm and the CVC investor have a positive influence on social interaction. The latter is then positively associated with realized learning benefits. A lack of complementarity increases the use of relationship safeguards. The latter also reduce social interaction and hence the realization of learning benefits.
Yang et al	Corporate venture capital (CVC)	How and to what extent does learning from experience influence the development of capabilities that help the parent (investor) company generate higher short-term financial returns and improve long term strategic performance by promoting innovation?	Organizational learning and capability development	Sample of 2,110 CVC investments between 1990–2001 covering 166 firms and 1626 portfolio companies. Data obtained from the <i>VentureXpert</i> database.	Logit and negative binomial analyses. Moderation tested by splitting the sample into sub-samples.	CVC experience is critical in building capabilities that can improve the odds of successful selection and valuation. Industry diversity of a CVC's prior experience enhanced the selection of portfolio companies for financial returns, while its experience intensity, stage diversity, and syndication improved its selection for innovation. Stage diversity negatively influenced post-investment valuation capability. Although experience accumulation is central to learning and the development of capabilities, the selection and valuation capabilities reflected different experiential factors.
Zahra et al.	Corporate Entrepreneurship (CE) in "threshold" firms	What is the nature of the relationship between the board of directors and absorptive capacity and how do they jointly influence CE in "threshold" firms (those at the intermediate stage between start-ups and established companies).	Knowledge based view of the firm and organizational learning	Conceptual article	Conceptual article	Effective board of directors and absorptive capacity are crucial for gaining access to and current knowledge that facilitates and enriches CE. Boards and absorptive capacity may complement each other in fuelling CE activities. Effective boards can sometimes act as a substitute for poor absorptive capacity and vice versa. Managing these complementarities is crucial for sustaining CE initiatives.

sought after benefits, for example, by ensuring knowledge and resource sharing through the use of integration mechanisms. The authors show that structural differentiation is important for successful CV and that certain integration mechanisms can further enhance success. In particular, they find that a shared vision has a positive effect in a structurally differentiated context while socially integrated senior teams and formal cross-functional interfaces resulted in negative effects in the same context. These insights are paralleled by those of Ambos et al. (2008) who find that universities manage the tensions between academic and commercial demands by setting dual structures.

In the same vein of research but from the supply side, Maula et al. examine some of the tensions faced by ventures that receive corporate venture capital (CVC). Maula et al. focus on the trade-off between social interaction and relationship safeguards and examine its effects on the relationship outcomes of learning benefits and risks associated with receiving corporate venture capital. Their findings highlight the fine balance that investee firms have to strike between openness and self protection in CVC relationships. When complementarities exist between the investee firm and its CVC investor, social interaction is enhanced and the need for relationship safeguards by the investee firm is reduced. While the use of safeguards may reduce relationship risks by offering the investee firm protection against opportunistic behaviour by the investor, their use can reduce social interaction, which attenuates the learning benefits from the investee firm. To wit, the balance between social interactions and relationship safeguards becomes dependent on the risk aversion of the investee company; risk-averse firms who seek self protection through the use of relationship safeguards must be prepared for reduced social interaction and hence restricted learning benefits from the relationship with the investor company.

Zahra et al. examine a further structural trade-off in corporate entrepreneurship. They suggest that boards and absorptive capacity may complement or substitute for each other in enhancing corporate entrepreneurship. When accountability is low, i.e. boards are ineffective at protecting the interests of investors and absorptive capacity of the venture is low, entrepreneurial activities will decline and threshold firms' ability to create value or to grow declines. When low accountability is coupled with high absorptive capacity, high absorptive capacity can compensate for relatively ineffective boards and entrepreneurial activities will be moderate. When accountability is high and absorptive capacity is low, effective boards likely replace managers with low absorptive capacity, yielding moderate levels of entrepreneurship. Positive complementarities will be evident between effective boards and high absorptive capacity, promoting entrepreneurship. Importantly, Zahra et al. thus add an external governance dimension that has hitherto been lacking in corporate entrepreneurship research.

4.2. The role of management at multiple levels

Dess et al. (2003) stress the different CE roles of management at multiple levels of the organization. This issue is taken up by the Hornsby et al. and Kelley et al. papers that provide empirical evidence concerning considering multiple levels of management in corporate entrepreneurial activities. Hornsby et al. consider this issue explicitly. They test and support the hypothesis that the relationship between perceived internal antecedents and corporate entrepreneurial actions, differed by managerial level. In particular, they found that the positive relationship between the antecedents of a) managerial support and b) work discretion and the outcome of entrepreneurial actions (i.e. the number of new ideas implemented) was more positive for senior and middle managers than it was for lower level managers. The authors suggest that a higher managerial level provides a structural ability to "make more of" organizational factors that support corporate entrepreneurial action.

Although not explicitly stated, Kelley et al.'s study also raises the issue of multiple levels of management. Their study draws on interviews with employees at different levels of management on the subject of networks. The authors suggest that organizational members from all managerial levels and divisions are likely to be needed or called upon for innovation-based CE to be effective. The extent to which a CE program can draw upon these organizational members will depend on the organization's culture and attitude towards knowledge sharing (an element of Organization Network Capacity, ONC) as well as individual project leaders' network properties and networking abilities (Individual Network Capacity, INC). Kelley et al., also highlight the role that can be played by more senior members of an organization as cultivators and/or brokers. Because of their greater or more relevant experience, and their relationships and power within the organization, more senior managers could help lower level project managers in their network building efforts. The study suggests that members of an organization from different levels can contribute to CE efforts in different ways.

Dess et al. (2003) emphasize the role of top management leadership in shaping the internal organization of CE. Here, Zahra et al. extend their arguments by suggesting that corporate entrepreneurship scholars consider the additional roles played by the board of directors, particularly in threshold firms. Rather than viewing the sole function of the board of directors as protectors of shareholders' interests, the authors propose that directors may serve an entrepreneurial function in assisting and guiding managers in conceiving new ways of creating wealth (e.g. through CE). Zahra et al. argue that effective boards can enable wealth creation by providing managers with better information and leads about entrepreneurial opportunities; sharing valuable information; suggesting innovative ideas and initiatives; offering and evaluating avenues for exploiting opportunities identified by CE programs; encouraging investment in building the firm's absorptive capacity; and ensuring that members of the top management team have the requisite knowledge skills and abilities to lead the company and engage in value creating CE activities.

In sum, when considered in the light of existing work on the normative role of management in corporate venturing, the papers in this volume suggest that both bottom up and top down processes are important. The studies also indicate that not only do actors at different levels of the organization have CE roles but that they are not independent of each other. There is thus a need to understand how these inter-dependencies are facilitated. As such, the key seems to be how the inevitable collisions between

'skunk works'-type processes and the need for internal controls are resolved without the consequences of suppressed innovation and risk taking.

4.3. Organizational and managerial capabilities

Dess et al. (2003) suggest there is a greater need to consider knowledge-based resources for CE, especially human capital, social capital and intellectual capital. All the articles in this special issue implicitly or explicitly highlight the importance of organizational and managerial capabilities required to effectively engage in corporate entrepreneurship. Burgers et al., point to the capabilities required to balance differentiation and integration; Hornsby et al. suggest that the capabilities for taking advantage of support for CE may vary by managerial level; Kelley et al. highlight the importance of capabilities needed for forming and managing networks that facilitate non-routine activities; Maula et al., imply that managers must develop a capability to understand and act upon the trade offs involved in corporate venture capital investments; and Zahra et al. suggest that CE activities can be enriched by effectively managing the complementarities (and substitutions) between a firm's board or directors and absorptive capacity.

It is Yang et al., however, that focus on the issue of capabilities most explicitly. They suggest that successful CVC investment require corporations to develop both selection and valuation capabilities. A selection capability is seen as determining whether CVC programs can pick entrepreneurial companies that are likely to generate financial returns in the short run and deliver strategy outcomes in the long run. A valuation capability relates to the ability of the CVC program to take a fair proportion of the equity in their investments. How then are these capabilities developed? Yang et al., argue that experience (and its multiple dimensions) influences the development of these capabilities. They find that the different dimensions of experience differentially affect the capabilities in question. They find, for example, that industry diversity and experience intensity positively affect selection capabilities. However, they also point to the need for a more nuanced approach since the former dimensions of experience (i.e. industry diversity) helps with the CVC program's ability to select companies with high financial potential, while the latter dimension of experience (i.e. experience intensity) facilitates the selection of portfolio companies with greater strategic benefit.

5. Discussions, future research and conclusion

Dess et al. (2003) suggest there is an important need for future research to show how firms develop effective structures and processes that spur CE. The contributions of this volume point to some obvious avenues for further research. In Table 2 we summarize a number of areas for future research. While not meant to be exhaustive, it illustrates the possible range of questions that one might ask. Answers to these questions, in our opinion, not only adds to the empirical canon but also suggests theoretical departures from how we are viewing the CE phenomenon.

For example, it is surprising that research on the structures and routines necessary for CE has generally neglected the role of corporate governance. Some firms may be better than others at developing and utilizing corporate governance mechanisms and hence can create a resource that generates competitive advantage (Barney et al., 2001). A strategic competitive advantage may not be created where the corporate governance system does not incentivize and monitor management to undertake the appropriate actions to recognize opportunities and to gather and utilize resources. Boards potentially play a central role in this corporate governance system. Building on the paper by Zahra et al. in this special issue, there is a need for further research on how boards are developed to enable CE, particularly with respect to their composition and the role of outside directors, in both new ventures and spin-offs as well as in established firms.

The idiosyncratic knowledge possessed by management processes represents a key resource for firms, especially in the case of opportunity recognition (Castanias and Helfat, 2001). In the traditional agency framework, such information asymmetry may lead managers to appropriate a disproportionate share of rents from stockholders (Coff, 1999). Yet, it is conceivable that these rents are simply compensation for the firm-specific investments made by managers. Hence, the nature of compensation for management poses important issues for CE since it can influence their time horizons and hence their strategic behaviors. Executive compensation schemes can reduce agency conflicts between managers and owners. Thus, it represents a central element of a firm's corporate governance system.

The classic entrepreneurial firm is one that combines residual risk bearing with decision-making (Fama and Jensen, 1983). Ownership rights are crucial for entrepreneurship since they permit the entrepreneur to make decisions about the coordination of resources to gain entrepreneurial rents, in return for bearing the uncertainty associated with owning those resources (Hawley, 1927). While in large complex organizations there are benefits from separating residual risk bearing from decision-making functions, a requirement for top management to engage in entrepreneurship suggests a need to incorporate appropriate residual claimant mechanisms. This issue extends to lower levels within the organization. For example, while the subsidiary mandate literature suggests allowing greater autonomy to foreign subsidiaries to enable them to take initiatives to exploit local opportunities, the appropriate incentives for such activities has not been well studied.

Further, as indicated earlier, where it is not feasible for corporate entrepreneurs to be appropriately compensated for their skills and tacit knowledge, alternative governance arrangements need to be explored. For example, corporate entrepreneurs may seek to take a corporation or a division private through a management or leveraged buy-out that would provide them with a significant if not controlling equity stake (Castanias and Helfat, 2001; Coff, 1999; Phan and Hill, 1995; Wright et al., 2000).

It is evident, therefore, that for corporate entrepreneurship to become a meaningful conduit for a corporation's value creation activities, it cannot be confined to a specialist function within the organization. Hence, there should be more theorizing on how internal controls evolve to accommodate the inherent risks and failures that come from such activities. Therefore, questions such

Table 2

Corporate entrepreneurship: examples of future research questions.

Trade-offs and contingencies	Role of managers at multiple-levels	Organizational and managerial capabilities
How does the relation between governance and CE change at different stages of the firm's life-cycle?	How is board composition developed to facilitate CE?	What is the relative importance of cognitive vs organizational (control mechanisms, incentives...), vs environmental factors in driving CE?
At what points is internal reorganization versus externalization more effective in generating CE?	How does the composition of boards change over the life-cycle of corporations and spin-offs to facilitate CE? What challenges arise in making these changes?	How does the nature of entrepreneurial teams differ in different organizational forms of CE?
How does the nature of CE differ between different organizational forms? [process, technological, radical versus incremental, exploitative versus explorative...]	In what ways are the roles of top managers and middle managers complementary and conflicting under different CE forms?	What human capital and social capital differences are there between the different organizational forms of CE? What challenges are there in accessing them?
What are the challenges in moving to an appropriate organizational form for CE? [i.e. how are path dependencies solved?]	How do the roles of department managers evolve as organizations increase their CE activities and in what ways do their traditional roles conflict with new ones?	What is the relationship between the providers of financial capital [CVCs] and the human and social capital of managers?
To what extent and under what conditions are internal corporate VC activities more effective than alliances with external VCs in generating CE?	How do the managerial incentives of internal CVC differ from those of traditional VCs to foster risk taking?	How do the governance mechanisms for CVC differ from that of VCs? Do these differences imply different theoretical frameworks for understanding success?
To what extent and for how long do spinoffs and management buyouts rely on their former parental organization for developing CE? How is failure addressed in different organizational forms of CE? What form does exit from each take?	How do and can managers successfully make the transformation from corporate managers to venture managers? What is the path of transition from CE managerial roles and corporate management when CE projects fail?	To what extent and why are the different organizational forms of CE more revenue generation vs 'exit' (capital gain) focused? What organizational structures and processes influence the longevity of different organizational forms of CE? What are the learning mechanisms underlying successful recovery from failure?

as how corporate entrepreneurs are/should be compensated, and whether internal equity norms can or should be set aside to foster risk taking by some individuals should be asked. It turns out that such questions are also specific to corporate entrepreneurship (because of established organizational procedures in corporations) and not entrepreneurship in general. In sum, the search for new avenues of research should focus on distinctive questions arising from the phenomenon, rather than more attempts to apply accepted theories to the corporate context.

In our opinion, the simple dichotomy of CE into new and in established corporations ignores important heterogeneities of organizational forms. There is a need to consider the time or life-cycle dimension of CE. Work that takes a view of corporate entrepreneurship progressing from exploration to exploitation, while indicating the presence of learning, provides a limited time perspective. Previous research has tended to ignore the possibility that the nature of corporate entrepreneurship activities may change over the life-cycle of the firm. Zahra et al. (this issue) present a first step in this direction by considering the threshold of professionalization of new ventures, including spin-offs from corporations. Yet, other thresholds in the management and governance of firms have been identified, notably the IPO threshold and the threshold between maturity and decline (Filatotchev and Wright, 2005). Further research is needed on the challenges in stimulating CE across these different stages.

As we have already seen, the nature and form of corporate entrepreneurship may be influenced by contextual contingencies. Much corporate entrepreneurship research focuses upon the manufacturing sector, particularly in relation to high tech sectors. Yet, service sectors may also involve scope for significant CE. In addition, attention has focused upon traditional commercial corporations, yet as we have seen entrepreneurial activities may increasingly emerge in established organizations that traditionally have been non-commercial, such as universities (Narayanan et al., 2009). There is a need for further theorization and empirical analysis of these different contexts.

Researchers should ask questions related to the roles that managers at different levels of the organization play in instigating and supporting entrepreneurial activities. A related issue concerns whether there is a need for individual managers to be specialists in CE or whether they should be ambidextrous. The balance of these skills may also vary according to the level in the organization occupied by a particular manager. A brief search of the literature will quickly reveal a high degree of overlap between the research on corporate entrepreneurship and innovation management. For example, there is now a growing literature on radical innovation (Verganti, 2008). Some of the research in corporate entrepreneurship has begun to draw from this literature. Yet, radical innovation and corporate entrepreneurship are clearly distinct phenomena (the former refers to innovations from technology push, while the latter usually refers to innovations driven by market opportunities) so that to conflate the two may make it difficult to empirically test our theories. In short, we believe that a fruitful project for future research would be the construction of the corporate entrepreneurship nomological net, so that the appropriate validity tests can be conducted.

Finally, we note that the work on corporate venture capital has traditionally taken theoretical frameworks (such as options theory) from the research on venture capital. Yet, we know that corporate venture capital has a much higher quotient of strategic objectives, relative to the purely financial objectives typical of venture capital firms. Therefore, we believe there is a limit to how far we can apply existing theories of venture capital to the corporate variation. Instead, we believe that new perspectives are necessary to fully understand the role that corporate venture capital plays in the discovery of new opportunities. For example, corporate

venture capital may be more appropriately modelled as investments in learning, such that real options approaches or standard return on investment frameworks to understanding how management makes investment decisions misses the point entirely.

Based on our reading of the literature and the papers in this special issue, we believe that there are still opportunities to introduce new theoretical perspectives and hence advance the field much further than we have heretofore seen. The papers in this volume represent a start, offering a retrospective and pointing the way to new avenues of research.

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