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Developing subsidiary contribution to the MNC—Subsidiary entrepreneurship and strategy creativity

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ABSTRACT

Despite its theoretical and managerial significance, subsidiary entrepreneurship and its effects on subsidiary contribution remain underexplored in the literature. We propose that subsidiary entrepreneurship encourages more creative strategic responses to escalating environmental change. We explore the direct and mediating effects of subsidiary entrepreneurship on subsidiary contribution to the MNC, particularly subsidiary strategy creativity. We use structural equation modelling to test our propositions on data generated from surveying the population of Irish subsidiaries of foreign MNCs, and find strong support for our theoretical predictions. The managerial implications of subsidiary entrepreneurship in generating creative strategy, prompting strategic initiatives and improving performance are discussed.
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1. Introduction

The contemporary MNC must co-ordinate the activities of a complex network of subsidiaries operating in diverse environments to create competitive advantage (Andersson et al., 2007). Yet while the benefits of individual subsidiaries interacting with their particular local environment to create knowledge and initiatives for dissemination across the MNC is increasingly accepted (Almeida and Phene, 2004; Birkinshaw et al., 1998; Hansen and Lovas, 2004; Gnyawali et al., 2009), the potential for a subsidiary to exploit their local environment through developing *subsidiary entrepreneurship* has been underexplored (Young and Tavares, 2004).

The ability of subsidiaries to access knowledge, ideas and opportunities within their specific environments (Andersson et al., 2002) has led to a gradual acknowledgement of their role in sourcing learning and generating innovations for diffusion and exploitation across the wider organisation (Mudambi and Navarra, 2004; Mudambi, 2008). In response, a stream of literature (for example, Birkinshaw, 1997; Birkinshaw et al., 1998; Cantwell and Mudambi, 2005; Andersson et al., 2007) has examined the role of *subsidiary context*—which Birkinshaw et al. (1998) define as 'how the subsidiary relates to its parent, its corporate network [and] its local environment' (p. 223)—on its ability to generate initiatives. We suggest that the development of entrepreneurship within subsidiaries allows MNCs to exploit their global networks more effectively. We argue that such '*subsidiary entrepreneurship*' is associated with a combination of influences specific to the business of the subsidiary itself, its place within the MNC and its geographic location.

This study contributes by identifying which elements of a subsidiary's context are associated with entrepreneurship at the unit level. We investigate the direct relationship between the two—an approach that has not (to our knowledge) been taken

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previously, despite increasing demands for organisations to generate creative strategic responses (Ford et al., 2008) to escalating environmental change. We then explore the mediating effects of entrepreneurship to gain deeper insights into how it amplifies the effect of subsidiary context on subsidiary contribution. Besides its potential for theory development, this area is particularly relevant to practitioners, as understanding how entrepreneurship influences subsidiaries' added value is critical to protecting their position within the MNC.

2. Theoretical background

The evolution of the literature about MNCs demonstrates the increasing prominence of the roles and contribution of their subsidiary units. The proliferation of such MNC subsidiaries across the globe was initially considered as an agency dilemma, with the focus on how corporation headquarters could minimise opportunistic behaviour in their subsidiaries (Watson O'Donnell, 2000). Subsequently, studies have demonstrated the potential of subsidiary units to contribute to the MNC by generating initiatives, expanding their activities, markets or responsibilities, and developing resources and capabilities, often independently of their parent organisations (cf; Birkinshaw and Hood, 1998; Cantwell and Mudambi, 2005; Holm and Sharma, 2006; Kotabe and Mudambi, 2004). Subsidiaries are now recognised as sources of knowledge that can be diffused and utilised throughout the MNC network (Mudambi, 2008), helping to stimulate the continuous adaptation and 'constant reinvention' required to compete in the global environment. While the agency problem has not disappeared, it has been counterbalanced by the need to realise 'the many well documented benefits of strategically independent subsidiaries … learning from local systems of innovation, using and integrating local resources and competencies, and generally introducing a heightened level of dynamism into the parent MNCs' (Mudambi and Navarra, 2004, pp. 387).

As their subsidiary roles have evolved, MNCs have shifted from hierarchical to more federal structures (Buckley and Ghauri, 2004), with the role of headquarters moving towards guiding their subsidiaries to best deliver MNC strategy, while simultaneously exploiting the benefits of their access to new knowledge, ideas and opportunities (Andersson et al., 2002). Headquarters retain an ultimate veto, but subsidiaries can increasingly build up their influence and responsibilities within the overall organisation (Canwell and Mudambi, 2005). As agency theory anticipates, this may not always be to the benefit of the MNC, as subsidiary managers can then exploit their unit's position for their own objectives: Mudambi and Navarra (2004, pp. 399) warn that the value or knowledge subsidiaries hold can give them strong bargaining power that is difficult for the MNC to revoke, possibly resulting in inefficiencies or loss of shareholder value.

Efforts to date on identifying the determinants of subsidiary contribution to the MNC have focused on the direct relationship between subsidiary context (the combination of control and co-ordination mechanisms applied by the parent, what happens within the subsidiary and its idiosyncratic local environment) and subsidiary contribution (Birkinshaw, 1997; Birkinshaw et al., 1998; Hewett et al., 2003; Rugman and Verbeke, 2003; Taggart, 1998). The potential for subsidiary context to influence the development of entrepreneurship within the unit has been overlooked. We propose that individual subsidiaries will display similar tendencies to independent organisations, and that their levels of entrepreneurship will vary according to their individual context. We can consider this 'entrepreneurial orientation' as incorporating the levels of risk taking, proactiveness and innovativeness the subsidiary exhibits (Covin and Slevin, 1989; Covin et al., 2006), and to range from extremely conservative to very entrepreneurial (Barringer and Bluedorn, 1999). While the subsidiary's context directly influences its level of contribution to its parent MNC, we argue that this relationship is mediated by subsidiary entrepreneurship: in effect, more entrepreneurial subsidiaries will be better placed to exploit a favourable context and thus generate more contribution for their parent organisation.

To date, *subsidiary contribution* to MNCs has been considered (by for example, Birkinshaw, 1997; Birkinshaw et al., 1998; Andersson et al., 2002; Williams, 2009) largely in terms of business performance, initiative generation, and knowledge access and transfer within the MNC. In particular, the value of those initiatives generated by subsidiaries that can be adopted across the MNC organisation is now broadly accepted (Birkinshaw, 1997; Birkinshaw et al., 1998). However, prior research has neglected the (potentially) vital contribution of creative strategies developed by individual subsidiaries, despite recent exploration of individual level creativity within organisations (Gong et al., 2009; Hirst et al., 2009).

It is accepted that the latitude provided by federal MNC structures has enabled subsidiaries to engage in strategy development (Birkinshaw, 1997; Cantwell and Mudambi, 2005; Dorrenbacher and Gammelgard, 2006) which is concerned about the future direction of an organisation (Dess et al., 1997), but little is known about the drivers of variation in subsidiary strategy. Clearly, subsidiary level strategy focuses on its direction within the constraints of its MNC ownership and local environment, but recognises the potential for subsidiary managers to use their 'strategic discretion' in response to changing environmental conditions (Birkinshaw, 1997; White and Poynter, 1984). This discretion can give rise to autonomous strategic behaviour (Burgelman, 1984). Such autonomous action and behaviour has been studied, in other contexts, as corporate entrepreneurship (Covin and Slevin, 1991; Barringer and Bluedorn, 1999; Kuratko et al., 1990). For example, Burgelman (1983) demonstrates how corporate entrepreneurship leads to the conception of new business opportunities outside of the organisation's current concept of strategy, requiring re-examination of its boundaries and eventually a redefinition of its business strategy. We propose that similarly entrepreneurial behaviour can be observed at the subsidiary level. Prompted by Lumpkin and Dess's (2001, pp. 431) assertion that an entrepreneurial orientation captures 'a willingness to support creativity and experimentation', we suggest that entrepreneurial subsidiaries will be more willing to redefine their current strategy, will be more open to developing novel and creative strategies than conservative units, and will develop alternative strategic approaches that can then be adopted as appropriate across the MNC. Original and imaginative

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solutions are critical for responding to increasingly volatile and unpredictable business environments (Amabile, 1983; Hamel, 1995; Menon et al., 1999). Q6, Q7

3. Hypotheses development

We initially explore the direct relationship between three aspects of subsidiary context: autonomy, external focus and strategically focused reward systems, and subsidiary contribution. These contextual variables were selected as capturing the essence of internal and external influences applying at the subsidiary level. Reflecting the evolving role of subsidiaries (Andersson et al., 2007) and the need for creative approaches in response to escalating environmental change, the dimensions of contribution considered comprise subsidiary strategy creativity, initiative generation and performance. The direct association between subsidiary entrepreneurship and contribution is also explored. To achieve a deeper understanding of the relationship between subsidiary context and contribution we then investigate the mediating effects of subsidiary entrepreneurship.

These relationships reflect the adaptation and extension of existing subsidiary initiative models (for example, Birkinshaw et al., 1998) and entrepreneurship models (Covin and Slevin, 1991; Zahra and Covin, 1995, for example). The usefulness of the entrepreneurial/conservative distinction as an explanatory variable in models has already been established (Anderson et al., 2009), and the entrepreneurial culture of a subsidiary is captured by its entrepreneurial orientation (McDougall and Oviatt, 2000).

3.1. Subsidiary context

3.1.1. Subsidiary autonomy

The autonomy of a subsidiary unit relates to its freedom to make decisions on its own, independently of its parent, (Birkinshaw et al., 1998; Young and Tavares, 2004). As global responsibilities are increasingly devolving from headquarters to selected subsidiaries (Hedlund, 1986), they enjoy greater management discretion (Gupta et al., 1999) and an enhanced ability to determine subsidiary strategy (Cantwell and Mudambi, 2005). Different MNC approaches to managing individual subsidiaries, (Kim et al., 2005) are reflected in diverse co-ordination mechanisms and result in varying levels of subsidiary autonomy (Martinez and Jarillo, 1991). Information asymmetry between headquarters and subsidiary management as to the details of the latter's assets (Watson O'Donnell, 2000) also means local subsidiary management are more effective in determining how to maximise the benefit from utilising subsidiary resources. Increased autonomy also requires subsidiary management to be able to think strategically, to be capable of exploiting competencies and maximising opportunities (Andersson et al., 2007), so that their contribution—especially in the area of strategy creativity—should be directly related to their autonomy. Q8

3.1.2. External focus

A subsidiary's access to information and learning, as well as its ability to innovate, are influenced by both its internal relationships (within its MNC) and its external contacts (Cohen and Levinthal, 1990; Lee et al., 2001; Almeida and Phene, 2004). Prior research on the subsidiary's internal environment has concentrated mostly on how subsidiaries challenge for internal activities or the impact of charter loss (Galunic and Eisenhardt, 1996), rather than on whether the subsidiary is more internally or externally focused. Opinions differ on this debate. Birkinshaw et al. (2005, pp. 228) propose that the internal environment represents a competitive arena where 'players fight—via proactive entrepreneurial initiatives—to establish and defend advantageous positions', a tussle that can encourage subsidiary managers to position themselves in terms of efficiency, or by manufacturing a unique product yielding increased value added activities or market scope. However, Almeida and Phene (2004) suggest that an externally focused subsidiary may have greater interconnections with suppliers, customers and other industry members, so that this focus becomes a resource in itself that determines the unit's ability to identify new information in other organisations. As Andersson et al. (2002) observe 'each subsidiary maintains unique and idiosyncratic patterns of network linkages and consequently is differentially exposed to new knowledge, ideas and opportunities' (p. 979). While both arguments carry weight, it is generally expected that openness to new learning and opportunities will positively impact strategy creativity, initiative generation and performance.

3.1.3. Strategic reward system

Strategic control systems influence human efforts (Marginson, 2002) by providing metrics for measuring and rewarding desired behaviours and outcomes. Compensation packages focused on a subsidiary's long term strategic performance are expected to result in more creative thinking than those with more short term orientations. So linking the subsidiary manager's compensation package to achievement of strategic objectives (rather than directly to budgetary goals) should provide greater flexibility and opportunity for the subsidiary to be innovative, creative and risk taking. As Hayes and Abernathy (1980, pp. 68) warn 'innovation, the life blood of any vital enterprise is best encouraged by an environment that does not unduly penalise failure, [but] the predictable results of relying too heavily on short term financial measures … is an environment in which no-one feels he or she can afford … even a momentary drop in the bottom-line'.

Taken together, these considerations lead to the following hypotheses on the effects of subsidiary level context elements:

Hypothesis 1-1. Subsidiary autonomy will be positively associated with subsidiary strategy creativity, initiative generation and performance.

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Hypothesis 1-2. An external focus will be positively associated with subsidiary strategy creativity, initiative generation and performance.

Hypothesis 1-3. A strategically focused reward system will be positively associated with subsidiary strategy creativity, initiative generation and performance.

3.2. Direct effects of entrepreneurial orientation

While there remains considerable debate regarding which variables promote the entrepreneurial processes of opportunity recognition and exploitation, 'most scholars readily acknowledge the importance of these processes in generating value for firms and their owners' (Zahra et al., 2006, pp. 919). The literature provides theoretical arguments to support the direct relationship between entrepreneurial orientation and performance, but these have only been subject to testing at the subsidiary level in relation to initiative generation (Birkinshaw, 1997; Birkinshaw et al., 1998), and broader aspects of subsidiary contribution have been overlooked.

3.2.1. Subsidiary entrepreneurship and strategy creativity

Creativity in strategy at the subsidiary level allows units to respond to local opportunities and challenges and potentially provides MNCs with a valuable source of creative strategic responses that can be applied by other subsidiaries under the direction of headquarters. However, such creativity is inhibited by strategic embeddedness which causes organisations to use their existing routines to approach new problems (Nelson and Winter, 1982; March, 1991), and their traditional 'mental frameworks' to gather and analyse information. The ability to initiate change and to react rapidly to dynamic environments is associated with entrepreneurial rather than conservative organisations (Naman and Slevin, 1993). More entrepreneurial management styles—a greater propensity to take risks, to be proactive and innovative, to be 'freer' in thinking and behaviour—will exhibit greater strategy creativity and be less constrained in terms of generating new 'strategic options' (Miller, 1993). Andrew and Smith's (1996) empirical study—which found a positive relationship between entrepreneurial orientation and strategy creativity at the individual level—lends some support to the notion that this effect will be replicated at the group/management level, where the inherently pioneering nature of entrepreneurship can be expected to generate more creativity in strategy terms.

3.2.2. Subsidiary entrepreneurship and initiative generation

The literature to date has perceived innovation as a key dimension of entrepreneurial orientation. However, this research assumes that innovativeness is both a feature and the result of the subsidiary's entrepreneurial orientation, and that the broader aspects of innovativeness will result in the generation of initiatives. Initiative generation has long been considered as critical for economic development for both organisations and economies (Christensen, 2003). Whereas single business initiatives are likely to be reflected in growth—or enhanced financial position—for the firm, in the case of subsidiaries it also involves actions which improve the subsidiary's standing or role within the MNC.

3.2.3. Subsidiary entrepreneurship and performance

The theoretical literature (and even the popular press) suppose a positive relationship between entrepreneurial orientation and financial performance (Covin and Slevin, 1988; Lumpkin and Dess, 1996; Zahra, 1991), to the extent that: 'there often seems to be a strong normative bias towards the inherent value in entrepreneurial behaviour, and an assumption or explicit depiction of a positive relationship between behaviour and desired organisational outcomes' (Dess et al., 1997, p. 678). The benefits of this entrepreneurship are expected to lead to competitive advantage and improved performance irrespective of environmental conditions (Hurley and Hult, 1998; Russell, 1999). Zahra et al. (1999, p. 169) note that 'the empirical evidence is compelling that corporate entrepreneurship improves company performance by increasing the firm's proactiveness and willingness to take risk, and by pioneering the development of new products, processes and services'.

In terms of the effects of subsidiary level entrepreneurial orientation on outcome contributions, we hypothesise that:

Hypothesis 2-1. Subsidiary entrepreneurial orientation will be positively associated with subsidiary strategy creativity.

Hypothesis 2-2. Subsidiary entrepreneurial orientation will be positively associated with subsidiary initiative generation.

Hypothesis 2-3. Subsidiary entrepreneurial orientation will be positively associated with subsidiary performance.

3.3. Mediating effects of subsidiary entrepreneurship

Dess et al.'s (1997, pp. 677) observation that 'an entrepreneurial approach to strategy making may be vital for organisational success' alerts us to the notion of the mediating role of subsidiary level entrepreneurship. Ireland et al. (2001), similarly, suggest that the ability to be creative in maximising the benefit gained from resources is a core entrepreneurial function. Embedded behaviours are expected to constrain subsidiaries to formulate strategy consistent with their normal 'psychological set' (Smart and Vertinsky, 1984) even if management both recognises the need for—and is willing to—change (Karagozoglu and Brown, 1988). The influence of this 'embeddedness' on managerial processes is widely believed at the anecdotal level, despite (with some notable exceptions, including Barringer and Bluedorn, 1999 and Dess et al., 1997) being largely untested. However, even given these

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inertial patterns of behaviour, in general terms it can be reasonably expected that an entrepreneurial orientation at the subsidiary level will amplify the effectiveness of contextual factors that promote initiative generation and strategy creativity. Fig. 1 summarises the proposed mediated relationships.

3.3.1. Autonomy and subsidiary entrepreneurship

While autonomy is critical in enabling the development of either strategy or business (product/service-level) initiatives, a more conservative subsidiary will not exhibit the level of risk taking, proactiveness and innovativeness needed to translate the benefits of autonomy into generating valuable contributions, but (as Miller, 1993, pp. 124 notes) is more likely to ally with 'conventional courses of action' and 'traditional solutions'. In contrast, we would argue that a positively entrepreneurial orientation—i.e. subsidiary entrepreneurship—will act as a 'generative mechanism' allowing the subsidiary to benefit from the freedom to utilise its resources so as to respond strategically, exploit its opportunities and capitalise on its competencies, which should translate into more creative strategies, the generation of more initiatives and stronger performance.

3.3.2. External focus and subsidiary entrepreneurship

It is widely accepted that organisations must be open to external learning, from customers, distributors, suppliers, researchers and others (Slater and Narver, 1995). However, it is argued that more entrepreneurial subsidiaries will be better placed to exploit this knowledge in terms of both initiative generation and strategy creativity, for, as Webster (1994) has contended, more entrepreneurial organisations have a broader concept of organisational culture and build an 'overwhelming pre-disposition' towards innovative responsiveness. As a result, it is proposed that an entrepreneurial orientation will positively translate to the benefits of the subsidiary's external focus into valuable subsidiary contribution.

3.3.3. Strategic reward system and subsidiary entrepreneurship

Covin and Slevin (1991, pp. 15), claim that 'considerable evidence suggests that an entrepreneurial posture can be either promoted or stifled by the incentives and disincentives individual agents have to engage in behaviour consistent with such a posture'. This suggests that the subsidiary reward system should reward entrepreneurial effort, encourage risk taking and avoid penalising failure. But it may be difficult for an—often remote—headquarter's management to set targets for subsidiary management that are challenging but attainable. Management's entrepreneurial efforts may be depressed by careerism and short term focused reward systems (Zahra, 1996), as there can be significant time lags between entrepreneurial activities and their eventual pay off. We suggest that the benefits of a reward system promoting longer term strategic behaviour will be amplified by the subsidiary's entrepreneurial orientation, and that an emphasis on strategic controls is 'consistent with the entrepreneurial process [as they] … are capable of rewarding creativity and the pursuit of opportunity through innovation' (Barringer and Bluedorn, 1999, pp. 426).

We make the following hypotheses with regard to the mediating effects of subsidiary entrepreneurship:

Hypothesis 3-1. Subsidiary entrepreneurial orientation mediates the relationship between autonomy and strategy creativity, initiative generation and performance.

Hypothesis 3-2. Subsidiary entrepreneurial orientation mediates the relationship between an external focus and strategy creativity, initiative generation and performance.

Hypothesis 3-3. Subsidiary entrepreneurial orientation mediates the relationship between a strategic reward system and strategy creativity, initiative generation and performance.

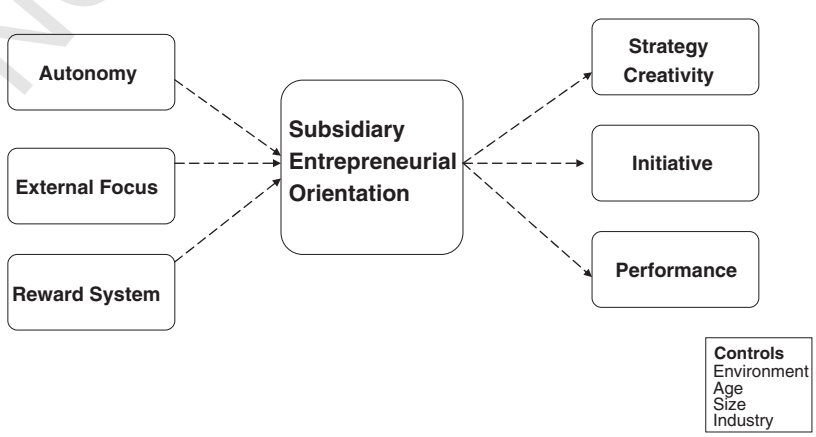

Fig. 1. Mediated relationships between subsidiary context, entrepreneurship and contribution.

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4. Methodology

4.1. Data collection and instrument

The entire population of over 1100 MNC subsidiaries located in Ireland was targeted for this study. On the basis of a focus group and pre-test results, the Managing Director was selected as the key informant, as in other studies of subsidiary behaviour (for example, Holm and Sharma, 2006). A comprehensive data base was developed based on the Industrial Development Authority Ireland website (Ireland's National Development Agency), and a random sample of subsidiaries contacted to ensure that contact details were accurate and up to date.

The mail questionnaire followed the 'tailored design method' of Dillman (2000) design and administration. The success of this approach is reflected in the profile of respondents (all have General Manager/director titles, and the response rate of 24%, which compares favourably with the average top management survey response rate (Hult and Ketchen, 2001). While this response reduces the probability of non response bias (Weiss and Heide, 1993), standard tests confirmed an absence of significant differences between early and late respondents on a range of characteristics. It was not feasible to collect independent objective data on subsidiary performance as this information is not publicly available, although there is a strong argument that perceptual measures converge with objective data (Venkatraman and Ramanujam, 1987). Cross checking utilising secondary data is also not an available option, as MNCs are not obliged to provide information at the individual subsidiary level.

The draft questionnaire was pre-tested by a mix of experienced commercial managers and academics. Seven point Likert scales (from 1 = 'not at all' to 7 = 'to a very large extent') were utilised throughout. With the exception of the external focus measure, existing measures were used to increase content validity, and modified where necessary to reflect the subsidiary as the unit of analysis. Reverse scoring was utilized to reduce the issue of acquiescence—the 'tendency to agree with attitude statements regardless of content' (Podsakoff et al., 2003, pp. 883), and respondents were kept unaware of the relationships under investigation to avoid over-justification issues. Because a single respondent provided the data for our study, we utilized previously validated measures where possible (Spector, 1987: Wang, 2008) and checked for common method variance (Podsakoff and Organ, 1986) post hoc using Harman's (1978) single factor test. No dominant factor that could account for the majority of the variance was indicated (Menon et al., 1996). In addition, a series of 24 interviews with CEOs and senior directors from a diverse range of subsidiaries from our targeted population, addressing the key variables in our study increases our confidence that common method variance is not an issue.

SEM was utilised in view of its superiority in analysing simultaneous relationships between multiple dependent constructs. We adopted Anderson and Gerbing's (1988) two stage method, first assessing the measurement model for each construct and then considering the structural paths between latent constructs. The LISREL program was used to analyse the results, with the method of extraction being set as maximum likelihood, with the results assessed against generally accepted criteria (Hu and Bentler, 1999; Yuan, 2005). An initial analysis of the responses on all of the variables provided no indication of a restriction of range problem in the data. The shape of the distribution of the variables was then tested for normality by calculating values for skewness and kurtosis (Hair et al., 1998), and all measurement distributions were assumed to be normal at the 99% confidence level. Support for the acceptability of the data is also provided by Tabachnick and Fidell's (2001) advice that underestimates of variance associated with positive skewness are eliminated (or can be discounted) in sample sizes of over 200, as in this study. Little's test showed that the data was Missing Completely at Random (MCAR). Although the level of missing data was low, the EM algorithm was used in SPSS to impute missing data.

4.2. Measures

4.2.1. Context measures

- *Subsidiary autonomy* was measured by adapting Watson O'Donnell's (2000) five item scale and the three item decision level options approach adopted by Birkinshaw et al. (1998). Initially this variable was modelled as a single factor in the Confirmatory Factor Analysis (CFA), but an initial poor model fit suggested the existence of sub-factors within the construct. Two factors were found to provide the best fit, with some item deletion as per Table 2.

Table 1
Summary statistics.

		Mean	SD	Alpha	1	2	3	4	5	6	7
1	Product autonomy	3.89	1.47	0.80		–					
2	Structural autonomy	3.95	1.12	0.67	0.30**						
3	Strategic rewards	4.06	1.36	0.68	−0.04	0.18					
4	External focus	3.80	1.58	0.73	0.27**	0.27**	0.05				
5	Entrepreneurial orientation	4.43	0.99	0.76	0.14*	0.31**	0.26**	0.31**			
6	Performance	4.30	1.31	0.66	−0.03	0.04	0.26**	−0.02	0.36**		
7	Initiative generation	2.91	1.79	0.65	0.30**	0.34**	0.18**	0.57**	0.41**	0.13*	
8	Strategy creativity	3.99	1.36	0.84	0.07	0.15*	0.09	0.17**	0.34**	0.19*	0.22**

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

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- To measure *strategic reward systems*, respondents were asked to rate the degree to which their compensation package was linked to various types of monitoring mechanisms associated with long term strategic issues. Questions were adapted from a percentage type scale utilized by Watson O'Donnell (2000), and the resultant fit was good.
- To operationalise the *external environment* variable, and capture the subsidiary's strategic focus on its external business environment, seven items utilised by Antoncic and Hisrich (2001) were adapted to create new measures, and item deletion was used to arrive at the final operationalisation (see Table 2).
- The original three dimensional *entrepreneurial orientation* scale—incorporating innovativeness, risk taking and proactiveness—initially developed by Khandwalla (1977), and refined by Miller and Friesen (1982) and Covin and Slevin (1989) has been successfully utilized in 'numerous studies' (Lyon et al., 2000). The ease with which it could be adapted to the subsidiary level, as well as its widespread academic acceptance, outweighed Brown et al.'s (2001) criticisms about the 'mix of current attitudes and past behaviour' inherent in the scale.

Summary statistics are provided in Table 1.

4.2.2. Mediating construct

After several CFA iterations, a three factor model emerged as fitting the data best. However during the structural modelling phase, the measurement items were found to cross-load onto many of the other constructs under investigation. This was perhaps to be expected, as entrepreneurial orientation taps into a wide variety of issues relating to corporate performance and other antecedent and outcome constructs. Since entrepreneurial orientation was the construct of interest in this study, it was decided to utilise the CFA to create composite variables for the three sub-factors by averaging the scores on the individual items (Covin et al., 2006), and these were then used in the measurement model (Table 2).

4.2.3. Contribution measures

- The *strategy creativity* measure was based on Menon et al.'s (1996) rule breaking creativity items, adapted to the subsidiary unit of analysis. Depending on the item content, one factor was hypothesised.
- The measure for the *initiative generation* construct was adapted from Birkinshaw et al. (1998) to capture initiatives undertaken by the subsidiary, from competing for internal opportunities to product development. Respondents were asked to measure their initiative-taking over the previous 5 years and to anticipate their level over the next 5 years. We initially used CFA to create a temporal model with two distinct time related factors, but (as it gave rise to Heywood cases) then decided to concentrate on past initiatives, which had the same time frame as the creativity and performance variables and produced a good CFA fit. Q12
- In terms of *firm performance*, the potential level of bias in self reported operationalisations has been widely reported (Boyd et al., 1993; Cycota and Harrison, 2002), although others (for example, Powell, 1992; Venkatraman and Ramanujam, 1987) have found strong correlations between subjective and objective measures of performance. Absolute scores on financial performance indicators (even if they were available at subsidiary unit level) would be heavily influenced by industry-related factors, which—

Table 2
Results of confirmatory factor analysis.

Variable	Measures	Factor loading	t-Value	R^2
Product autonomy	New product introduction	0.89	14.51	0.78
	Change product design	0.78	12.67	0.61
	Change product price	0.59	9.36	0.35
Structural autonomy	Change structure	0.56	7.41	0.31
	Change remuneration policies	0.82	9.66	0.68
	Borrow short term	0.50	6.73	0.25
Strategic reward system	Long term performance	0.78	8.08	0.60
	Encouraging initiatives	0.68	7.59	0.46
External focus	Developing European markets	0.80	13.45	0.63
	World markets	0.81	13.80	0.66
	Extending original charter	0.47	7.22	0.22
Subsidiary entrepreneurship	Innovativeness	0.62	–	0.38
	Risk taking propensity	0.69	7.79	0.48
	Proactiveness	0.68	7.74	0.47
Performance	Sales growth	0.87	–	0.76
	New product sales	0.48	5.02	0.23
Initiative generation	Products developed and sold	0.70	–	0.49
	New business activities	0.69	8.79	0.48
Strategy creativity	Our strategy is different	0.70	–	0.49
	Our strategy is rule breaking	0.64	9.17	0.41
	Our strategy is innovative	0.83	11.52	0.69
	Our strategy is bold	0.87	11.27	0.75
Environmental threat	External regional concerns	0.52	–	0.27
	Labour issues	0.88	6.24	0.77
	Cost pressures	0.48	5.74	0.23

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given the diverse industries captured by the sample—would have reduced the value of direct comparisons (Miles et al., 2000). Initially four items were developed to capture firm performance, building on previous research (Karagozoglu and Brown, 1988; Watson O'Donnell, 2000), of which two low loading items were removed, leaving a two-item scale as per Table 2.

4.3. Control variables

We included four control variables that had been shown to influence entrepreneurship—age, sector, size and environment. *Age* was categorised into four distinct groups in ten year intervals (experimenting confirmed that breaking age down into smaller categories did not significantly influence the dependant variable). Distribution was approximately even across the sample. *Size* was based on the number of employees in the subsidiary in three categories reflecting small (n<50), medium (n<250) and large (n>250) organisations. To control for *sector*, we created a dichotomous variable to record differences between manufacturing and service subsidiaries. Research has demonstrated the strong influence of the *external environment* of an organisation on the existence and stimulation of entrepreneurial activity and entrepreneurial orientation (Covin and Slevin, 1991; Russell, 1999). (The control approach is discussed below). Results for the Confirmatory Factor Analysis are provided in Table 2.

Initially, the effects of age, size and sector on the contextual and contribution variables were considered separately, in order to minimise risks of conflating effects. Surprisingly—given the volume of extant literature on the topic, and the divergent arguments between the need for time from start-ups to allow entrepreneurship to develop (Cantwell and Mudambi, 2005), and the negative effects of age on entrepreneurial activity (Covin and Slevin, 1990)—none had a significant effect on any of the constructs of interest. Similar results were found when we tested other variations on the same data, so we stopped analysing these three control variables in the hypothesis testing section. However, a similar approach confirmed that *environmental threat* had significant effects on the contribution constructs (as discussed below), but none on the contextual variables.

4.4. Hypothesis testing

The purpose of Structural Equation Modelling was to arrive at and confirm a model consisting of relations between the constructs specified above in relation to the hypotheses to be tested. Initially a model was tested with all relationships fully mediated by entrepreneurial orientation (as per Fig. 1), controlling for the effect of environmental threat. Model fit was good (Chi-Squared = 557.69; df = 258; p = 0.00000; RMSEA = 0.068). The direct relationships, as well as the mediated ones, between the antecedents of orientation and the three contribution constructs were then considered, and the model fit in this case was better (Chi-Squared = 440.32; df = 246; p = 0.00000; RMSEA = 0.056). Given these results—that the second, more complex model provided a significantly better interpretation of the data—it appears that entrepreneurial orientation does not fully mediate the relationships between *all* the antecedent and outcome constructs.

As most models take performance as the sole dependent outcome, alternative models were developed incorporating initiative generation and strategy creativity as intermediate relationships, which included removing the mediating role of entrepreneurship for initiative generation, strategy creativity and performance individually and collectively. Results confirm that the model with mediating *and* direct effects fits the data best, thus indicating that initiative and strategy creativity are not mediating variables between the contextual variables (including entrepreneurship) and performance.

Table 3 shows the results of the main relationships in the final model. The direct relationship between subsidiary context and entrepreneurship is presented first, and the second data column depicts the relationship between the context construct and entrepreneurship, with the final data column showing the relationship between entrepreneurship and the subsidiary contribution construct. Significant values in both the second and third data columns indicate that the relationship is fully mediated.

The environmental threat variable was significant in terms of performance (−0.40***), creativity (0.21**), and initiative (0.46***) but—most surprisingly—was not significant in terms of its effects on entrepreneurship. While this supports the notion that the environment affects organisational performance regardless of entrepreneurial orientation (Wiklund and Shepherd, 2003), it contrasts with strong empirical endorsement for a positive relationship at the firm level between environmental hostility and

Table 3
Results of SEM.

	Context/contribution	Context/entrepreneurship	Entrepreneurship/contribution
Product autonomy → strategy creativity	−0.06	0.21***	0.42***
Structural autonomy → strategy creativity	−0.07	0.25***	0.42***
External focus → strategy creativity	0.06	0.25***	0.42***_*
Strategic reward system → strategy creativity	0.04	0.32***	0.42***
Structural autonomy → initiative	0.06	0.25***	0.22*
External focus → initiative	0.71***	0.25***	0.22*
Strategic reward system → initiative	0.16*	0.32***	0.22*
Structural autonomy → performance	−0.07	0.25***	0.61***
Strategic reward system → performance	0.14	0.32***	0.61***
External focus → performance	−0.27**	0.25***	0.61***

* = Significant at 5% level.
** = Significant at 1% level.
*** = Significant at 0.1% level.

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entrepreneurial behaviour (Antoncic and Hisrich, 2000; Covin and Slevin, 1989; Zahra and Covin, 1995). Possible explanations are that membership of the larger MNC supports the ability and incentivisation of the subsidiary to respond to local threats or that the local market is too small to directly stimulate an entrepreneurial response at the subsidiary level. Q14

Interestingly, the data analysis indicates that subsidiary autonomy is comprised of two dimensions, product and structural autonomy, which offers potential additional insights. As outlined in Table 3, Hypothesis 1-1 was retested to include each of these constituent parts, but direct relationships between either aspect of autonomy and contribution were not significant. There is strong support for Hypothesis 1-2 in respect of a direct relationship between external focus and both performance and initiative generation. Hypothesis 1-3 (proposing a direct relationship between strategic reward systems and contribution) is partially supported in respect of initiative generation. While the weak influence of the contextual dimensions we investigated on contribution is initially disappointing, it suggests the need to seek richer explanations of complex organisational phenomena than simple bi-variate investigations can provide, which supports the conceptual development of a more holistic framework for analysis such as that presented here.

The support for Hypotheses 2-1, 2-2 and 2-3—all of which predict positive direct relationships between a subsidiary's context and its entrepreneurial orientation—were significant at the 0.1% level. This is particularly exciting as it demonstrates that the MNC can influence subsidiary entrepreneurship through manipulating subsidiary context. In addition, it supports management calls for remuneration systems that focus on achieving longer term objectives as these encourage risk taking, innovativeness and pro-activity.

Hypotheses 3-1, 3-2 and 3-3—which propose that an entrepreneurial orientation at the subsidiary unit mediates the effect of its context on its ability to contribute in the strategy creativity, initiative and performance areas—are strongly supported. However, the strong direct relationship between external focus and initiative generation indicates that an emphasis on external relationships at the subsidiary unit plays a more significant role than being entrepreneurial in terms of its ability to generate initiatives and innovation as outcomes. Subsidiaries that engage largely in transfer selling may have a greater struggle to generate initiatives, even if they are entrepreneurial.

With the interesting exception of initiative generation, the results clearly demonstrate that subsidiary entrepreneurship amplifies the effects of subsidiary context on contribution. This is an exciting finding as it provides strong empirical support for the benefits of encouraging subsidiary entrepreneurship.

5. Discussion, limitations and implications

5.1. Discussion

Research suggests that building entrepreneurship within subsidiaries is potentially beneficial to MNCs' long term results (Brock and Birkinshaw, 2004), but studies to date have focused on the direct influence of contextual elements on subsidiary contribution (Birkinshaw, 1997; Hewett et al., 2003; Rugman and Verbeke, 2003; Taggart, 1998) and have failed to provide empirical evidence of the effects of entrepreneurship on subsidiary contribution. This study adopts a different approach, suggesting that subsidiary entrepreneurship—as represented by its entrepreneurial orientation—acts as a mediating variable or 'generating mechanism' (Baron and Kenny, 1986) enhancing its ability to make valuable contributions. This implies that, while headquarters may set the context for the subsidiary, the level of entrepreneurship within the subsidiary itself will facilitate how context influences contribution. Q15

Our findings demonstrate strong support for the mediating influence of entrepreneurship between subsidiary context and subsidiary strategy creativity and performance outcomes, providing a better understanding of how to improve subsidiary contribution to the MNC. This differs from the traditional investigations of direct context/contribution relationships, and implies that gaining a greater understanding of how context influences subsidiary outcomes requires subsidiary level factors such as subsidiary entrepreneurship to be investigated in tandem. There may also be other subsidiary level factors that act as 'generating mechanisms' which future research may explore—including, for example, subsidiary leadership style and technological posture.

Our results also have strong theoretical implications. Most interestingly, the empirical evidence supports strong direct associations between subsidiary entrepreneurship and strategy creativity, initiative generation and performance. This contribution endorses subsidiary level anecdotal evidence, and suggests that local (and corporate) management should focus on enhancing subsidiaries' enthusiasm to be risk taking, proactive and innovative. However, Mudambi and Navarra's (2004) caution that entrepreneurial subsidiaries may be a source of competitive advantage that the MNC is unable to leverage, due to the level of power such subsidiaries often enjoy within the organisation, should be borne in mind.

The limited significant direct associations between context and contribution highlight how difficult it is for MNC headquarters' management to enhance subsidiary contribution directly by manipulating organisational structural and behavioural context. The limited explanatory power of the contextual variables may suggest that their relationships with contribution are more contingent than direct, given the competitive environment and constant challenges faced by organisations. It may be that expecting a direct relationship between selected contextual dimensions and contribution is too simplistic, demonstrating again the need to adopt a more holistic perspective of subsidiary activities if a greater understanding of complex phenomena is to be achieved.

The insights into the benefits of subsidiary entrepreneurship and the amplifying effects of entrepreneurship on subsidiary context are significant. Empirical evidence of the association between entrepreneurship and strategy creativity provides an exciting new addition to our understanding of the benefits of entrepreneurship, and may also have implications at the organisational level of analysis. This is an area not previously investigated—as Ford and Gioia (2000, pp. 705) note 'despite

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enduring interest in creativity from practitioners and its apparent relevance to many areas of organisational study, the topic remains relatively underdeveloped in management research'. In addition, confirmation of the anecdotal relationship between entrepreneurship and an organisation's potential to break the rules and 'think outside the box' highlights the need for further research in this important topic.

5.2. Limitations

This study has several limitations which may be addressed by further studies. These include the effect of specific host country characteristics which may make Ireland—a peripheral location with a small, open economy—differ from other host countries. As a research instrument, a questionnaire also falls short of a sophisticated temporal study (Murray et al., 2002), a factor which may be particularly relevant given the dynamic nature of entrepreneurship. The use of existing measures has advantages in terms of validity, but resulted in the need to adapt firm level measures to the subsidiary unit of analysis, and (although comprehensively reviewed) such adaptations may still not be entirely appropriate for application to subsidiary structures. There may also be other factors not captured by the study which influence the relationships under examination, particularly MNC country of origin and subsidiary general manager nationality. In addition, our theoretical framework does not incorporate industry dynamics and organisational structures and other inter-related contingency factors. Future studies in this area may also wish to empirically investigate the impact of both internal and external network memberships (Anderson et al., 2002; Lee et al., 2001; Manev, 2003) and regional integration (Rugman and Verbeke, 2003) on subsidiary entrepreneurship. Q16

While the data showed no indications of common method variance during testing, the danger of relying on a single informant may (to some extent) result in the subsidiary's entrepreneurship being an 'artifact' of the individual respondent's own entrepreneurial orientation (Lyon et al., 2000). While this approach appears to be a particular feature of research into both entrepreneurial and international activities, our findings are reinforced by a series of interviews with multiple respondents in eight subsidiaries from the sampled population, specifically selected to provide a diverse range in terms of entrepreneurship, industry sector and country of origin. Finally, there is significant potential for feedback loops within our proposed framework, which future research may also address: for example, subsidiary entrepreneurship may itself be an antecedent to aspects of subsidiary context (such as autonomy and external focus), while aspects of subsidiary context may be subsumed within the entrepreneurial orientation construct.

5.3. Implications

Despite these limitations, our study has important implications for mangers at MNC headquarters and at their subsidiaries, both of whom wish to enhance subsidiary contributions, albeit from different motives. This study confirms that subsidiary entrepreneurship can be a powerful determinant of subsidiary contribution, amplifying the relationship between subsidiary context and performance. This original finding effectively means that entrepreneurial subsidiaries will be better placed to exploit a favourable subsidiary context to generate more contribution.

It also provides strong evidence that management should consider both the direct and indirect effects of manipulating subsidiary context. The significant direct relationship between external focus and initiative generation supports the need for subsidiary managers to build and maintain strong relationships with industry groups, academic institutions and lead users. Webster (1994, pp. 14) observes that where managers develop a broader concept of organisational culture that focuses the subsidiary 'outward—on its customers and competitors—[it] creates an overwhelming pre-disposition toward entrepreneurial and innovative responsiveness to a changing market'. The role of entrepreneurship in promoting strategy creativity also enhances management's ability to 'hedge their bets with a diverse set of competitive methods and to employ more comprehensive business strategies' (Miller and Chen, 1996, pp. 424). Mechanistic approaches to strategic planning should not be as great a threat to entrepreneurial subsidiaries that develop more creative strategies.

From a headquarters' perspective, a richer understanding of the effects of the mechanisms they apply should assist in maximising the potential benefits from the resource allocations, managerial attention and organisational commitment MNCs give to their foreign operations. This paper demonstrates that, while it may be difficult for headquarter's management to manipulate performance and contribution directly, benefits can be obtained when favourable contextual factors are combined with an entrepreneurship at the subsidiary level. Headquarters must be aware of the need for balance allowing sufficient autonomy to enable entrepreneurship with limiting its potential agency implications. This is particularly relevant in the current economic climate when Western subsidiaries are increasingly vulnerable to headquarters shifting their activities to low cost locations.

In conclusion, we found that subsidiary entrepreneurship enhances the relationship between subsidiary context and subsidiary strategy creativity and performance. This is an important contribution to our understanding of the role of entrepreneurship in MNC subsidiaries.

6. Uncited references Q17

Baron

Hamel, 2000

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