The Impact of Entrepreneurial Orientation on the Performance of Internationalization

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Abstract

Entrepreneurial orientation has emerged as a major construct in entrepreneurship literature. However, existing definitions of entrepreneurial orientation mainly focus on explorative behavior like innovativeness, proactiveness and risk-taking. Based on the long tradition of research on entrepreneurial functions, we argue that exploitative activities are no less an entrepreneurial endeavor than explorative activities. Following this understanding, we elaborate a broader conceptualization of the entrepreneurial orientation construct. In an empirical study with 346 established companies, we explore its effect on the performance of internationalization. Entrepreneurial orientation in its broader conceptualization positively influences the international performance and the effect is by far stronger than the one observed in existing studies. The reason for this is that both explorative and exploitative dimensions matter and equally drive the international performance. Entrepreneurial orientation positively influences the growth of the international activities as well. However, its effect is much lower. Whereas the explorative dimensions tend to foster the international growth, the exploitative dimensions do not show any effect.

Keywords: *entrepreneurial orientation, entrepreneurial functions, international performance, international growth, exploration, exploitation.*

INTRODUCTION

The field of international entrepreneurship - that investigates topics at the interface of international business and entrepreneurship - has received considerable attention from scholars over the last years (e.g. McDougall and Oviatt, 2000; Acs et al., 2003; Dimitratos and Jones, 2005; Zahra et al., 2005; Kuivalainen et al., 2007; Keupp and Gassmann, 2009; Dimitratos et al., 2010; Dimitratos et al., 2012; De Clerq et al., 2012; Covin and Miller, 2014). Awareness of international entrepreneurship started with the emergence of

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the so-called 'born global' firms that internationalize instantly after inception (Oviatt and McDougall, 2005). These new ventures challenged the traditional views of internationalization theories and prompted considerable research on macro, industry and firm-specific variables that led to new internationalization patterns (McDougall et al., 1994; Rialp et al., 2005; Zahra et al., 2005). Building on a large number of studies on 'born globals', international entrepreneurship research has broadened in scope (Oviatt and McDougall, 2005) and depth and has spread to areas like opportunity recognition (Zahra et al., 2005; Acedo and Florin, 2006), technological learning (Zahra et al., 2000; Zahra et al., 2003) or organizational learning (Freiling and Zimmermann, 2014). However, international entrepreneurship as a research field still focuses to a large extent on young, newly founded firms. There are only a few studies on established companies (e.g. Birkinshaw, 1997). It is therefore not surprising that various scholars call for more research on the entrepreneurial processes of established firms (Dimitratos and Jones, 2005; Jantunen et al., 2005).

The entrepreneurial orientation (EO) has emerged as a major construct in entrepreneurship literature when it comes to understanding entrepreneurial processes. In fact, EO is one among the few areas in entrepreneurship research where a cumulative body of research is evident (Lyon et al., 2000; Covin et al., 2006; Rauch et al., 2009; Covin and Miller, 2014). The construct of EO captures the methods, practices, and decision-making styles that managers or owners use to act entrepreneurially. It reflects how a firm operates in value creation regardless of what entrepreneurial activities (such as new market entry) it undertakes (Lumpkin and Dess, 1996). In a first attempt to model firm-level entrepreneurial processes, Miller and Friesen (1982) identified three key processes: the willingness to engage in product innovation, to take risks to try out new products, and to be more proactive than competitors in taking advantage of new market opportunities. On this basis, several researchers have argued that EO, as a composite construct (Covin and Lumpkin, 2011; Covin and Miller, 2014), has three dimensions: innovativeness, proactiveness and risk-taking (e.g. Covin and Slevin, 1989; Wiklund and Shepherd, 2003; Zhang et al., 2012). Even if some researchers add additional dimensions (Lumpkin and Dess, 1996; Knight, 2001; Jantunen et al., 2005) to a multi-dimensional construct (Covin and Miller, 2014), it is striking that existing concepts of EO almost solely focus on *explorative activities*. Following March's (1991) understanding, exploration refers to the pursuit and acquisition of radically new resources whereas exploitation alludes to the efficient use and incremental refinement of the existing resource base.

The focus of the EO construct on explorative activities may be plausible at first glance as they tend to provide a base for setting up new ventures: there are no new ventures without entrepreneurs engaging in innovations

and willing to take risks. However, these rather explorative activities are often not sufficient for establishing ventures successfully. New ventures and initiatives may fail due to missing managerial skills that allow exploitative activities like setting up and orchestrating efficient value-added processes or coordinating marketing, finance and accounting. Besides that, the long tradition of entrepreneurship research of the last three centuries reminds us of considering exploitative entrepreneurial functions, such as Kirzner's (1973) arbitrage (similarly Sundqvist et al., 2012) or Casson's (1982) coordination function, as well (e.g. Hébert and Link, 1988). This leads to the question whether the EO construct needs to be extended to reflect all entrepreneurial challenges, in particular those of established firms. Building on the whole body of entrepreneurship research and, in particular, on entrepreneurship theory, we argue that exploitative activities are not less a part of entrepreneurial behavior than explorative activities—with the decisive difference that they are rather under-estimated in debates on entrepreneurship. Insofar, we do not intend to re-conceptualize the established EO concept but to accompany it by a more comprehensive understanding based on entrepreneurship theory. This allows to consider empirical findings on the relationship between entrepreneurial orientation and performance measures as for the explorative facets of our understanding of entrepreneurship.

We define *entrepreneurship* in a *both explorative and exploitative manner* as the *integrated execution of the innovation, risk management, internal coordination and arbitrage function*. The two former functions are predominantly exploratory, the latter two exploitative in nature. The idea of this paper is to use these entrepreneurial functions as a starting point to re-conceptualize entrepreneurship and to empirically explore its impact on the internationalization process of established companies. Against this background, we raise two *research questions*. (1) How can we re-conceptualize the entrepreneurship to address all entrepreneurial challenges in value creation processes? (2) How does the entrepreneurship affect the performance of internationalization and the growth of the firm?

The article is structured as follows. The next section lays the theoretical foundations of this paper by developing entrepreneurship theory. In the follow-up section, we develop a conceptual model for the empirical study. The next section contains the empirical research methodology and the sample data. In the follow-up section, we present the empirical findings. This article ends with a discussion of the theoretical and empirical results in one section and their limitations as well as their implications for future research in the last section.

THEORETICAL FOUNDATIONS

One important stream of entrepreneurship theory of the last three centuries responds to the question of what functions an entrepreneur has to perform to remain successful and ensure organizational survival over time. The research on entrepreneurial functions goes back to the seminal work of Cantillon (1755) who considered the entrepreneur a person willing to take risks and manage uncertainty. Since then, many follow-up publications have enriched the initial thoughts and proposed additional entrepreneurial functions, as Hébert and Link (1988) outline in overview. However, the various concepts of the entrepreneurial functions differ significantly by the chosen focus. Most articles suggest that the execution of one particular function matters. According to Freiling (2008), we can characterize them as *mono-functional approaches*. Kirzner's (1973) arbitrage function is one example among others. *Meta-functional approaches*, by contrast, refer to a conglomerate that is made of various sub-functions. Casson (1982), for example, argues that the coordination function consists of three sub-functions: taking opportunities of coordination, making judgmental decisions, and market-making. The shift from mono-functional to meta-functional approaches indicates that the multitude of entrepreneurial challenges can hardly be described by a single function. In the end, this leads to *multi-functional approaches.* They respond to the heterogeneous managerial challenges. Barreto (1989) introduces a multi-functional catalogue by pointing to innovation (Schumpeter, 1934), arbitrage (Kirzner, 1973), coordination (Casson, 1982) and risk taking (Cantillon, 1755; Knight, 1921). However, the Barreto literature-based catalogue forms no cohesive framework.

We argue that multi-functional approaches should consist of entrepreneurial functions that are ideally mutually exclusive and collectively exhaustive and that are aligned within an overarching framework capturing all entrepreneurial challenges, a firm is confronted with. Freiling (2008; 2009) developed a system of four interrelated entrepreneurial functions. The idea of relating the execution of entrepreneurial functions to organizational development builds on Schneider (1987). Freiling (2008; 2009) distinguishes three aspects of organizational evolution: (1) the emergence and/or renewal of a system like a firm, (2) its protection from internal and external threats, and (3) the efficient and effective exploitation of the firm's potential. By extending the work of Barreto and Schneider, Freiling assigns four entrepreneurial functions to the three different aspects of organizational evolution. Since these aspects are relevant to the explanation of performance, we build on this multi-functional approach that we introduce in more detail below.

The *innovation function*, understood in terms of Schumpeter (1934), is instrumental for the first aspect of organization evolution: system emergence

and/or renewal. It explains how start-up firms emerge and how established firms renew themselves to stay ahead of competition. The execution of this function implies multiple modes of innovation: product, process, organizational or business model innovations. Once being aligned, the different modes of innovation may trigger processes of 'creative destruction' in the Schumpeterian sense. However, innovation activities are typically associated with risks. Firms need to protect their organizations from the possibly negative consequences of those risks. The *risk management function*, based on the broad understanding of Knight (1921), corresponds to the second aspect of organizational evolution: system protection. It includes identifying and evaluating potential risks, taking appropriate risks and safeguarding against them in case of need. Even if the innovation and risk management function are different tasks, they go hand in hand by *exploring* new business opportunities.

Exploration is necessary, but not sufficient to achieve sustainable impact. Firms need to tap the potential created by the explorative functions. This requires exploitation as the third aspect of organizational evolution. Two entrepreneurial functions refer to system exploitation and are mutually exclusive: the *coordination function*, in this understanding, focuses the *internal* potential of the firm whereas the *arbitrage function* addresses the *external* market potential. Notably, the coordination function differs from Casson's (1982) understanding by only addressing those coordination issues that refer to internal affairs of the firm. The coordination function has mainly two objectives. First, it includes setting up and orchestrating efficient value-added processes as well as allocating available resources. Secondly, the coordination function implies sense making activities enabling and motivating employees to fully unfold their capacities. This requires numerous efforts of training, mentoring, and motivating people inside the firm. Contrary to the coordination function, arbitrage focuses transactions in the market(s)— and therefore external affairs in connection with bargaining. Close to the understanding of Kirzner (1973), it consists of identifying and taking the chance of new business opportunities. Both activities are largely dependent on available market knowledge. When firms develop market knowledge and use their alertness, they can identify and seize new business opportunities more easily. In this sense, the arbitrage function exploits the sales potential created by former exploration activities, in particular by innovative moves.

What does this imply? The entrepreneurial functions are interrelated and form a cohesive whole. Continuously neglecting some or only one function will most likely lead to shrinking competitiveness and, finally, to bankruptcy: firms that do not focus on innovation may find themselves outpaced by the competition, particularly in volatile markets. Firms, that do

not execute the coordination and arbitrage function comprehensively, may be unable to exploit the potential enabled by innovation. The discussion of entrepreneurial functions thereby stresses the necessity of balancing explorative and exploitative activities. Hence, we define *entrepreneurship* here as the *integrated execution of both explorative (innovation and risk management) and exploitative (internal coordination and arbitrage) entrepreneurial functions*. This definition does not solely focus on start-ups and includes entrepreneurial activities within established organizations (Venkataraman, 1997; Shane and Venkataraman, 2000).

CONCEPTUAL MODEL

This section builds and discusses a conceptual model that analyzes the effect of entrepreneurship on the performance of internationalization and the growth of firms. As our theoretically-based conceptualization of entrepreneurial orientation differs substantially from existing ones and since we investigate a rather complex phenomenon in the Hayekian sense (Hayek, 1964), this model is of explorative nature. Even if the theoretical foundations suggest that all entrepreneurial functions have a positive impact on the organizational performance of firms, it is still part of ongoing research how well these functions jointly and individually influence the dependent variables. To the best of our knowledge, the new conceptualization of entrepreneurship and the interplay of its explorative and exploitative dimensions have never been empirically explored—neither in general nor particularly in the international context. We therefore believe that it is too early to test well-grounded hypotheses but to develop research propositions instead. Hence, we aim at advancing the measurement model of entrepreneurship and identifying general relationships between the new construct and the two dependent variables. In this respect, the conceptual model is a guideline for the empirical study.
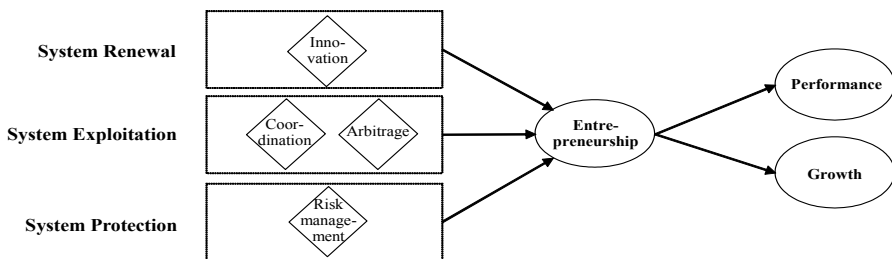

Figure 1. Conceptual model

Source: Own illustration based on Freiling (2008, p. 16).

Before examining the model empirically, we discuss it on the basis of existing literature. Previous strategy and entrepreneurship research suggests that the EO construct is positively related to firm performance (Lumpkin and Dess, 1996; Rauch et al., 2009). Most studies found empirical support for this (e.g. Zahra and Covin, 1995; Jantunen et al., 2005; Wiklund and Shepherd, 2005; Keh et al., 2007; De Clercq et al., 2010), while only a few studies found weak or no evidence at all for a positive relationship to performance (Slater and Narver, 2000; Lee et al., 2001; Frank et al., 2010). In their recent meta-analysis among 51 studies, Rauch et al. (2009) found a moderately strong correlation between EO and performance (r = .242). Similarly, both studies that examined the performance effect of EO in the international context identified a positive relationship (Dimitratos et al., 2004; Jantunen et al., 2005).

As for the individual dimensions, previous research on the entrepreneurial functions believes that each dimension has a positive performance impact (Lumpkin and Dess, 1996; Wiklund and Shepherd, 2005). However, as basically all dimensions show high inter-correlations with each other, nearly all existing studies treat EO as a joint construct (Covin and Slevin, 1989; Knight, 1997; Lee et al., 2001; Wiklund and Shepherd, 2003; Walter et al., 2006), i.e. the dimensions are regarded as reflective, interchangeable construct items, which makes it impossible to determine the performance impact for individual dimensions. The reflective specification is astonishing as arguments have been raised early that the dimensions of the EO construct may vary independently (Lumpkin and Dess, 1996; Kreiser et al., 2002). The dimensions of EO may be, but do not necessarily need to be, closely related. This is considered in our model.

As for the impact of entrepreneurship on the growth of international firms, several studies suggest that entrepreneurship positively influences sales growth (Covin et al., 2006; Mueller, 2007; Moreno and Casillas, 2008) but there are only very few comparable studies in international business research (e.g. Autio et al., 2000; Oviatt and McDougall, 2005). We believe it is too early to draw conclusions on the relationship between entrepreneurship and growth. Previous conceptualizations merely built on explorative dimensions. It is completely unknown how these new exploitative dimensions have an impact on growth. E.g., they may prevent firms from expanding too fast which may ultimately lead to a lower performance.

METHODS

Data

The empirical data used in this study are drawn from a joint research project on the internationalization process of firms and collected in 2004 and 2005. First, 15 in-depth structured interviews with company representatives were conducted to develop an understanding of the partly new constructs and to select a realistic set of items. Second, we used a structured questionnaire to generate the quantitative dataset.

The initial study population included all German manufacturing companies with a turnover from 50m. to 3bn. EUR. This business segment, as an in-between group between small and big business, seems to be particularly promising for this study as it contains established companies whose internal management and governance structures resemble those of SMEs and are likely to be rather homogeneous. For bigger companies with diversified business units it is virtually impossible to define one common corporate EO given their organizational complexity. Start-ups are deliberately not included in the initial study population due to our focus on established companies. In addition, we focus only on manufacturing companies as the international expansion is particularly important for this sector.

A total of 3,997 manufacturing companies with the respective target size have been identified in the German Hoppenstedt database (NACE code "D"). Like various researchers, we relied on single key informants in our data collection. The questionnaire was sent by postal mail to the CEO who is considered to be the best person to assess corporate strategies and practices (Zahra and Covin, 1995) and whose name was available in the Hoppenstedt database. It was left open to the addressee to let somebody else answer the questionnaire. Overall, 346 manufacturing companies responded to the survey, resulting in a response rate of 8.7%.

The quality of the sample data was analyzed following standard literature suggestions (Kline, 1998; Hair et al., 2006; Mullen et al., 2009). We tested the data representativeness by comparing the distribution of the turnover categories and industry sectors between study and sample population. Since the chi-square test of homogeneity does not show a significant difference between the two datasets, we concluded that our sample is representative for the overall study population (chi-square of 11.01 shows that there is no significant difference between sample and population). In addition, the non-response bias was assessed on all indicators by splitting all respondents into three groups based on their response and by comparing early and late respondents (first and third group). As the Mann-Whitney test does not

identify any significant differences between both groups, we concluded that our sample was not biased (Armstrong and Overton, 1977). We can also assume based on the Kolmogorov-Smirnov test that the data do not fully show a normal distribution (Hair et al., 2006). We thus tried to use methods in our data analysis that do not require a dataset following a normal distribution. Finally, the dataset is checked for missing data. 5.7% of all data points are missing; however, no systematic missing pattern can be identified. Missing data can thus be estimated by means of multiple imputation (Kline, 1998).

Measure development

Entrepreneurship (independent variable)

Entrepreneurship is conceptualized as described above. The new conceptualization requires the development of a specific measurement approach. This approach partly builds on prior conceptualizations of sub-constructs whenever possible. All indicators are documented in the Tables 1-4. There is a detailed account of references from which we derived existing items. As we used data from a joint research project, we take into account that this approach may lead to limitations in the items selection and may compromise the content validity of constructs. All indicators are subjective and follow a 5-point Likert scale.

Innovativeness is an important facet of existing entrepreneurship measures. The available items mainly focus product innovations. Given the wider perspective, we added new items on process and organizational innovations. In addition to the scale of innovativeness, we focus on internal factors for innovativeness as well: the resources allocated for innovation and the willingness of the top management to experiment (cf. Table 1).

Table 1. Items of the innovation dimension (translated from German by the authors)

Code	Items
INNOV01	Our firm has sufficient resources to develop new products and processes.
INNOV02	Our firm has sufficient technological capabilities to develop new products and processes.
INNOV03	Our firm has sufficient management capabilities to develop new products and processes.
INNOV04	Our firm continuously tests new international market entry forms (e.g. joint venture).
INNOV05	Our firm continuously tests new ideas in the internationalization of new functions (e.g. R&D).
INNOV06	Our firm continuously tests new ideas in the internationalization of new countries.
INNOV07	Our top management encourages employees to develop new ideas on strategies and organizational processes of the internationalization.
INNOV08	Our top management openly discusses new ideas on the internationalization with employees.

As for the arbitrage function, we chose a set of items similar to what other papers call 'proactiveness' (Covin and Slevin, 1989; Jantunen et al., 2005) which is close to Kirzner's (19723) alertness as core of arbitrage. However, our set is more comprehensive compared to the typical items in literature (cf. Table 2). To discover or even shape business opportunities, firms have to be alert to customer trends and competitive forces in international markets. Market knowledge is not only important for identifying business opportunities but also for engaging in efficient bargaining processes that require an understanding of local supply and demand conditions. Therefore, most items measure the willingness to observe market trends and competitive behavior. In addition, another item measures top management's commitment to continue internationalization since the arbitrage function is also about the willingness to seize upcoming market opportunities.

Table 2. Items of the arbitrage dimension (translated from German by the authors)

Code	Items
ARBIT01	Our firm strives to expand geographically.
ARBIT02	There are employees that observe international market trends.
ARBIT03	Our firm frequently conducts a customer survey to identify customer needs.
ARBIT04	Our firm regularly measures the customer satisfaction level.
ARBIT05	Our firm intensely uses CRM.
ARBIT06	Our firm is always up to date when competitors use new internationalization forms.
ARBIT07	Our firm is always up to date when competitors internationalize new functions.
ARBIT08	Our firm is always up to date when competitors expand to new countries.

As the coordination function was not yet part of conceptualizations, we derive items from the theoretical understanding of the coordination function. As most firms have locations around the world, they have to align internal activities and to share knowledge for a smoothly running value-added process and knowledge exploitation (Gupta and Govindarajan, 2000). Several items concern the closeness of communication between different hierarchical levels and teams, the diversity of new teams, and the extent to which key findings from former projects are documented. In addition, firms need to have a professional human resource management to exploit their internal potential. Further items are related to personnel development, training and incentive schemes of employees (cf. Table 3).

Table 3. Items of coordination dimension (translated from German by the authors)

Code	Items
COOR01	There is a regular exchange of ideas between employees of different countries (e.g. US, China)
COOR02	There is a regular exchange of ideas between employees in the headquarters and abroad.
COOR03	There is a regular exchange of ideas between the top management and team members responsible for internationalization projects.
COOR04	Team members for new internationalization projects come from different countries.
COOR05	Team members for new internationalization projects come from different functions.
COOR06	Managers with experience in managing internationalization projects are part of new project teams.
COOR07	Managers with experience in the respective target country are part of new project teams.
COOR08	Managers with experience in respective internationalization forms are part of new project teams.
COOR09	Managers with experience in the internationalization of their function are part of new project teams.
COOR10	Project teams keep records of challenges and key learnings after each internationalization project.
COOR11	Top management has a high proportion of performance-related pay.
COOR12	Executive staff (e.g. head of department) has a high proportion of performance-related pay.
COOR13	White-collar employees receive a lot of advanced training each year.
COOR14	Blue-collar worker receive a lot of advance training each year.

Most papers assume that risk taking is one important dimension of entrepreneurial orientation (Miller and Friesen, 1982; Covin and Slevin, 1989; Wiklund and Shepherd, 2005). Based on the theoretical foundations, the risk management function has a broader perspective here: it is not only about taking risks, but also about identifying, evaluating, monitoring and hedging risks (Williams, 1996). What is more, risks can only be assessed against the backdrop of return. We therefore ask whether the top management constantly monitors performance of international operations, takes risks into account in performance measurement and analyzes the reasons for not achieving planned goals (cf. Table 4).

Table 4. Items of risk management dimension (translated from German by the authors)

Code	Items
RISK01	Our firm has a solid understanding about the scale and the management options of our biggest risks.
RISK02	Our firm consolidates all risks across our corporate group.
RISK03	Our firm regularly conducts sensitivity analyses of our risks.
RISK04	Our firm systematically takes risks.
RISK05	Our firm has a contingency plan how to deal with risks.
RISK06	Our firm takes the risks assumed into account when monitoring performance.
RISK07	Our firm measures the performance of the internationalization based on KPIs.
RISK08	Our firm analyses in detail the reasons for not achieving performance objectives.

The second step of the development of measures is to assess the dimensionality of the measurement model. In accordance with literature (Lumpkin and Dess, 1996), EO is considered a multidimensional construct comprising four dimensions. Given the new development of the measurement model with a number of new items, we have to assess whether each dimension is uni- or multidimensional. Based on a KMO test, we use a principal component analysis with Varimax rotation to assess the dimensionality of each dimension. All items are evaluated following standard reliability criteria (Nunally, 1978; Hair et al., 2006). First, the factor loading of each item should be above 0.4. Second, if one item loads on more than one factor, the difference between both factor loadings should be more than 0.1. In addition, all factors are evaluated for internal consistency using Cronbach's alpha as a reliability criterion with 0.6 as a cut-off point.

In total, the principal component analyses identify 13 sub-factors for all four dimensions. The three innovation factors can be interpreted as the ability to innovate (INNOFCT1, α=0.816), the willingness to experiment (INNOFCT2, α=0.779) and the firm's innovation culture (INNOFCT3, α=0.760). The three arbitrage factors are taken as the competitive orientation (ARBIFCT1, α=0.668), the customer orientation (ARBIFCT2, α=0.839) and the self-motivation to internationalize (ARBIFCT3, one-item factor). The coordination items comprise four factors: alignment orientation (COORFCT1, α=0.830), experience exploitation (COORFCT2, α=0.880), incentive orientation (COORFCT3, α=0.885) and training orientation (COORFCT4, α=0.907). Finally, the three risk factors can be understood as risk comprehension (RISKFCT1, α=0.714), risk taking (RISKFCT2, α=0.653) and performance monitoring (RISKFCT3, α=0.782). All items and factors fulfill the above-mentioned quality criteria. The KMO values equally as the factor loadings of all items, the

eigenvalues, and the variance explained are reported in the tables (cf. Table 5-8).

Table 5. Principal component analysis of innovation dimension

Item	Factor 1 Ability to innovate (INNOFCT1)	Factor 2 Willingness to experiment (INNOFCT2)	Factor 3 Innovation culture (INNOFCT 3)
INNOV01			
INNOV02			0.226
INNOV03			
INNOV04	0.859	0.883	
INNOV05	0.844	0.865	
INNOV06	0.819	0.644	0.474
INNOV07			0.870
INNOV08		0.245	0.837
Eigen values			
Variance	3.202	1.770	1.025
explained	40.030	22.121	12.811
Cronbach's α	0.816	0.779	0.760
KMO test	0.784		

Table 6. Principal component analysis of arbitrage dimension

Item	Factor 1 Competitive orientation (ARBIFCT1)	Factor 2 Customer orientation (ARBIFCT2)	Factor 3 Internationalization motivation (ARBIFCT3)
ARBIT06			
ARBIT07			
ARBIT08	**0.915**		
ARBIT02	**0.911**		0.391
ARBIT04	**0.842**	**0.849**	
ARBIT05	**0.557**	**0.794**	
ARBIT03		**0.660**	-0.246
ARBIT01			**0.928**
Eigen values			
Variance	2.959	1.625	1.104
explained	36.985	20.311	13.796
Cronbach's α	0.839	0.668	-
KMO test		0.745	

Table 7. Principal component analysis of coordination function

Item	Factor 1 Alignment orientation (COORFCT1)	Factor 2 Experience exploitation (COORFCT2)	Factor 2 Incentive orientation (COORFCT3)	Factor 3 Training orientation (COORFCT4)
COOR03				
COOR02				
COOR01				
COOR05	**0.798**		0.216	
COOR04	**0.794**		0.257	
COOR10	**0.696**			
COOR06	**0.686**			
COOR08	**0.657**			
COOR09	**0.652**	**0.859**		
COOR07		**0.848**		
COOR11	0.250	**0.832**		
COOR12		**0.815**	**0.933**	
COOR14			**0.904**	**0.949**
COOR13				**0.944**
Eigen values	4.533	2.246	1.702	1.466
Variance explained	32.376	16.046	12.157	10.472
Cronbach's α	0.830	0.880	0.885	0.907
KMO test		0.799		

Table 8. Principal component analysis of risk management dimension

Item	Factor 1 Risk comprehension (RISKFCT1)	Factor 2 Risk taking (RISKFCT2)	Factor 3 Performance orientation (RISKFCT3)
RISK02			
RISK01	**0.850**		
RISK03	**0.811**		
RISK04	**0.573**	0.476	
RISK06		**0.866**	
RISK05	0.358	**0.684**	
RISK08	0.401	**0.531**	**0.902**
RISK07			**0.891**
Eigen values	3.069	1.461	1.010
Variance explained	38.358	18.267	12.623
Cronbach's α	0.714	0.653	0.782
KMO test	0.771		

The previous principal component analyses reveal that our conceptualization of entrepreneurial orientation represents a third-order construct. So it is necessary to analyze the corresponding relationships between all construct levels. Standard guidelines recommended by methodology literature are used to determine whether the respective measurement items are formative or reflective (Fornell and Bookstein, 1982; Bollen and Lennox, 1991; Jarvis et al., 2003; MacKenzie et al., 2005). The first-order constructs (e.g. ability to innovate) are regarded as reflective models. First, the items are manifestations of the construct; the direction of causality is from the construct to the items. Second, the constructs resulting as factors from principal component analyses have necessarily items that co-vary with each other and that are, thus, interchangeable. Dropping one of the indicators would not alter the meaning of the factor. By contrast, the relationships between first- and second-order constructs as well as between second- and third-order construct are considered to be formative. It can be assumed that all first- and second-order constructs define characteristics of the higher order construct. This should be illustrated for the third-order construct. The four dimensions of entrepreneurial orientation seem to jointly determine the conceptual meaning of entrepreneurial orientation. Losing one of the dimensions would inevitably alter the meaning of the underlying construct. Figure 2 depicts the empirically based conceptualization used in this study.
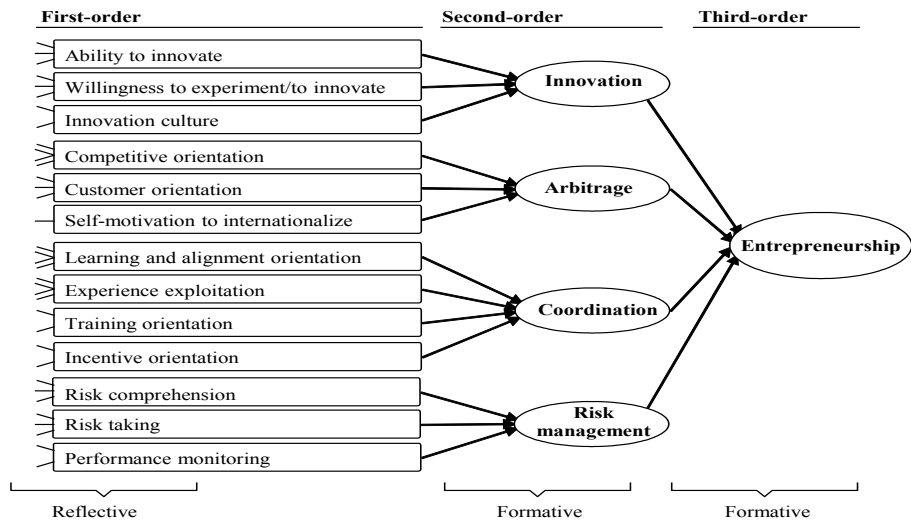

Figure 2. Measurement model of entrepreneurship

Performance (dependent variable)

Measuring the performance of international operations is particularly complex (Venkatraman and Ramanujam, 1986; Hult et al., 2008). We assess the performance of firms in a *subjective* and *relative* manner. Respondents were asked to compare the success of their international activities with their direct competitors during the previous five years and indicate their level of satisfaction on five indicators of performance. The reasons for using primary subjective and relative data in performance measurement are twofold. First, this method of measuring performance is most suitable to the specific nature of internationalization processes. It explicitly tries to capture the overall effectiveness of the internationalization process and to avoid too narrow a focus on export performance that can be observed in many previous papers (Cavusgil and Zhu, 1994; Knight, 2001; Rasheed, 2005). Second, there are practical research reasons for this measurement method. Using quantitative, presumably financial data would have been preferable to validate the qualitative data (Hult et al., 2008). However, this was not possible for our sample. Financial data are likely to be unavailable or unreliable due to accounting-based distortions. Most firms in our sample are privately held and secondary data cannot be accessed. In addition, most managers from these firms would be reluctant to provide secondary data due to competitive and proprietary reasons. All indicators are documented in Table 9.

Table 9. Items of performance (translated from German by the authors)

Code	Items
PERF01	Compared to our direct competitors over the last five years, our firm … … has chosen more successful market entry forms abroad.
PERF02	… has chosen more promising countries to entry abroad.
PERF03	… was more successful in internationalizing value chain functions.
PERF04	… was quicker to learn from previous internationalization experience.
PERF05	… has better adapted its internationalization process to new countries.

Growth of international firms (dependent variable)

The second dependent variable, growth, is considered in studies on 'born globals' (Bell *et al.*, 2001; Zahra et al., 2003); however, their understanding of the variable focuses only on new ventures. Oviatt and McDougall (2005) refer to three aspects. First, the time span between the foundation of a firm and its first foreign market entry; second, the pace with which a firm increases its country scope (e.g. number of entries into foreign markets and into psychologically distant regions); third, the time in which the firm increases its international commitment (e.g. revenues as a percentage of overall turnover).

We build on this conceptualization, but we leave out the first aspect 'time to initial entry' that is not relevant to the established firms in our sample. The four indicators are documented in Table 10.

Table 10. Items of growth of international companies

Code	Items
GRO01	Number of new foreign market entries over the last 5 years
GRO02	Number of entries into new regions (selection of 9 regions: Western Europe, Eastern Europe, North America, Japan, China, India, Middle East, South-East-Asia/Australia, Latin America)
GRO03	Level of change for the percentage of foreign employees
GRO04	Level of change for the percentage of foreign revenue

Analysis

The data analysis follows a two-step approach. First, we assess and analyze the measurement models using standard quality criteria (Fornell and Larcker, 1981; Hulland, 1999; Diamantopoulos and Winklhofer, 2001; Jarvis et al., 2003; Petter et al., 2007). For reflective constructs, we use item reliability, internal consistency, and discriminant validity as quality criteria. The factor loadings should be significant and above 0.7. Items are to be eliminated if their factor loadings are less than 0.4. The internal consistency is measured by the composite reliability (CR>0.7), the average variance explained (AVE>0.5), and Cronbach's Alpha (α>0.6 as absolute cut-off criterion, 0.7 as desired minimum level). Discriminant validity can be assumed if the average variance explained is higher than its squared correlations with other construct scores. Formative constructs require a different approach: We assess construct validity and reliability by examining the item loadings and the variance inflation factor (VIF) for multicollinearity. Non-significant items may be eliminated, but should be kept if necessary to preserve the content validity (Bollen and Lennox, 1991). Items with a variance inflation factor of more than 3.3 are to be eliminated (Diamantopoulos and Winklhofer, 2001; Diamantopoulos and Siguaw, 2006). The nomological validity can be tested by analyzing the path coefficient of the formative construct to the endogenous reflective constructs via structure equation modeling.

Specifying and assessing a multidimensional construct like entrepreneurship requires additional steps upfront. We conduct a principal component analysis for each dimension and use the factor scores as items for the dimensions (second-order constructs). Following the two-step approach to identify higher-order formative constructs (Agrawal and Karahanna, 2000; Edwards, 2001), we take the scores of all dimensions to use it in

a second measurement model as formative indicators of the entrepreneurial orientation construct.

Second, we explore the causal effects between all latent variables by using structural equation modeling. We opted for the partial least squares (PLS) method (Fornell and Larcker, 1981; Fornell and Bookstein, 1982; Hulland, 1999) rather than the better known covariance-based structural equation modeling (CBSEM) approach that is used by popular software programs like LISREL, EQS or AMOS. The PLS method appears more appropriate here for several reasons. Even if PLS can be used for theory confirmation as well, it is especially advantageous in the initial development and assessment phase of theory building (Fornell and Bookstein, 1982). In addition, the PLS method can better accommodate formative latent variables than the CBSEM approach (Diamantopoulos and Winklhofer, 2001) and is more robust since it does not require normally distributed data (Fornell and Larcker, 1981). We use SPSS for the principal component analysis and SmartPLS (Ringle *et al.*, 2005) for the structural equation modeling.

RESULTS

First, all measurement models for latent variables are to be validated. As for entrepreneurship, we use the factor scores resulting from the principal component analyses as measurement items for the four dimensions. All items have a significant factor loadings and have a VIF score of less than 3.3 (cf. Table 5-8, 10, 11).

Table 11. Quality criteria for performance (reflective)

Latent variable	Items	Factor loadings	Significance	
			T-Value	Level
Performance (AVE=0.658; R^2=0.390; α=0.869)	PERF01	0.806	31.251	****
	PERF02	0.830	38.373	****
	PERF03	0.753	26.073	****
	PERF04	0.793	32.875	****
	PERF05	0.868	56.526	****

Significance level (one-tail): * p<0.1; ** p<0.05; *** p<0.01; **** p<0.001.

Sufficient construct validity and reliability can, thus, be assumed for all dimensions. To specify the measurement model of entrepreneurship, we take the scores of all dimensions to use it as formative indicators of entrepreneurship in another structure model. Again, all items have significant factor loadings and sufficiently small VIF scores (cf. Table 12).
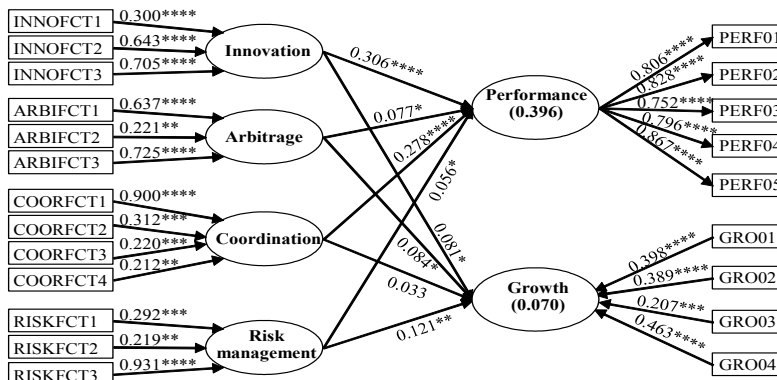
The first endogenous construct, the performance of internationalization, is a reflective construct. All items have very high and significant factor loadings, suggesting that item reliability for this measurement model is high (cf. Table 11). All quality criteria for internal consistency (CR=0.906; AVE=0.658; α=0.869) and discriminant validity (AVE=0.658 vs. 0.341 for the highest squared correlation with another latent variable) are equally fulfilled. The second endogenous construct, growth, is a formative construct. Construct validity and reliability can be assumed since all items have significant factor loadings and small VIF scores (cf. Table 12).

Table 12. Quality criteria for growth (formative)

Latent variable	Items	Factor weights	Significance	
			T-Value	Level
Growth	GRO01	0.398	4.873	****
	GRO02	0.388	3.823	****
	GRO03	0.208	2.402	***
	GRO04	0.463	5.821	****

Significance level (one-tail): * p<0.1; ** p<0.05; *** p<0.01; **** p<0.001.
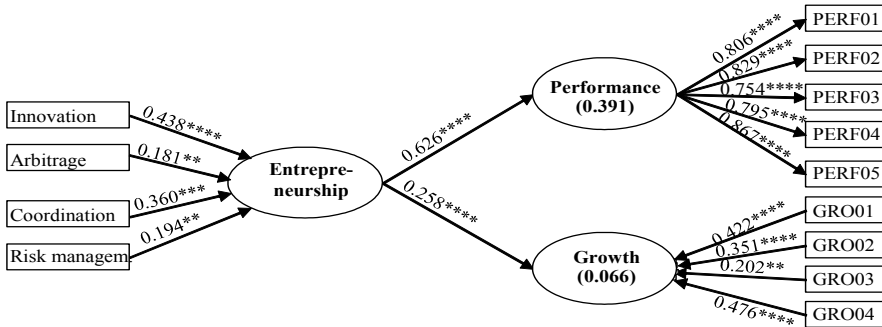
Second, we analyze the effects in two structure models. We start with analyzing how the dimensions of entrepreneurship influence the dependent variables. The structure model (cf. Figure 3 and 4) shows that all dimensions of entrepreneurship construct positively influence the firm's performance. This holds particularly for the innovation and coordination dimension whose path coefficients and significance levels stand out. Similarly, all dimensions apart from coordination positively influence the growth, although only in a weak manner.

Significance level (one-tail): * p<0.1; ** p<0.05; *** p<0.01; **** p<0.001

Figure 3. Factor loadings

Entrepreneurship as an aggregate construct has a strong and positive influence on performance. First, it displays a highly positive path coefficient of 0.624, which is significant at the 0.001 level. Second, it explains 39% of the variance of the dependent variable, measured by R^2. The empirical results suggest that entrepreneurship is a major performance driver. This does not apply to the second dependent variable, growth. Entrepreneurship positively influences growth (r=0.258), however it may only explain a tiny portion of the overall variance (R^2=0.066).

Significance level (one-tail): * p<0.1; ** p<0.05; *** p<0.01; **** p<0.001

Figure 4. Entrepreneurial functions, performance and growth of international firms

DISCUSSION

The long tradition of entrepreneurship theory provides us with entrepreneurial functions as backbones of entrepreneurial behavior. However, by now little has been done to integrate these findings in a multi-functional system of entrepreneurship. Building on a few most recent publications of the conceptual kind (e.g. Freiling, 2008), we introduce a managerial framework that brings together the different aspects of the entrepreneurial functions.

The construct of EO captures methods, practices, and decision-making styles managers tend to use to act entrepreneurially (Lumpkin and Dess, 1996; Dess and Lumpkin, 2005). We use our theoretically-based understanding of entrepreneurship and, based on this, we develop a new conceptualization of entrepreneurship that reflects a broader perspective than existing definitions. When analyzing EO, existing entrepreneurship literature mainly focuses on explorative activities like innovativeness, proactiveness and risk-taking (Miller, 1983; Covin and Slevin, 1991; Zahra and Covin, 1995; Wiklund and Shepherd, 2003; Keh et al., 2007; De Clercq et al., 2010). We consider the exploitative dimensions of entrepreneurship previously raised by entrepreneurship scholars (e.g. Kirzner, 1973) explicitly in our conceptualization.

Besides this and most notably, we empirically show that the broadly conceptualized entrepreneurship construct is a very important driver of the firms' performance *(research proposition P1)* and that all dimensions—irrespective of their explorative or exploitative nature—contribute to this *(P2)*. Entrepreneurship explains 39% of the overall international performance (r=.624). As for the second dependent variable, the entrepreneurship construct shows only a relatively small effect on growth (r=.258). Both the surprisingly high effect of entrepreneurship on performance and the relatively small effect on growth are new to entrepreneurship research. The reason for this may be the broader conceptualization of entrepreneurship. The performance impact of entrepreneurship may be higher than in other studies due to the additional exploitative dimensions. There are two reasons. First, the exploitative dimensions, particularly the coordination dimension with its focus on learning, alignment and experience exploitation, have a positive performance effect themselves. This is consistent with other studies that postulate that learning orientation maximizes the effect of EO on performance (Wang, 2008). When firms become bigger and more complex, the exploitative activities seem to become more important. However, this does not mean that the explorative activities like experimenting and innovating lose their importance. The innovation dimension has an equally high performance effect in our empirical study. This confirms what several studies showed for established companies (Miller, 1994). Second, the exploitative dimensions may have a positive impact on performance as well by avoiding a one-sided focus on exploration. Too much exploration may be risky and unilaterally promote growth at the cost of return. Tang et al. (2008) and Yamada and Eshima (2009) suggest that too much EO may have a negative impact on performance. Based on empirical results, they believe that the relationship between EO and performance takes an inverted u-shape form. Similarly, Zahra and Garvis (2000) argue that the EO predominantly promotes growth and only to a less extent performance. Our broader conceptualization balances exploration and exploitation, thereby bringing along the positive effects of exploitative activities (e.g. learning and alignment) and avoiding focusing solely on exploration *(P3)*.

As for growth, it is surprising to see that the effect of entrepreneurship is that low. Again, the reason for this may be the new, broader conceptualization as the dimensions differ in their effect on growth: the explorative dimensions tend to foster growth, which is consistent with many studies (Zahra and Garvis, 2000; Mueller, 2007). The exploitative dimensions, by contrast, are rather indifferent in their effect (*P4,* cf. Table 13 for the set of propositions).

Table 13. Overview of research propositions

Number	Research Propositions
P1	Entrepreneurship has a positive impact on firm's performance.
P2	Both explorative and exploitative dimensions have a positive impact on performance.
P3	A balanced proportion of exploration and exploitation strengthens the positive impact of entrepreneurship on performance and growth.
P4	Entrepreneurship has a positive impact on firm's growth but to a less extent compared to performance.

To sum up, what can entrepreneurship research learn from this study? This study shows that a broadly conceptualized entrepreneurship construct may explain nearly half of the performance of established firms. Entrepreneurial processes cannot only be associated with new firms, but are important for established firms as well. Dess and Lumpkin (2005) stress that EO may stimulate effective corporate entrepreneurship. However, there may be a different understanding in existing research on what exactly the terms entrepreneurial processes and EO consist of. We argue that entrepreneurship research tends to focus too much on explorative activities and to neglect exploitative activities, which are equally important for the overall success and long-term value-creation. This view is supported by the above-average performance impact of the broadly defined entrepreneurial orientation construct in our empirical study.

LIMITATIONS AND IMPLICATIONS
FOR FUTURE RESEARCH

This study has certain limitations. First of all, because this field of research is in its early stages, aspects of the research design remain explorative. Our findings should be tested in further explorative and exploitative empirical studies.

As the entrepreneurship construct has to be re-conceptualized, this study uses many – mostly new – items. As we used data from a joint research project, there are limitations in the items selection which may affect the content validity of constructs. While higher-order constructs provide the ability to increase granularity and detailed understanding on different aspects of the construct, the number of items needed increases the complexity of the analysis (Petter et al., 2007). Further research may build on our results and strive to reduce model complexity by using less items and avoiding third-order constructs ('model parsimony'). In this context, future research could improve the measurement approach of the core constructs. The given dataset

of this study was only to a limited extent adaptable to the specific needs of measuring entrepreneurial functions.

The use of cross-sectional data could be seen as an additional limitation of this study. Similar to recent existing entrepreneurship studies (Jantunen *et al.*, 2005), we analyzed the relationships between all constructs over a period of five years. However, a longitudinal study would be even more desirable given the fact that there may be a time lag in the effect of entrepreneurship on performance. In addition, it is still unclear whether entrepreneurship or individual dimensions change over a firm's lifecycle and, if so, what implications this might have for the performance. The use of subjective, potentially biased quantitative data is another limitation of this study, which could not be avoided due to the nature of the companies in the sample. Other studies analyzing companies with publicly available information should strive to use quantitative data to further validate the qualitative self-assessment of companies. Moreover, the study is country dependent and it is open whether the results hold for other countries as well.

Some studies suggest that the effect of EO is dependent on internal or external moderating factors (Wiklund and Shepherd, 2005; Rauch et al., 2009; De Clercq et al., 2010; Frank et al., 2010). Future research may indicate whether the effect of the newly formed entrepreneurship construct varies in a similar way. Our first analyses indicate that the new construct is much more resilient to moderating factors than existing constructs seem to be.

The interaction between entrepreneurship and international business is still a young research field. This article helps to shed light on the explanatory power entrepreneurship theory may have for international business. We hope that others follow up on our exploratory article and help initiating further research steps that ultimately lead to the establishment of a new school of thought within international business research (Forsgren, 2008) that is based on entrepreneurship theory. We thereby hope to stimulate further research on the nexus of entrepreneurship and international business research.

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Abstrakt (in Polish)

Orientacja przedsiębiorcza stała się ostatnio podstawowym zagadnieniem w literaturze zajmującej się przedsiębiorczością. Jednakże istniejące definicje orientacji przedsiębiorczej głównie skupiając się na zachowaniach eksplorujących, takich jak innowacyjność, pro-aktywność oraz podejmowanie ryzyka. W oparciu o bogatą tradycję badań nad funkcjami przedsiębiorczości, twierdzimy, że czynności eksploatacyjne stanowią takie same wysiłki przedsiębiorcze jak czynności eksplorujące. Opierając się na takim rozumieniu, rozwijamy szerszą konceptualizację konstrukcji orientacji przedsiębiorczej. W empirycznym badaniu obejmującym 346 firm badamy jej wpływ na wyniki osiągane przez internacjonalizację. Orientacja przedsiębiorcza w swej szerokiej konceptualizacji pozytywnie wpływa na wyniki międzynarodowe, a efekt ten jest zdecydowanie silniejszy niż efekty zaobserwowane w dotychczasowych badaniach. Dzieje się tak, ponieważ obydwa wymiary: eksplorujący i eksploatujący – mają znaczenie i w równym stopniu napędzają międzynarodowe wyniki. Orientacja przedsiębiorcza pozytywnie wpływa na wzrost międzynarodowych czynności. Jednakże jej efekt jest dużo mniejszy. Wymiar eksplorujący wydaje się powodować międzynarodowy wzrost, natomiast nie zaobserwowano żadnych efektów wymiaru eksploatującego.

Słowa kluczowe: *orientacja przedsiębiorcza, funkcje przedsiębiorcze, międzynarodowe wyniki, międzynarodowy wzrost, eksploracja, eksploatacja.*

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