Family ownership, innovation and other context variables as determinants of sustainable entrepreneurship in SMEs: An empirical research study

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Abstract:
This study focuses on the prediction of sustainable entrepreneurship, that is, behavior which demonstrates a firm's concern about the natural environment, especially among small and medium sized enterprises (SMEs). Using a random sample of 382 Dutch SMEs we examine how organizational context (firm sector, size, ownership structure) and innovativeness influence SMEs engagement in sustainable entrepreneurship. Results show that firms from more "tangible" sectors (manufacturing, construction and agriculture), larger firms, family-owned firms, and firms with a more innovative orientation are more likely to report positive activity related to the natural environment. The paper discusses implications of the obtained results.

Key words: sustainable entrepreneurship, SMEs, family firms, innovativeness

Introduction

This study focuses on the prediction of sustainable entrepreneurship. Sustainable entrepreneurship, as defined by Masurel (2007, p. 191), is "leading the firm in making balanced choices between profit, people and planet". In this study we define sustainable entrepreneurship more simply however, as behavior which demonstrates a firm's engagement in environmentally friendly actions or other concern about the natural environment. In spite of the growing interest in the topic of sustainable entrepreneurship (Sarbutts, 2003), most of the extant empirical literature on sustainable entrepreneurship focuses on large corporations rather than small and medium sized enterprises (SMEs) (Fuller and Tian, 2006; Jenkins, 2006, 2004; Perrini, 2006; Perrini, Russo and Tencati, 2007; Spence and Schmidpeter, 2003; Williamson, Lynch-Wood and Ramsay, 2006). For that reason, there is a need for further understanding of the topic in SMEs, which is the focus of the present research.

Since the impact of SMEs on the economy of many European countries is considered to be significant (UNIDO, 2002) and their aggregate influence on the environment can be considered as significant (Williamson et al., 2006), it seems to be inappropriate to ignore the role of SMEs in sustainable entrepreneurship. However, as Jenkins (2004) notices, SMEs are not miniature versions of large firms, and indeed authors name a range of factors (e.g. access to the resources, decision-making process, set of values and norms) that differentiate SMEs from large corporations (see Cambra-Fierro, Hart and Polo-Redondo, 2008). Due to those differences one cannot simply scale down the practices prescribed for large corporations to the context of SMEs (Williamson et al., 2006).

There is limited empirical research that actually tests some of the assumptions, furthermore, regarding why some companies pay attention to the environment whereas others do not (Gadenne, Kennedy and McKeiver, 2009; Jamali, Zanhour and Keshinian, 2009). With the growing concern about climate change, and how to get firms to cooperate, this is also becoming a topic of increasing interest as a practical matter. The results obtained from this research are thus relevant to both academics and practitioners. The research helps us to understand some of the circumstances under which businesses are likely to engage in environmentally friendly actions.

In this paper we examine factors affecting environmental performance of SMEs. Several factors have been pointed out in previous research. For instance, Cambra-Fierro et al. (2008) propose the following variables as relevant: legal context, management's personal values, sociocultural context, market forces, ownership management structure, and industry sector characteristics. Gadenne et al. (2009) confirm the importance of the legal context but do not find effects of management's personal beliefs and values on the environmental performance of SMEs. However,

overall research on the factors relevant for SMEs is quite limited. Thus the primary objective of our research is to augment our understanding of which factors influence sustainable entrepreneurship behaviors. In particular, the following question is addressed:

How do aspects of organizational context (company sector, size, ownership structure) and innovativeness influence an SME's engagement in sustainable entrepreneurship?

The growing interest in sustainable entrepreneurship since the late twentieth century is probably stimulated by the increase in the number of large corporations since the 1970's. For years the primary objective of these corporations was economic growth. Little attention was paid to the harm that was caused to the environment. During this period the media and information and communication technologies made corporate activities more transparent. Societal discontent about lack of attention to environmental issues eventually landed on more and more corporate agenda, since inattention increasingly created the possibility of causing serious damage to a company's reputation. Also during this period, consumers, citizens and investors developed new concerns and expectations regarding social disadvantages caused by the negative effects of business on the environment. These groups received assistance from several non-governmental international organizations such as Amnesty International or Fair Trade as well as national organizations (for instance, in the Netherlands, the *Consumentenbond* [Consumer Association] and *Stichting Natuur en Milieu* [Society for Nature and Environment]).

Though there are many definitions of corporate social responsibility (CSR), one definition applied by policy-makers in the European Union (EU) defines CSR as "a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis" (European Commission, 2001, p. 6). Reviewing our definition of sustainable entrepreneurship and CSR we can see that they are

closely related. In particular, environment is an important pillar of both concepts (Cambra-Fierro et al., 2008; Williamson et al., 2006).

Rationale and Hypotheses

Firm sector and sustainable entrepreneurship

Firm sector is the first of the organizational context variables to be considered. In this study we compare the sustainable behavior of firms from three types of industries: tangible products sector, tangible service and intangible service industry. The base of the distinction is the degree of tangibility of the products and processes of the firm (Brand and Dam, 2009). The first type of industry, the tangible products sector, includes such sectors as agriculture, the manufacturing and construction. The tangible services sector encompasses firms from retail and repair as well as catering and hospitality. Finally, firms operating in the transport and communication, financial services, business services and other services sectors represent the intangible service industry. It is hypothesized that in the tangible products sector firms might have a greater opportunity to behave in a sustainable manner given the potential for pollution in these sectors compared to the other two sectors. The production process of tangible goods requires more raw materials and generates more waste than is the case in the tangible and intangible service sectors. Moreover, firms in the tangible products sector might be more involved in sustainable aspects, because of requirements set by law and/or to obtain certain quality certifications (e.g. ISO 14001). In the empirical examination of the CSR behavior of 645 Dutch SMEs, Brand and Dam (2009) indeed find a positive relationship between the degree of tangibility and environmentally friendly behavior of the firm. This is also in line with the findings of Perrini et al. (2007) who find that firms in the manufacturing sector are more often involved in environmental management than firms in other sectors. Thus, our first hypothesis is as follows:

H1: SMEs from more tangible sectors (especially manufacturing, construction and agriculture firms) are more likely to report sustainable entrepreneurship behaviors.

Firm size and sustainable entrepreneurship

Firm size is the second of the organizational context variables included in this study. In the literature it is often suggested that larger firms are more likely to be engaged in sustainable behavior than smaller firms (Lepoutre and Heene, 2006; Perrini et al., 2007). Empirical evidence from a study by Perrini et al. (2007) is in line with this expectation for Italian firms. Typical arguments for this view are (i) that, in line with the resource-based view of the firm, larger firms typically have more stable resources (manpower and finances) and thus are expected, other aspects being equal, to be more likely to exhibit sustainable behavior (Lepoutre and Heene, 2006; Mandl, Dorr and El-Chichakli, 2007) and (ii) that larger companies are more exposed to the public and thus their reputation and even their survival might be at stake when irresponsible behavior is exposed. Our second hypothesis is stated as follows:

H2: SMEs that are larger are more likely to report sustainable entrepreneurship behaviors.

Family ownership and sustainable entrepreneurship

The last contextual variable examined in this study is family ownership. In a response to the Green Paper (EC, 2001), published by the European Commission to promote a European Framework for corporate social responsibility, the European Group of Owner-Managed and Family Enterprises (GEEF) states that sustainable entrepreneurship is a natural part of the essential values of family businesses (GEEF, 2003a). Furthermore, GEEF underlines that family firms "have a strong enterprise ethic, uniting a long-term strategy for the business with an awareness of environmental and social responsibility" (GEEF, 2003b, p. 3) and that "there is usually a strong local commitment, so these businesses make a substantial contribution to the

economic, social and environmental quality of the communities where they are established" (GEEF, 2003b, p. 3). Thus, the GEEF report reflects a common belief that family businesses are more socially responsible, on average, than nonfamily businesses, since they often combine economic objectives with the traditional roles of the family social unit (Donnelley, 1964; Litz and Stewart, 2000). Other researchers also suggest that in the family business context, pursuing more altruistic objectives, including, for instance, ensuring a workplace for family members, is often equally – or even more – important than profitability or growth (Westhead and Howorth, 2006).

There are various explanations for why family businesses place importance not only on monetary but also social goals. For instance, family businesses are typically strongly embedded in their local communities (Astrachan, 1988; Fuller and Tian, 2006). This strong and close relation results from a long-term presence of the business in the community (even across generations), their frequent unwillingness to change location (Gnan and Montemerlo, 2002, Graafland, 2002; Lansberg, 1999, Ward, 1987), as well as the fact that those firms very often rely heavily on local communities as a source of resources for business operations, including their workforce, clients and suppliers. This closeness to the local community may help to explain why family firms are willing to share their prosperity with the community (Dyer and Whetten, 2006) by - for example – sponsoring the local sport club, and, on the other hand, avoiding actions that would destroy a good relationship with the community by, for instance, polluting the local environment (Uhlaner, Goor-Balk and Masurel, 2004). In short, this engagement in actions benefiting the local community, or avoiding actions that would harm it, serve as a way to maintain a good relationship between the family firm and its various local stakeholders.

Another rationale for the social responsibility of family-owned firms may be due to the perception in such firms that being socially responsible builds not only a good image of the company but also the family name, in the local community (Post, 1993; Fuller and Tian, 2006). Anecdotal evidence from a study by Uhlaner et al. (2004) supports the view that family businesses may be less likely to undertake actions that could harm the environment due to the potentially negative consequences for the family's and firm's image. As one of their respondents notes, "if I do bad things [to the environment], then my father's reputation is also tainted" (Uhlaner et al., 2004, p. 190). Also, as Dyer and Whetten (2006) point out, the family firm often represents the main stream of income for the family and the family's accumulated wealth. By engaging in socially irresponsible actions that negatively effect the firm's reputation and harm the family name, a family may put its future welfare in jeopardy (Dyer and Whetten, 2006). Though not based on SMEs, in their study of corporate social performance of family and nonfamily firms in the S&P 500, Dyer and Whetten (2006) find that family businesses do have more socially responsible concerns than their nonfamily counterparts, especially with respect to the environment. Relying on the arguments discussed above, we propose that:

H3: Family-owned SMEs (i.e. those in which owners are related to one another) are more likely to report sustainable entrepreneurship behaviors than nonfamily-owned SMEs.

Innovation orientation and sustainable entrepreneurship

As Masurel (2007, p.192) points out, "sustainable entrepreneurship cannot be discussed without mentioning innovation, because it has much to do with adopting new production technologies". Thus, innovation orientation is seen more as a covariate than as an antecedent, in predicting sustainable entrepreneurship, but in this sense, sustainable entrepreneurship is viewed as an aspect of innovativeness more generally. Furthermore, our rationale explores the possibility that

less innovative organizations are also less concerned about the environment, and focus only on profitability, whereas more broadly innovative firms are also interested in providing new ideas that benefit society more generally. This view is strongly promoted by Nidumolu, Prahalad and Rangaswami (2009, p. 64) who state that:"Sustainability = Innovation". In the future, they argue, only companies that make sustainability a goal will achieve competitive advantage. Based on a study of thirty companies, the authors argue that companies who have successfully taken the high road of sustainability innovated not only with respect to their products, technologies and processes, but also their business models, including the structure of their supply chain. Sustainable entrepreneurship may be viewed thus as a type of innovation, requiring adoption of new types of processes in order to reduce waste or pollution, and thus likely to covary with adoption of other innovations. We thus propose:

H4: SMEs which are more innovatively oriented are more likely to report sustainable entrepreneurship behaviors.

Methodology

Sample and data collection

The sample for this research was drawn from a representative panel of approximately 2000 Dutch SMEs, (defined as firms with less than or equal to 100 employees) which participated in a longitudinal study conducted by a Dutch research institute. The survey took the form of a telephone interview conducted with a key informant (owner or director). Data used for the present study were collected in two waves (2006 and 2008), and include only firms with two or more owners, resulting in an overlap of 642 cases. Most of the firms included in the sample operate in either the business services sector (22.1%), retail and repair (19.8%), manufacturing (14.5%), and construction (13.4%). In addition, 8.7% of firms belong to catering and hospitality,

whereas 8.4% are in the transport and communication sector. Financial services and other services account for 7.8% and 5.3% of the sample respectively. Agriculture sector is represented by 0.2% of the whole sample. The mean size of the business is about 17 employees, with a standard deviation of 25.1 employees. In more than half of the firms (61.7%) there is a family relationship between owners. Due to the missing data eventually 382 cases were available for regression analyses.

Variables

To reduce common method bias, the independent, control, and dependent variables are measured from separate years, the more recent data measuring sustainable entrepreneurship behaviors. Details about the items used in the study are described in the remainder of this section (see also Appendix I).

Tangibility of sector. Companies included in the sample were originally grouped into nine sectors: manufacturing, construction, transport and communication, retail and repair, catering and hospitality, agriculture, financial services, business services and other services. For the current analyses, those sectors are recoded in a dummy variable accordingly to tangibility as follows: A new variable is created where 3 is a code for the tangible products sector (agriculture, manufacturing and construction sector), 2 refers to tangible services (retail and repair as well as catering and hospitality sector), and 1 represents intangible services (transport and communication, financial services, business services and other services sector). Businesses from more tangible industries are perceived to generate large amounts of waste, which provides them with more opportunities for environmentally responsible behavior.

Firm size. Size of the business is measured by asking the respondent about the number of employees employed by the firm in 2006. Due to the skewed distribution of the size in the

sample towards smaller firms, a natural logarithm of this variable is created (Shalit and Sankar, 1975).

Family ownership. The family business variable is measured in 2006 and is constructed as a dummy of the answers to the question "Is this situation relevant in your firm: Owners of the firm are family of each other". Businesses with the family relation between owners are coded as 1 and those without as 0. There are various definitions of family business in the literature and various operationalizations of those definitions (Uhlaner, 2005). Most of the definitions include family relationship between current owners as an important criterion for classification as a family firm. Thus our measurement is in line with the existing research in family business field.

Innovation orientation. The innovation orientation variable is created as a scale compounded from three items measured in 2006 (Cronbach α=.89). First of all respondents had to indicate whether at the moment the firm puts an emphasis on the renewal of the products, services or firm's processes. Secondly, respondents were asked how probable it is that the firm will invest in new products or services in the coming twelve months. Finally respondents were asked to indicate to what extent people in their company are continuously thinking about new products or services that supply the needs that will arise in a few years. As the length of the possible categories of answers is not the same for all items (see Appendix I), the variable was created by means of Categorical Principal Components Analysis (CATPCA) (available in SPSS).

Sustainable entrepreneurship (Cronbach α=.62). In order to measure the dependent variable, sustainable entrepreneurship, respondents were asked in 2008 whether their firms engage actively, passively or not at all in each of the following actions: Keeping count of the amount of the company's waste; production or selling the environmentally friendly products; and searching

for more environmentally friendly products, services or production methods. A scale was created as a mean of the answers to those questions.

Control variables. The relationships between variables examined in this study is controlled for the following variables: change in turnover, change in result and change in employment (the comparison of 2006 and 2007). As mentioned earlier, a firm's ability and willingness to engage in sustainable entrepreneurship may be influenced by the financial and human resources available to the firm (e.g. Cambra-Fierro et al., 2008). One may imagine that companies with fewer financial and human resources may be less willing to allocate these scarce stocks to search for more friendly production methods, or to monitor the amount of waste. In this study, the variables measuring change in the turnover and change in result reflect the financial situation of the company, whereas the variable measuring the change in employment is a proxy for human resources availability.

Data analysis

Scales were developed using factor analysis and testing for reliability. The data was analyzed with the use of Ordinary Least Squares multiple regression techniques. Common method bias was controlled in two ways: First, by collecting data for the dependent vs. other variables from different waves of data collection, and furthermore by demonstrating independence, with the use of principal component factor analysis.

Results

Table 1 presents the scores of sustainable entrepreneurship for the firms classified in the three different types of industries. As can be seen from the table, a larger percentage of companies from the tangible products sector (14%) reports the maximum score 3 on sustainable

entrepreneurship comparing with their counterparts from the tangible services (12%) and intangible services sectors (10%).

TABLE 1 HERE

Table 2 reports bivariate correlation coefficients between the variables included in the study as well as descriptive statistics.

TABLE 2 HERE

Table 3 presents results of the common method bias test for the items that are included in scales measuring innovation orientation and sustainable entrepreneurship. The orthogonally rotated factor analysis provides a two-factor solution. In the unrotated solution the first factor explains only 32.86% of the variance. These findings support the assumption that these variables measure different constructs.

TABLE 3 HERE

For all models included in Table 4 the Variance Inflator Factor (VIF) scores are between 1.02 and 1.44 which suggests that the variables are relatively free from multicollinearity. As the results presented in Table 4 indicate, change in turnover is the only control variable significantly associated with sustainable entrepreneurship in all models ($p<.05$). However, Model 1, including only control variables, is nonsiginificant. In the all-variables model (see Table 4, Model 3) all independent variables are positively and significantly associated with the sustainable entrepreneurship. The all-variables model explains 16% of the variance in prediction of sustainable entrepreneurship ($F=10.21$, $p<.000$). Results are described in greater detail below.

Firm sector and sustainable entrepreneurship

Table 4, Model 2 presents results for Hypothesis 1. The value of the standardized regression coefficient (β) and the significance in Model 2 allows us to conclude that more tangible sectors are positively and significantly associated with sustainable entrepreneurship (β=.23, p<.01). Thus Hypothesis 1 is supported.

Firm size and sustainable entrepreneurship

The results for Hypothesis 2 are presented in Table 4, Model 2. Company size is positively and significantly related to sustainable entrepreneurship (β =.19, p<.001) which supports Hypothesis 2.

Family ownership and sustainable entrepreneurship

Hypothesis 3 proposes a positive relationship between family ownership and sustainable entrepreneurship. Model 2, Table 4 presents the support for this hypothesis. Family ownership is positively and significantly associated with sustainable entrepreneurship (β=.14, p<.01).

Innovative orientation and sustainable entrepreneurship

Innovation orientation is positively and significantly associated with sustainable entrepreneurship in support of Hypothesis 4. In Table 4, Model 3, the β-value for innovation orientation equals .19, and p<.001.

Discussion

Discussion of the results

In summary, the results provide significant support for all five hypotheses and in the predicted direction. More specifically, larger firms, firms from more tangible products sectors, family-owned firms, and firms with a more innovative orientation are more likely to report sustainable entrepreneurship behaviors.

Directions for future research

Future research may contribute to the existing understanding of sustainable entrepreneurship in the context of SMEs in a few ways. First of all, future research could examine and measure family firm characteristics in more detail. For example, Astrachan, Klein and Smyrnios (2002) measure of family influence on three levels (power, experience and culture) could be applied. Uhlaner (2005) proposes another multi-dimensional approach to measure family orientation by constructing a Guttman scale. In this approach businesses are classified as having a stronger family orientation as they meet successively more selective requirements for a family business (e.g. not only having a majority of family ownership, which is met by most privately-held firms, but also having plans to transfer the firm to family (Uhlaner, 2005). Specifically, it would be interesting to explore how different measures of family orientation are associated with sustainable entrepreneurship.

Secondly, the future research on the topic could benefit from exploring other dimensions of sustainable entrepreneurship, namely people. This could include individuals in the firm (employees), the direct stakeholders (suppliers and clients) or society-at-large. As mentioned earlier, family businesses are perceived to be strongly embedded in the communities where they operate and thus more willing to contribute to the well-being of the inhabitants. This type of firms is also perceived to be more oriented toward the long-term relationships with customers and suppliers and thus family firms might tend to engage in actions benefiting those stakeholders.

Furthermore, the researchers conducting examination of sustainable entrepreneurship should be aware of the fact that the respondents' answers may be contaminated by social desirability (Brand and Dam, 2009). One may imagine that respondents may tend to indicate a higher level of engagement in sustainable entrepreneurship than is actually true. They may thus feel pressured

to give socially desirable answers. In recent years many parties, including politicians, environmental activists and society-at-large have paid increasing attention to the environment. The increasing concern about climate change, expressed among others during the Climate Change Conference in Copenhagen, Denmark in December 2009, will probably influence future policies and build stronger awareness of this problem among people, which, in turn, may make the social desirability issue even more paramount.

Finally, future research could include other contextual variables such as legislation or the economic climate. The rules dictated by law and concerning the preservation and protection of natural envirnomnet is especially developed for the tangible product sector, such as manufacturing and construction. Thus, firms from those sectors may be involved in sustainable entrepreneurship due to the legal requirements rather than altruistic motives. In our study, however, questions concerning sustainable entrepreneurship were worded with reference to voluntary action. Furthermore, economic climate may be other context variable influencing firms' engagement in sustainable entrepreneurship. In the times of prosperity SMEs are probably more willing to act voluntarily in a way that protects the environment as more resources (financial and manpower) are available than during a recession.

Contribution and Implications

This study empirically explores the engagement of SMEs in suitable entrepreneurship represented by the environmentally friendly actions undertaken by Dutch firms. Results of this study help to explain why some firms engage more often in this type of behavior than do others. Research findings regarding size suggest that resources may be important in executing environmentally friendly actions. Sector differences are consistent with the rationale that there must be opportunity to carry out these actions, for example, manufacturing and construction

firms are more apt to carry out activities which have the potential to pollute, but also to act more responsibly relative to others in the same sector.

Especially interesting may be differences between family and nonfamily firms, suggesting the importance of assisting and preserving family firms on a societal level. This is the first large scale study to confirm the hypothesis that family firms may be more responsible in relation to the environment than their nonfamily neighbors—other aspects being equal. Although the family orientation variable explains a rather small percentage of the variance in the dependent variable, nevertheless we think that such results support the argument that family owned firms may hold a special place in the community.

The results regarding the positive relationship between innovation orientation and sustainable entrepreneurship suggests that one of the obstacles to more responsible environmental orientation may relate to a learning curve for adopting change more generally. It may be that by approaching the problem in this way as a knowledge transfer problem, rather than only focusing on rewards and sanctions may increase the adoption rate for environmentally friendly actions by firms in the future.

Summing up the results it can be concluded that different SMEs vary in the degree to which they chose to act in a sustainable manner. Although the pollution impact of individual SMEs may be very small comparing to the large corporations, given the proportion of the total GDP that they represent, their cumulative effect on the environment is significant. Thus, we encourage further study in this area, especially focusing on the motives that underlie environmentally responsible behavior of SMEs.

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Table 1: Tangibility of sector and sustainable entrepreneurship – Respondents scores (%)

		Tangibility of sector score		
		1 (intangible services)	2 (tangible services)	3 (tangible products)
Sustainable entrepreneurship score	1	34.3	15.3	16.2
	Between 1 and 2	26.4	29.5	24.0
	2	16.4	24.6	17.9
	Between 2 and 3	12.5	18.0	27.9
	3	10.4	12.6	14.0
	N (642)	280	183	179
	%	100	100	100

Table 2: Correlations between variables used in the regression analysis

	1	2	3	4	5	6	7	8
1. Change in turnover	-							
2. Change in result	.49[b]	-						
3. Change in employment	.30[b]	.09	-					
4. Tangibility of sector	.02	.00	.03	-				
5. Firm size (ln)	.02	-.05	.09	.09	-			
6. Family ownership	.02	.05	-.04	.10	-.17[b]	-		
7. Innovation orientation[d]	.03	-.05	.10	-.03	.22[b]	-.17[b]	-	
8. Sustainable entrepreneurship	.11[a]	.04	.02	.26[b]	.19[b]	.13[b]	.19[b]	-
MEAN	2.50	2.43	2.25	1.86	2.45	.57	.18	1.88
SD	.73	.79	.65	.84	1.16	.50	.94	.65

[#]: $p < 0.1$; [a]: $p < 0.05$; [b]: $p < 0.01$; [c]: $p < 0.001$; N=382

[d]: Variable is created on the base of the object score for the overall sample.

Table 3: Common method bias test for items used in the analysis

	1	2
Monitoring the amount of firm's waste.	.00	**.65**
Producing or selling environmentally friendly products.	.05	**.79**
Searching for more environmentally friendly products, services or production methods.	.12	**.81**
Renewal of products, services or processes.	**.76**	.04
Continuous thinking about new products or services that are new to the market.	**.75**	.03
Intention to invest in new products or services in the next 12 months.	**.76**	.09
Percentage variance explained	32.86	24.35

NOTE: Highlighted items are included in the factor. N=642
Principal Component Analysis, Varimax Rotation with Kaiser Normalization,
Rotation converged in 3 iterations.

Table 4: Prediction of sustainable entrepreneurship

	Control variables		Control variables + Firm's characteristics		All-variables		ΔR^2	
	Model 1		Model 2		Model 3		First[e]	Last
Explanatory variables	β-value[d]	*t*-value	β-value[d]	*t*-value	β-value[d]	*t*-value		
Change in turnover	.13[a]	2.11	.12[a]	2.08	.11[a]	1.99		
Change in result	-.02	-.37	-.01	-.25	-.00	-.07		
Change in employment	-.02	-.41	-.04	-.76	-.05	1.03		
Tangibility of sector			.23[c]	4.75	.24[c]	4.96	.07[c]	.06[c]
Firm size (ln)			.19[c]	3.91	.16[b]	3.19	.04[c]	.02[b]
Family ownership			.14[b]	2.80	.16[b]	3.33	.02[b]	.03[b]
Innovation orientation					.19[c]	3.76	.03[c]	.03[c]
R – square	.01		.13[c]		.16[c]			
Adjusted *R* – square	.01		.12		.15			
F – statistic	1.70		9.23		10.21			
DF (df1, df2)	(3, 378)		(6, 375)		(7, 374)			

[#]: $p < 0.1$; [a]: $p < 0.05$; [b]: $p < 0.01$; [c]: $p < 0.001$; N=382

[d]: β -values represent standardized regression coefficients in the multiple regression analysis.

[e]: Variable entered after controls.

APPENDIX I: List of Variables

VARIABLE	QUESTION	SCALE
Independent variables		
Tangibility of sector (measured 2006)	*In which sector your firm is operating?*	1: intangible services 2: tangible services 3: tangible product sector
Company size(ln) (measured 2006)	*How many people (including yourself) are employed in your firm at the moment?*	the number filled in
Family ownership (measured 2006)	*Are the owners of this firm family of each other?*	1: yes 0: no
Innovation orientation (measured 2006)	*1. Does at the moment the firm put an emphasis on the renewal of the products, services or the firm's processes.*	1: yes 0: no
α=.89	*2. To what extent is the following situation relevant for your firm?* *In our firm we are continuously thinking about new products or services that supply the needs that will arise in a few years.*	1: completely not relevant 2: hardly 3: rather 4: very 5: completely relevant
	3. Are you going to invest in new products or services in the coming 12 months?	1: no 2: probably 3: definitely
Dependent variable		
Sustainable entrepreneurship (measured 2008)	*1. Does your firm monitor the amount of the firm's waste?*	1: not at all 2: yes, passively 3: yes, actively
α=.62	*2. Does your firm produce or sell environmentally friendly products?*	1: no 2: yes, but not out of a deliberate strategy 3: yes, coming forth out of a deliberate strategy
	3. Does your firm search for more environmentally friendly products, services or production methods?	1: no 2: yes, but not actively 3: yes, actively

Control variables		
Change in turnover (measured 2008)	*Comparing 2007 to 2006, has the turnover decreased, stayed the same or increased?*	1: decreased 2: stayed the same 3: increased.
Change in result (measured 2008)	*Comparing 2007 to 2006, has the result worsen, stayed the same or improved?*	1: worsen 2: stayed the same 3: improved.
Change in employment (measured 2008)	*Comparing 2007 to 2006, has the number of employees in your company decreased, stayed the same or increased?*	1: decreased 2: stayed the same 3: increased.

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