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Entrepreneurial Proclivity and the Performance of Farms: The Cases of Dutch and Slovenian Farmers

Verhees F.J.H.M.¹, Klopčič M.², Kuipers A.³

¹ Wageningen University, Marketing and Consumer Behaviour Group, Wageningen, The Netherlands

² University of Ljubljana, Biotechnical Faculty, Zoo technical Department, Domžale, Slovenia

³ Wageningen UR, Agro Management Tools, Wageningen, The Netherlands

Abstract - Farms are advised to be entrepreneurial, but empirical research showing that an entrepreneurial proclivity (EP) of farmers results in better performance is scant. This research will test empirically whether an EP contributes to the performance of farms. We provide a model with hypotheses about the relationship between EP and performance, which is tested for a sample of Dutch and Slovenian farmers. We find that EP has a universal positive influence on performance and performance expectations of farmers in The Netherlands and in Slovenia. The influence of the underlying dimension of EP, i.e. innovativeness, proactiveness and risk taking, on performance are mixed and context specific.

Keywords - Entrepreneurship, innovativeness, proactiveness

I. INTRODUCTION

Farms are advised, like all micro firms (i.e. firms with less than 10 employees), to be entrepreneurial [1, 2]. Empirical evidence for a positive relationship between entrepreneurial proclivity (EP) and performance supporting this advice, however, is scant, with a few exceptions [3, 4]. The advice to farmers to be entrepreneurial, therefore, is based on research results among small, medium sized, and large firms, showing a positive relationship between EP and performance [5-9]. For farms the relationship between EP and performance, however, may be negative because many farms serve markets for agricultural commodities and operate in static environments [2, 9]. Markets for agricultural produce, however, are getting more dynamic [1, 10].

This research will test empirically whether EP contributes to the performance of farms. We provide a model with hypotheses about the relationship between EP and performance, which is tested for a sample of Dutch and Slovenian farmers.

II. THEORETICAL FRAMEWORK

Micro firms are defined in the European Union as firms with less than 10 employees. Micro firms also

include firms without employees and they are a sub sample of small firms, which are firms with less than 50 employees. Most firms that exist today are micro firms. For example in the European Union more than 90% of firms (18 million) are micro firms representing approximately one third of all employment.

Entrepreneurial proclivity is defined as “the organization’s predisposition to accept entrepreneurial processes, practices, and decision making, characterized by a preference for innovativeness, risk taking, and proactiveness” [6]. Innovativeness, in this definition, is the organization’s willingness “to engage in and support new ideas, novelty, experimentation, and creative processes”; it is a “basic willingness to depart from existing technologies or practices” [11]. Risk taking is the organization’s willingness to commit resources to projects with a reasonable chance of costly failures. Proactiveness is defined as the organization’s willingness to act in anticipation of future problems, customer needs, or changes in the market environment. Together these dimensions of EP allow firms to renew their organization and drive markets by offering an alternative and potentially superior customer value proposition [6].

Farms reflect the farmer’s personality. EP of farms, therefore, is defined as the owner’s routines, decision making, and practices characterized by a preference for innovativeness, risk taking, and proactiveness. Innovativeness, risk taking, and proactiveness, in farms, are traits of the owner, but, similar to large firms, together these dimensions of EP allow farms to renew their organization and drive markets by offering an alternative and potentially superior customer value proposition.

III. MODEL AND HYPOTHESES

Figure 1 shows the model we propose. The rationale for a positive relationship between EP and performance lies in today’s dynamic business environment. Product life cycles are getting shorter and, therefore, seeking and acting on new opportunities is getting more and more important for firms to be successful. Entrepreneurial firms are better

positioned to take advantage of a dynamic business environment because they want to drive markets by offering an alternative and potentially superior customer value proposition [12, 13]. Several empirical studies find support for a positive impact of EP on performance [6, 7, 9, 13, 14].

EP of farmers is hypothesized to have a positive influence also on farm performance because agricultural markets look more and more like other markets outside agriculture. Agricultural markets have changed from supplier markets to consumer markets, and from national and international markets to global markets. Consequently farmers need to be more responsive to consumer needs and global competitors. Moreover farmers, like other firms, need to respond to concerns about the societal impact of their activities because societal groups have become much more powerful.

H1: Entrepreneurial proclivity of farmers has a positive influence on farm performance

Innovativeness implies that farms adopt many innovations, which can be used to pursue new opportunities [9]. Innovative firms that create and introduce new products and technologies have been seen as engines of economic growth [15]. Introducing new technologies leads to higher performance of farms.

H2a: Innovativeness of farmers has a positive influence on farm performance

Proactiveness refers to a posture to anticipate and act on future wants and needs in the market place.

Proactive firms, therefore, have the desire to be pioneers [9]. They have a first-mover advantage, which means that they can target premium market segments, skim the market by asking higher prices ahead of competitors, pre-empt distribution channels, establish brand recognition, and are ahead of competitors on the experience curve.

H2b: Proactiveness of farmers has a positive influence on farm performance

The relationship between risk taking and performance is less obvious. Risk taking is expected to lead to high performance variation because some projects will succeed while others will fail. On average, however, risky strategies are hypothesized to lead to higher performance than tried-and-true strategies [9].

H2c: Risk taking of farmers has a positive influence on farm performance

Farms are confronted with increasingly dynamic environments [1, 10]. This suggests that entrepreneurial farms are better prepared for the future than they were prepared for the past. Consequently, it is hypothesized that EP and its components are positively related to farmer's performance expectation.

H3: Entrepreneurial proclivity of farmers has a positive influence on farmer's performance expectations

Small firms are expected to extrapolate current prices to the future [16]. Consequently they are also

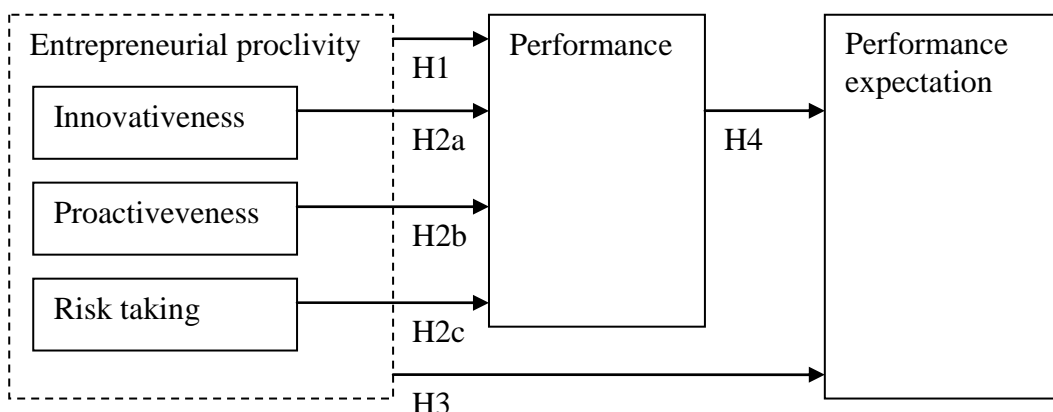


Fig. 1 The influence of entrepreneurial proclivity on performance and performance expectations of farms

expected to extrapolate their current performance to the future because performance is determined to a large extent by prices.

H4: Farm performance has a positive influence on farmer's performance expectations

IV. METHODS

A. Sample

For this research two different sampling frames were used: Dutch farmers and Slovenian farmers. The Dutch sample was drawn from a database of the Dutch mail services with names and addresses of farms in the Netherlands. We purchased a random selection of 750 addresses of dairy farms, farms with hogs, and greenhouses with flowers from this database. The questionnaire was first developed in English because most scales used were originally in English. Then the questionnaire was translated by a native Dutch person. Finally the questionnaire was back translated by a fellow Dutch researcher who was not familiar with the original scales, and whose second language is English. Differences between the original and back translation were identified and corrections were made, if necessary. The respondents received by regular mail the questionnaire in Dutch, including an introductory letter to motivate them to cooperate. A return envelop was provided with postage and return address. The questionnaires were sent in March 2006. About 50 questionnaires were undeliverable. After one month, 129 questionnaires were returned and 119 questionnaires did not have any missing values. These 119 questionnaires will be used for further analyses. The Slovenian sample was drawn from a list of dairy farmers participating in meetings that were held in various regions in Slovenia in February 2007 as part of an EU project to professionalize dairy farm

management in Slovenia. In total, 1200 persons, largely farm families, attended those meetings. Participants volunteered to participate in a questionnaire about their attitude towards various market opportunities. Measuring their EP, performance, and performance expectations was part of this questionnaire. One hundred persons volunteered to fill in the questionnaire. An additional 200 questionnaires were distributed to farmers with dairy cows, suckler cows, sheep and pigs that were known to researchers at the University of Ljubljana. The English questionnaire from the research with the Dutch sample was translated in Slovenian by a Slovenian researcher whose second language is English and who was not familiar with the original scales. The resulting questionnaire was back translated by a native Slovenian who also was not familiar with the original scales. Differences between the original and the back translation were addressed and corrected. A return envelop was provided to the respondents with postage and return address. The questionnaires were sent in April 2007. Respondents were contacted by phone if there were any missing values. The questions with missing values were explained to them and they were asked to provide an answer by phone to fill in the missing value, if possible. After one month, 120 questionnaires were returned without any missing values. These 120 questionnaires will be used for further analyses.

B. Measures

All the concepts in our model were measured using the questionnaires. A description of the measurement properties is provided below. Measurement properties are assessed with principal component analysis (PCA) and reliability analysis (Cronbach's Alpha). The PCA of each measure should provide support for a one component solution. Indications for a one component solution are a scree plot with a sharp decrease in Eigen

Table 1 measurement scale properties

Scale	# of items	Eigen value second component	Variance accounted for	Lowest item loading	Cronbach's Alpha
Performance	5	0.58	75 %	0.83	0.92
Performance expectations	6	1.08	66 %	0.78	0.90
Entrepreneurial proclivity	3	0.69	60 %	0.71	0.64
• Innovativeness	5	1.43	48 %	0.57	0.73
○ Scepticism	3	0.62	71 %	0.74	0.79
○ Creativity	2	0.30	85%	0.92	0.82
• Risk taking	3	0.76	63 %	0.64	0.71
• Pro activeness	3	0.62	68 %	0.76	0.77

value from the first to the second component and a gradual decrease in Eigen values from the second component onwards; an Eigen value of the second component, which is smaller than one, and a first component that accounts for a minimum of 50% of the variance in the items [17]. Moreover, all items should have a loading on the first component (before rotation) higher than 0.6. Finally the reliability of the scale as indicated by Cronbach's Alpha should be higher than 0.6. The complete scales are listed in Appendix A. Respondents rated the statements on a 7 point Likert scale anchored by "not agree" (1) versus "agree" (7). For all measures average scores are used in further analyses. The measures for performance, risk taking and proactiveness meet these criteria and will not be discussed further (see Table 1). The measures for performance expectations and innovativeness are discussed below.

Performance expectations were measured with 6 items. The PCA suggested that a one-component solution was appropriate although the Eigen value of the second component is slightly bigger than one (see Table 1). All items had a loading higher than 0.78 on the first component, which accounted for 66% of the variance. The reliability (Cronbach's Alpha) was 0.90.

For innovativeness the Eigen value-greater-than-one criterion suggests that two components are appropriate. Moreover, the first component only accounts for 48% of the variance in the items and one item had a loading of 0.57 on the first component. After orthogonal rotation (Varimax) three negatively formulated items load higher than 0.6 on the first component and two items load higher than 0.6 on the second component. This suggests that innovativeness has two underlying dimensions. After inspection of the items the first component was named scepticism and the second component was named creativity. The PCA for the 3 scepticism items suggested that a one-component solution was appropriate (see Table 1). All items had a loading higher than 0.62 on the first component, which accounted for 71% of the variance.

The reliability (Cronbach's Alpha) was 0.79. The PCA for the 2 creativity items suggested that a one-component solution was appropriate (see Table 1). All items had a loading higher than 0.92 on the first component, which accounted for 85% of the variance. The reliability (Cronbach's Alpha) was 0.82.

The scale for EP is based on the scales for its three underlying dimensions: innovativeness, risk taking and proactiveness. Average scores across these subscales are used instead of the individual dimensions because they are manifestations of EP [6, 9]. To stay close to the original conceptualization of EP, we decided to use our original measure for innovativeness, including the items for scepticism (reversed) and creativeness, to calculate our measure for EP. EP, therefore, was measured with three items: innovativeness, risk taking and proactiveness. The scree-plot obtained in the PCA suggested that a one-component solution was appropriate; all items had a loading higher than 0.71 on the first component, which accounted for 60% of the variance. The reliability (Cronbach's Alpha) was 0.64.

V. RESULTS

Column 2 in Table 2 shows the results of ordinary least squares (OLS) regression of performance on EP. EP has a positive influence on performance of farms in the Netherlands ($b=0.53, p<0.01$) and in Slovenia ($b=0.75, p<0.01$) and there is no indication that the influence of EP on performance of farms is different in the Netherlands and in Slovenia ($b=0.22, p=0.21$). This confirms the universal positive effect of EP on the performance of farms as hypothesized (H1).

Column 3 in Table 2 shows the results of OLS regression of performance expectations on EP and performance. EP has a positive direct influence on performance expectations of farms in the Netherlands ($b=0.56, p<0.01$) but not in Slovenia ($b=0.15, p=0.26$). This confirms the positive effect of EP on the

Table 2 The influence of entrepreneurial proclivity on performance and performance expectations (unstandardized coefficients)

	Performance (Combined sample)	Performance expectations (Combined sample)
Entrepreneurial proclivity	0.53 ($p<0.01$) **	0.56 ($p<0.01$) **
Entrepreneurial proclivity x Dummy Slovenia	0.22 ($p=0.21$)	-0.42 ($p=0.02$) *
Dummy Slovenia	-1.89 ($p=0.01$) **	2.38 ($p<0.01$) **
Performance		0.24 ($p<0.01$) **
Constant	2.52	1.46
N	239	239

Table 3 The influence of elements of entrepreneurial proclivity on performance (unstandardized coefficients)

	Performance (Dutch sample)	Performance (Slovenian sample)
Scepticism	-0.04 ($p=0.66$)	0.12 ($p=0.17$)
Creativity	-0.22 ($p<0.01$) **	0.18 ($p=0.15$)
Risk taking	-0.08 ($p=0.39$)	0.19 ($p=0.05$) *
Proactiveness	0.65 ($p<0.01$) **	0.47 ($p<0.01$) **
Constant	3.02	-0.16
N	119	120
R ²	0.32	0.31
F	13.1 ($p<0.01$)	13.1 ($p<0.01$)

performance expectation of farms (H3) only for farms in the Netherlands. The influence of EP on performance expectations when the indirect influence via performance is taken into account, however, is positive also for farms in Slovenia ($b=0.33, p=0.01$).

Table 3 shows the results of OLS regression of performance on elements of EP for the Dutch and the Slovenian sample. Proactiveness has a universal positive influence on performance of farms in the Netherlands ($b=0.65, p<0.01$) and in Slovenia ($b=0.47, p<0.01$) as hypothesized (H2b), but for the other elements of EP the results are mixed.

Scepticism does not influence the performance of farms in the Netherlands ($b=-0.04, p=0.66$) or Slovenia ($b=0.12, p=0.17$). Creativity has a negative direct influence on performance in The Netherlands ($b=-0.22, p<0.01$) and no influence on performance in Slovenia ($b=0.18, p=0.15$). These results refute Hypothesis 2a.

Risk taking has a positive direct influence on performance in Slovenia ($b=0.19, p=0.05$), which confirms hypothesis 2c, but not in The Netherlands ($b=-0.08, p=0.39$). These results show that the influence of EP on performance is universal but that the influence of the elements of EP on performance is

context specific.

Table 4 shows the results of OLS regression of performance expectations on elements of EP and performance for the Dutch and the Slovenian sample. Performance has a universal positive influence on the performance expectations of farms as hypothesized (H4): in the Netherlands ($b=0.27, p=0.01$) and in Slovenia ($b=0.19, p=0.03$). Individual elements of EP do not influence performance expectations of farms in Slovenia, which confirms our previous results for the influence of EP on performance expectations. However, together scepticism, creativity, risk taking, and proactiveness do influence performance expectations in Slovenian farms ($F=3.05, p=0.01$).

To elaborate on our findings that proactiveness has a universal positive influence on performance while the other elements of EP do not seem to influence performance we test whether proactiveness mediates the influence of the other elements of EP. Table 5 shows the results of three OLS regressions that can confirm this mediating role of proactiveness [18]. Column 2 of Table 5 shows that scepticism ($b=-0.11, p=0.03$), creativity ($b=0.41, p<0.01$), and risk taking ($b=0.24, p<0.01$) influence proactiveness. Column 3 of Table 5 shows that creativity ($b=0.17, p<0.01$), and

Table 4 The influence of elements of entrepreneurial proclivity on performance expectations (unstandardized coefficients)

	Performance expectations (Dutch sample)	Performance expectations (Slovenian sample)
Scepticism	-0.08 ($p=0.40$)	-0.13 ($p=0.12$)
Creativity	-0.02 ($p=0.84$)	0.15 ($p=0.21$)
Risk taking	0.15 ($p=0.14$)	-0.02 ($p=0.98$)
Proactiveness	0.29 ($p=0.03$) *	-0.06 ($p=0.61$)
Performance	0.27 ($p=0.01$) **	0.19 ($p=0.03$) *
Constant	2.13	-0.16
N	119	120
R ²	0.28	0.31
F	8.6 ($p<0.01$)	13.1 ($p<0.01$)

Table 5 The mediating role of proactiveness (unstandardized coefficients)

	Proactiveness (Combined sample)	Performance (Combined sample)	Performance (Combined sample)
Scepticism	-0.11 ($p=0.03$) *	-0.03 ($p=0.60$)	0.03 ($p=0.59$)
Creativity	0.41 ($p<0.01$) **	0.17 ($p<0.01$) **	-0.07 ($p=0.32$)
Risk taking	0.24 ($p<0.01$) **	0.22 ($p<0.01$) **	0.09 ($p=0.19$)
Proactiveness			0.59 ($p<0.01$) **
Dummy Slovenia	-0.13 ($p=0.38$)	-0.87 ($p=0.01$) **	-0.79 ($p<0.01$) **
Constant	2.34	3.28	-1.90
N	239	239	239
R ²	0.36	0.15	0.32
F	8.6 ($p<0.01$)	10.06 ($p<0.01$)	21.57 ($p<0.01$)

risk taking ($b=0.21$, $p<0.01$) influence performance, but scepticism does not ($b=-0.03$, $p=0.60$). Column 4 of Table 5 shows that creativity ($b=-0.07$, $p=0.32$), and risk taking ($b=0.09$, $p=0.19$) do not influence performance directly when proactiveness is included in the regression analysis. It is concluded, therefore, that the influence of creativity and risk taking on the performance of farms is mediated by proactiveness. Scepticism, however, does not influence performance.

VI. CONCLUSIONS AND SUGGESTIONS FOR FURTHER RESEARCH

EP has a universal positive influence on the performance of farms, which supports the advice to farmers to be entrepreneurial and this seems to hold across different contexts. Confirmation of these results with other research methods, however, is needed. For example, by using other indicators than the self reported measures in this research, and by using experimental set-ups.

Proactiveness, one component of EP has a universal positive influence on the performance of farms. Creativity, one dimension of innovativeness, and risk-taking have a positive influence on the performance of farms because they contribute to a farm's proactiveness. Scepticism, another dimension of innovativeness, does not influence farm performance. This raises questions about the role of different components of entrepreneurial proclivity. Further research should test for the mediating role of proactiveness between other components of EP and performance.

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APPENDIX A

Scepticism

1. I am reluctant to introduce new ways of doing things until I see them work well for other firms.
2. I need to see other people use something new before I will consider it.
3. I often find myself sceptical of new ideas.

Creativeness

1. I consider myself to be creative and original in my thinking and behaviour.
2. I am an inventive kind of person.

Proactiveness

1. I am great at changing problems into opportunities.
2. I spot good opportunities for firms earlier than other people do.
3. I am constantly looking out for new ways to improve my firm.

Risk taking

1. I would rather be safe than sorry (R)
2. I like to take large financial risks.
3. I am willing to take high financial risks when above average profits are expected.

Performance

1. Compared to colleagues, I have a good profit margin on my products.
2. Compare to colleagues, I have good financial result with my firm
3. Compare to colleagues, I have a profitable firm.
4. I have a good income from my firm.
5. I get excellent financial results with my firm.

Performance expectations

1. I am negative about the future of my firm (R)
2. I am negative about the future profitability of my firm (R)
3. I am negative about my income from the firm (R)
4. I expect that my firm will be successful
5. I expect that the profitability of my firm will rise
6. I expect that my income from the firm will rise

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