IDIOGRAFICKÝ PŘÍSTUP K ANALÝZE VĚDOMÉHO VYSTAVENÍ PODNIKU PODNIKATELSKÉ KRIZI

AN IDIOGRAPHIC APPROACH FOR THE ANALYSIS OF THE PERCEIVED EXPOSITION OF AN ENTERPRISE TO AN ENTREPRENEURIAL CRISIS

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Anotace:
Tradiční metody pro předpovídání podnikatelských krizí (např. Neuronová Síť – Neuronal Nets) jsou založené na vyhodnocení kvantitativních dat podniku, zejména z rozvážného účtu. Bohužel tyto metody neberou ohled na účinky psychologických vlivů na chování podnikatele a investorů. Tudíž jim chybí důležité parametry. Tento příspěvek představí přístup založený na ekonomických a psychologických datech pro analýzu vědomého vystavení podniku krizi.

Klíčová slova:
Podnikatelská krize, vědomá účinnost, postoj, Analýza zahalení dat

Abstract:
Traditional methods for predicting an entrepreneurial crisis (e.g. Neuronal Nets) usually are based upon evaluating an enterprise's quantitative data - esp. derived from balance sheets. These methods disregard, however, the effects of psychological influences on the behaviour of the entrepreneur and the stakeholders. Thus they lack important parameters. This contribution will present an approach based upon economical and psychological data for analyzing the perceived exposure of an enterprise to a crisis.

Key words:
Entrepreneurial crisis, perceived efficiency, attitude, Data-Envelopment-Analysis

INTRODUCTION

Economic models often are based upon the assumption of people's rational behaviour. It's a fact, however, that entrepreneurs – at least in Germany – often are responsible for entrepreneurial crisis themselves: Approximately 90 % of the enterprises' crises had been caused endogenously (e.g. BUCHMANN 1996, p. 110). Reasons might be that impulsive actions and habitual behaviour dominate, while decisions based upon rational choice are conducted only occasionally (see WISWEDE 2000, p. 24). Humans often decide emotionally, commit thinking errors and sometimes act according to habits, automatisms, rituals and social standards, which are not reasonable (WISWEDE 2000, p. 36). If they are in a high mood they hardly deal with arguments or a problem. If they are in a bad mood, they are more accessible for arguments (HOCH 2000, p. 87). Other psychological influences, like e.g.. 'overconfidence' (CLASEN 1992, p. 9 and EISENFÜHR/WEBER 1999, p. 370) on the one hand side or 'learned helplessness' (for an overview see FOERSTERLING 2001, p. 123) on the other hand side may affect behaviour.

But it's not only the entrepreneurs that may act with bounded rationality. It can be observed in bank practice (see KREITMAIR 2001, S. 72) that banks tend to intervene into a process of an

entrepreneurial crisis comparatively late, although they had been recognizing signs of a crisis much earlier.
Because of all these influences – and much more that had not been mentioned above – no criteria has been found yet that undoubtedly may identify an enterprise entering into the phase of a crisis. Economic indicators (hard facts, usually derived from balance sheets) on their own cannot be used as such criteria, because they disregard cognitive, emotional and motivational processes that cause behaviour (CRANACH 2000, p. 152) (also see BODMER 2005).
Besides psychological (soft facts) the current methods for predicting an enterprise's crisis, however, also lack information about certain hard facts, like the amount of securities not yet used, being an indicator for the perceived (potential) liquidity.
These few examples should show that besides economic hard facts there are additional aspects (soft facts or psychological influences) to be considered if the threats of an entrepreneurial crisis should be discovered at an early stage of the process.
Therefore an approach (with a focus on the methodology – not the empirical survey) will be presented that takes into consideration both hard and soft facts for analyzing the exposition of an enterprise to an entrepreneurial crisis. It is an idiographic approach. The analysis for practical purposes will have to take place on the single enterprise level, organized as a panel. Central elements of this approach are the recognition of perceived exposition to an entrepreneurial crisis by the "involved ones" (esp. the entrepreneur and also the family members, banks and other stakeholders), the evaluation of differences in the perception and the attributions to explain the reasons of an enterprise's perceived exposition to a crisis.

OBJECTIVES AND METHODS

A list of the various objectives of the research project will be given below in order to show the different aspects that have to be dealt with, if economical and psychological influences for the development of an entrepreneurial crisis are to be evaluated in an 'integrated approach'.
Objectives of the research are:

1. Analysis of the current scope of attributes used for predicting an enterprise's crisis, because certain parameters seem to be missing.
2. Development of enhancements (based upon literature review and a qualitative oriented survey) concerning this scope of attributes.
3. Analysis of limits of the current approaches (based upon real world analysis like e.g. Discriminant Analysis or based upon model world analysis like e.g. System Dynamics) dealing with the prediction of an entrepreneurial crisis.
4. Analysis of various economical (e.g. new institutional theory) and psychological theories (e.g. theory of cognitive control) and methods (e.g. Data Envelopment Analysis – DEA) in order to detect analogies to the context of an entrepreneurial crisis to get information about the possibilities to adopt these methods to the situation of an enterprise's crisis.
5. Development of a theory of the 'perceived exposition to a crisis'.
6. Development of an integrated methodology, based upon hard and soft facts (esp. perceived exposition to a crisis and attribution), for predicting an entrepreneurial crisis at an early stage.

The development of the proposed methodology primarily is based upon literature review, the development of small models and example calculations. In order to

1. show the process of the proposed procedure to analyze an enterprise' perceived exposition to a crisis and
2. to demonstrate the results of applying the proposed methodology and
3. to gain knowledge about needs for further developments concerning the methodology,

an example for conducting an entrepreneurial analysis has been conducted.

RESULTS

Concerning the objectives mentioned above the focus will now be set only on the results of objective 6 (methodology), in order not to exceed the given page limits. Table 1 shows the procedure of the determination of the perceived exposition to an entrepreneurial crisis:

Table 1: Procedure to determine the perceived exposition to an entrepreneurial crisis

Step 1	Step 2		Step 3		Step 4	Step 5
Definition of the relevant input and output attributes by the "involved ones" (entrepreneur, family, bank etc.) (s=1..S) that may indicate in their opinion an enterprise's crisis [s=1 indicates the entrepreneur].	The entre-preneur defines	$X_{1,t}^{target}$ $X_{1,t}^{current}$ $X_{1,t}^{basics}$	The "involved ones" (s=1..S) evaluate the input matrices giving the perceived exposition of the enterprise to a crisis concerning the various attributes.	$Y_{1,t}^{target}, \ldots, Y_{S,t}^{target}$ $Y_{1,t}^{current}, \ldots, Y_{S,t}^{current}$ $Y_{1,t}^{basics}, \ldots, Y_{S,t}^{basics}$	Determination of the perceived relative efficiency (exposition) to a crisis for every DMU	Determining the attributions why the enterprises situation is perceived in a certain way.
	Procedure to be revolved periodically for the panel survey					t ++

Hint: A DMU (in the sense of the Data Envelopment Analysis) is the input-output-combination of an "involved one" $s \in \{1,..S\}$ at a certain time $t \in \{0,..T\}$ for a certain level (target, current, basics)

Step 1 has to be done preliminarily: All of the involved ones (=the entrepreneur, the family members, the bank(s) etc.) determine a set of those indicators for a crisis that they regard to be relevant, because they act (e.g. quit a credit contract) according to the indicators and limits defined by them ('Radical Constructivism' – e.g WATZLAWICK 1977 p. 16):

1st category: Attributes for the traditional quantitative (ratio scaled) and qualitative (ordinal scaled) data for evaluating an enterprise's creditworthiness (as it is used e.g. for Basel II ratings)

2nd category: Attributes for newly used quantitative (ratio scaled) data (derived from literature review – e.g. free securities that serve as an indicator for perceived liquidity)

3rd category: Attributes for newly used qualitative (ordinal scaled) data (derived from evaluations of contracts, qualitative interviews like e.g. narrative interviews etc. and that are specific to a certain enterprise's economic situation – for an example see table 2.

The output-matrix Y comprises those attributes where the "involved ones" indicate their perceived exposition of the enterprise to a crisis (ordinal scaled data) – see example in table 2.

Table 2: Example of attributes and questions derived form a credit contract

Clauses of a certain credit contract	Necessary steps to be done:
See Bodmer [1998]z	I. Deriving attributes from the text (e.g. subordination, …) II. Discovering problems of misunderstanding the contract by the entrepreneur and the family members concerning the meaning of the various clauses of the contract. III. Identification of input attributes – e.g.: 1. Amount of income during the old-age period of the parents 2. Value of given collateral etc. IV. Identification of output attributes: Attitude towards III. 1., …

Example of three questions that have been derived from the excerpt of the contract above:

Please answer the questions listed below concerning the influence of attributes being relevant for a crisis:	very low	low	middle	high	very high
	5	4	3	2	1
Q1 The impact of the regulations of the financial covenants mentioned above on the financial means of the former (retired) entrepreneur (father, mother) is …	☐	☐	☐	☐	☐

Q2 The impact of the regulations of the financial covenants mentioned above on the possibility to have access to credits (perceived liquidity) is …	☐	☐	☐	☐	☐
Please indicate at the following statement(s), how the entrepreneur (and the family) are affected in your opinion:	cause no worries	cause little worries	cause some worries	cause big worries	cause very big worries
	5	4	3	2	1
Q3 The limitations on the securities given to the parents concerning a satisfying old-age income for them by the regulation of the financial covenants mentioned above …	☐	☐	☐	☐	☐

Step 2: Periodically revolving (t=0..T) the entrepreneur has to

1. transfer the relevant data from the balance sheet evaluation into the corresponding attribute-cells of the input-matrix $X_{1,t}^{\text{current}}$ (e.g. dynamic debt service ratio),
2. define a target matrix $X_{1,t}^{\text{target}}$ of the target situation of the enterprise,
3. define at least one "basic level" matrix $X_{1,t}^{\text{basics}}$ defining the perceived border to a crisis.

The definition of the "basic level" is necessary, because a comparison of the attribute values of the current situation and those of the target situation alone won't allow an interpretation, if the current situation is little or far off the target.

Step 3: Periodically revolving (t=0,..T) the "involved ones" evaluate the input matrices and indicate their perceived exposition of the enterprise to a crisis within their corresponding output-matrix Y.

Step 4: Periodically revolving (t=0..T) an overall perceived exposition to a crisis for every DMU is determined. A DMU (in the sense of the Data Envelopment Analysis) is the input-output-combination of an "involved one" $s \in \{1,..S\}$ at a certain time $t \in \{0,..T\}$ for a certain level (target, current, basics). The aim of applying Data-Envelopment-Analysis is not the estimation of a production function as it is usually used for, but the determination of the perceived efficiency of the enterprise by every single DMU.

An abbreviated listing of the results of the Data-Envelopment-Analysis is shown in table 3 (The description of the underlying data can be found in BODMER 1998 and 2005).

Table 3: Simplified example of an output of the Data-Envelopment-Analysis (calculated with CCR-Model) (Step 4 in table 2) for an example situation (two periods: t=0 and t=1) of an enterprise

Column 1	Column 2	Column 3	Column 4
Situation	Involved one	Perceived efficiency at t=0	Perceived efficiency at t=1
Current situation	Entrepreneur	1,000	0,992
	Bank	1,000	0,757
	Consultant	1,000	0,757
Target situation	Entrepreneur	1,000	1,000
	Bank	1,000	1,000
	Consultant	1,000	1,000
Basics situation	Entrepreneur	1,000	1,000
	Bank	0,731	0,889
	Consultant	0,731	0,889

(Source: Bodmer 2005, p. III-12); hint: The relative efficiency in the columns 3 and 4 may run from 0 (relatively inefficient) to 1 (relatively efficient).

Perceived relative efficiency values in table 3 less than '1' concerning the 'current situation' in column 4 indicate a perceived deviance from the target. So the investment done at time t=0 (column 3) did not prove to be as efficient as it had been expected before. Threat by a crisis

are perceived, if the perceived efficiency values for the current situation in column 4 of an involved one are below the corresponding perceived efficiency value of the basics situation of the same (or other) involved one(s). In table 3 at time t=1 the three involved ones perceive that the current situation's relative efficiency is worse than it would be acceptable at a basic level (minimum required standard of living etc.). This indicates a crisis being perceived.
Additional information about a threat of a crisis perceived might be gained from the analysis of a time-series of results: A declining efficiency concerning the basics situation of the entrepreneur is an indicator that he reduces his demands. These adjustments show that he adapts to a perceived crisis.
Step 5: According to attribution theory people develop theories in order to explain certain situations (what are the reasons for certain results of behaviour etc.). These theories will be gained by qualitative methods like narrative interviews in order to determine the decisive aspects for managing the crisis (aspects for improving the enterprise's stability), e.g. by means of "attributional retraining" (see WATZLAWICK 1977, p. 96) and mediation.

DISCUSSION

It is assumed that the perceived exposition to a crisis depends on the individual target(s) and the willingness of the entrepreneur and the family to accept deviances from the target level(s) that are better than an individually defined basic level(s). Additionally it is assumed that it depends on the assumption of the other "involved ones" that the entrepreneur and the family are able to cope with deviances from the target(s).
Pessimistic people will perceive a crisis already if data-values of certain single attributes of the current-level are below the corresponding data-values of the basics-level. Optimistic people may especially take into consideration those attributes that indicate that the enterprise is efficient (comparatively low input and comparatively high corresponding output). Therefore perceived exposition to a crisis (step 4 in table1) has to be calculated in different ways. The Data-Envelopment-Analysis in the example mentioned above the optimistic view had been taken. Methods to determine the perceived importance of the various attributes – maybe even Conjoint Analysis – will still have to be integrated. Other topics for improvements are the used DEA-model, the development of testable hypothesis, empirical test of the hypothesis, the identification of economical-psychological types of a crisis etc.
The greatest obstacle both for research and for practical application of the proposed approach, however, might be that the involved ones may be reluctant to tell their perceptions frankly, because they might fear that being frankly (with negative information about their economic situation) might have negative effects upon their credit-worthiness. The result will be opportunistic behaviour in 'designing' the input- and output-matrices X and Y by them. Therefore it is essential that the determination of the creditworthiness is independent from an economical-psychological determination of a perceived exposition to a crisis. The latter should be organized by consultants only for the purpose of consultation. Especially for agricultural enterprises with a publicly financed extension service the following procedure might be applicable: If governmental subsidies are granted for an investment, a consultant has to be engaged by the entrepreneur that organizes the data collection and data-evaluation for the determination of the perceived exposition of the enterprise to a crisis. It has to be ensured that the results will not be handed out to other involved ones but the entrepreneur. And it has to be ensured that in case an investment fails, the investment subsidies won't have to be paid back. The data and the results of the analysis will only be used for consultancy between the consultant and the entrepreneur.

CONCLUSIONS

Integrating economical and psychological aspects for evaluating the perceived exposition of an enterprise to a crisis obviously is a new paradigm that might offer new dimensions both for research on scientific level and for enhancing the service of consultants on the practical level.

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