

Success and Risk Factors in the Pre-Startup Phase

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ABSTRACT. Why does one person actually succeed in starting a business, while a second person gives up? In order to answer this question, a sample of 517 nascent entrepreneurs (people in the process of setting up a business) was followed over a 3-year period. After this period, it was established that 195 efforts were successful and that 115 start up efforts were abandoned. Our research focuses on estimating the relative importance of a variety of approaches and variables in explaining pre-start-up success. These influences are organized in terms of Gartner's (1985) framework of new venture creation. This framework suggests that start-up efforts differ in terms of the characteristics of the individual(s) who start the venture, the organization that they create, the environment surrounding the new venture, and the process by which the new venture is started. Logistic regression analyses are run for the sample as a whole as well as for subgroups

within the sample, namely for those with high ambition versus low ambition and for those with substantial versus limited experience. The results point to the importance of perceived risk of the market as a predictor of getting started versus abandoning the start up effort.

KEY WORDS: performance, survival, nascent entrepreneurs, start-ups

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1. Introduction

The first success of a firm is its birth. A significant portion of those attempting to establish a business fails. In this paper the person undertaking activities to create a business is referred to as the *nascent entrepreneur*, and the founding effort is called *nascent entrepreneurship* (Reynolds and White, 1992). Relatively few attempts have been made to study nascent entrepreneurship empirically. One important reason is the lack of a representative sample: nascent entrepreneurs are unregistered, which makes them difficult to sample in comparison to small business owners (Reynolds, 1997). As a consequence, many questions about nascent entrepreneurship remain unanswered. One question is addressed in this paper: Which factors contribute to success or failure in starting a business? This question is vital for several stakeholders.

First, people considering starting a business have an interest in knowledge about factors that contribute to success or failure in the pre-start-up phase. Armed with this knowledge, they can evaluate their own prospects and potential pitfalls. Second, knowledge of the behavior of nascent entrepreneurs is important for those involved in creating and maintaining policy measures on a macro-economic level. A high level of entrepreneurial activity has been shown to contribute to

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innovative activities, competition, economic growth and job creation (Carree and Thurik, 2003). Promotion of entrepreneurship can benefit from insight into the factors that contribute to success or failure in the pre-start-up phase. Third, there is a gap in scientific knowledge concerning this issue. The study of success in the pre-start-up phase borders on two large streams of entrepreneurship research. The first stream consists of comparisons between entrepreneurs and non-entrepreneurs. The second stream concerns comparisons between successful entrepreneurs and less successful entrepreneurs. The study of success in the pre-start-up phase is a mixture of both.

2. Models

While empirical work on success and risk factors in nascent entrepreneurship is scarce, there is an abundance of conceptual work modeling (parts of) the pre-start-up process (e.g. Bhawe, 1994; Busenitz and Lau, 1996; Greenberger and Sexton, 1988; Herron and Sapienza, 1992; Johnson, 1990; Kamm and Nurick, 1993; Larson and Starr, 1993; Learned, 1992; Naffziger et al., 1994; Starr and Fondas, 1992; Vanderwerf, 1993). Some models are based on a single approach, such as a motivational model (Naffziger et al., 1994), a cognitive model (Busenitz and Lau, 1996), or a network model (Larson and Starr, 1993). Most models build on a variety of approaches. Usually, there is also a temporal aspect to the models. Some authors describe the process of setting up a business as entailing the execution of a number of activities, with high variation in the sequence and amount of activities (Carter et al., 1995; Reynolds and Miller, 1992). While acknowledging this variation, some authors still discern sub-phases in the pre-start-up process (Bhawe, 1994; Kamm and Nurick, 1993).

Four phases are often mentioned. The *first phase* concerns the development of an intention to start an enterprise (Shapero and Sokol, 1982; Krueger et al., 2000). In the *second phase* an entrepreneurial opportunity is recognized and a business concept is developed. In the *third phase* resources are assembled and the organization is created. In the *final phase* the organization starts

to exchange with the market. Nascent entrepreneurship is considered the active pursuit of organization creation (phases two and three); therefore criteria are needed to demarcate nascent entrepreneurship from the first phase (potential entrepreneurs), and from the fourth phase (starting entrepreneurs). This is a thorny issue that is discussed in the method section.

Given the scarcity of empirical work on success and risk factors in nascent entrepreneurship, our research is exploratory. Success factors in phases one and four cannot be considered evidence for success in phases two and three. A success factor in one phase might very well be a failure factor in another phase. For example, Tiessen (1998) argues that individualistic tendencies are conducive to intentions towards self-employment, but interfere with the process of resource acquisition where active cooperation with other people is vital. Also, some variables may be more important in one phase and less important in another phase. For example, the psychology of the entrepreneur has been found to be more important in predicting the chances to start a business than in predicting the chances of the success of a business (Rauch and Frese, 2000). Although not investigated empirically in this study, success and risk factors might even vary between phases two and three. Our study will be guided by the conceptual work mentioned above. The variety of approaches and variables that are possible influences will be organized in terms of Gartner's (1985) framework of new venture creation. This framework suggests that start-up efforts differ in terms of the characteristics of the individual(s) who start the venture, the organization which they create, the environment surrounding the new venture, and the process by which the new venture is started. We derive possible success and risk factors from each of these dimensions.

3. Approaches

This section describes the four main approaches in Gartner's framework – the individual, the environment, the process and the organization, – in more detail. Approaches that concern the *individual* can be divided into two types of variables: human capital and psychological individual dif-

ferences. *Human capital* variables include knowledge, education, skills and experience (Deakins and Whittam, 2000). Human capital variables are likely to influence the development of a business idea and the organization of resources. For example, start-up experience provides the nascent entrepreneur with learning opportunities that can be exploited; work experience provides skills that might function in the accomplishment of the many tasks that setting up a business entails; industry experience can be helpful in the perception and valuation of new business ideas.

Psychological individual differences concern differences in personality characteristics, cognitive characteristics, and motivational patterns. Research on *personality characteristics* relates dispositions such as risk-taking, locus of control, and need for achievement to the emergence and the success of entrepreneurship (for an overview, see Rauch and Frese, 2000). These characteristics might also influence success in the pre-start-up phase.

In *cognitive approaches*, the manner in which individuals process information is central. Cognitive characteristics concern individual differences in attributions and in perceptions. Differences in attributions concern how people explain events or outcomes of events. Differences in perceptions concern the study of how people perceive themselves or their environment. Cognitive psychology repeatedly shows that people are not fully rational but rather make extensive use of heuristics, resulting in cognitive biases (Kahneman et al., 1982). Entrepreneurs have been shown to be prone especially to cognitive biases, enabling them to confidently take risks (but not perceiving these risks as such) (Simon et al., 2000). Other examples of cognitive variables that have been found to distinguish entrepreneurs from non-entrepreneurs are perceived self-efficacy (Chen et al., 1998), and counterfactual thinking (thinking about what-might-have-been) (Baron, 1999) (for an overview see Baron, 2004).

Finally, differences in *motivation* might influence success in the pre-start-up phase. People have different motives for setting up a business. Gatewood, et al. (1995) have studied differences in motives as a success factor in nascent entrepreneurship. They find that women who start for internally oriented reasons (such as need for autonomy), and men who start for externally ori-

ented reasons (like perceiving a need in the market) have greater chances of successfully completing the pre-start-up phase. Another common distinction is between push and pull motives, push motives being reasons that force people into entrepreneurship (such as lack of alternatives), and pull motives being reasons that attract people to entrepreneurship (e.g. challenge or autonomy). Economic approaches suggest that entrepreneurial motivation is based on the difference in expected utility between self-employment and organizational employment (Campbell, 1992).

Approaches that take the *environment* into account can be divided into network, financial, and ecological approaches. In *network* approaches the emphasis is on relationships between people. Ties can differ in diversity and emotional strength. Diversity of ties means that one knows people that do not know each other. Emotional strength can vary from strong to weak (Aldrich, 1999). Aldrich expects successful nascent entrepreneurs to have a diverse network with many strong ties. Such a network is important, as an individual does not set up a firm solely by himself or herself. In the opportunity recognition and business idea development phase, one depends upon the environment for information; in the resource assembling and organization phase, one depends upon the environment for resources.

The *financial* approach is concerned with the sources and size of capital of the new firm. Most firms start out with a small amount of capital provided by the firm founder(s) (Aldrich, 1999). Lack of funding might be a reason for nascent entrepreneurs to abandon the start-up process (Blanchflower and Oswald, 1998; Holtz-Eakin et al., 1994). Therefore, a large amount of start-up capital to be provided by a bank or business angel might be risk factor in nascent entrepreneurship. This is in contradiction to the post-start-up phase where it is usually found to be a success factor.

In *ecological* approaches attention is given to the environmental conditions that generate variations in the number of start-ups over time (Aldrich, 1990). Within an industry, the carrying capacity or munificence is an important variable explaining success in the pre-start-up phase (Specht, 1993). In an industry with many opportunities

and many resources, chances of getting started are relatively high. On the institutional level, factors such as political turbulence, culture, and the media, influence rates of organizational emergence (Aldrich, 1990).

The final two dimensions of Gartner's framework are the characteristics of the process and the intended organization. With regard to **process** it may matter how aggressively people pursue the completion of start-up activities, whether they work on their start-up effort full-time or part-time, and whether they work with a business plan or not. Carter et al. (1995) report that both individuals who start their business as well as individuals who give up the start-up effort undertake more activities to realize their business than people who are still trying to set up their business. Therefore, the authors recommend individuals considering a business start-up to pursue opportunities aggressively in the short term, in order not to find themselves perpetually in the pre-start-up phase.

With respect to the intended *organization*, the nature of the opportunity is important, for example regarding its degree of technological innovation. Other examples of relevant variables are the intended size of the firm, and whether there is team or individual leadership. As this overview indicates, there are many potentially relevant influences. In the next session we will discuss these approaches and dimensions in more detail and explore their relationships with success and failure in the pre-start-up phase.

4. Exploring success and failure

Our research focuses on estimating the relative importance of each of the approaches described in the previous section in explaining performance. However, while the approaches discussed above conceptually explain pre-start-up success, we will not make predictions at the level of the particular variables measured due the lack of previous empirical work in this area. Instead, arguments are given pro and contra the influence of each variable as a success factor in the pre-start-up phase. See Table I, for an overview of the approaches and variables used in this study. Only risk of the market can safely be assumed to be negatively related to success in the pre-start-up

phase. This applies both if risks are concrete or only perceived. If the market is really risky, chances of actually getting started are lower, as the nascent entrepreneur will abort the startup process when he learns that the prospects for his firm are poor. If the amount of risk is instead a question of risk perception, then also a high amount of perceived risk is indicative of failure, as entrepreneurs are assumed to perceive less risk. The relationship between experience variables and pre-start-up success may be curvilinear, as either a limited or an extended amount of (work-, management-, industry-) experience might prove to be harmful. In sum, our research design is exploratory in establishing which variables are relevant for explaining success or failure in the pre-start-up phase.

5. Design, sample, variables, and analyses

The design of this study was developed by the Entrepreneurial Research Consortium (ERC), initiated and directed by Paul Reynolds. The ERC is an international research effort (including as participants among others the United States, Sweden, Norway and the Netherlands) in which each country investigates a random and representative sample of nascent entrepreneurs during the start-up process. See Reynolds (2000), and Reynolds et al. (2004) for details on the research design. The data collection method of the ERC is the general public survey. In the fall of 1998, a random Dutch sample of 49,936 phone numbers was dialed. An interview was held with 21,393 persons (43%) aged between 18 and 65 years. The remaining 57% roughly consisted of refusals (14.000), too young/too old (10.000), and other (4500). The person picking up the phone was asked: 'Are you, alone or with others, currently setting up a business?'

If the person answers affirmatively, two possible exclusions are made. *First*, it is essential to have an active and manifest desire to set up a business. If the respondent is only dreaming about starting up a business, he or she is considered a potential entrepreneur instead of a nascent entrepreneur. Persons indicating that they have not yet undertaken activities yet in pursuing their start-up are thus not included in the sample. *Second*, someone who has set up a business that is

TABLE I
Variables representing the approaches and predicted sign of success ($N = 271$, initial measure)

Approach	Variable	Categories	N (%)	Arguments
<i>individual</i>	Demographics			
	Gender ($n = 271$)	Female	26	Females often face several entry barriers, but may also start less ambitious ventures
		Male	74	
	Age ($n = 263$)	Age 18–24	7	More energy
		Age 25–34	41	
		Age 35–44	35	
		Age 45–54	14	
		Age 55–64	3	More life experience
	Human capital			
	work experience ($n = 256$)	0–3 years	5	More energy, less experience
		4–10 years	33	
		11–20 years	38	
		> 20 years	24	More experience, but rigid?
	Management experience ($n = 255$)	0–1 year	26	More energy, less experience
		2–5 years	33	
		6–10 years	21	
		> 10 years	20	More experience, but rigid?
<i>Process</i>	Experience in firm founding ($n = 271$)	No	79	Experience of startup process, but in case of previous failure same flaws might show
		Yes	21	
	Education ($n = 266$)	Low/middle education	50	Higher educated seem to have advantage, but also have more alternative opportunities
		High education	50	
	Motivation			
	Push motivation ($n = 307$)	No push motivation	81	Push motivation better motivated (a must) but may stop in case of alternative employment
		Push motivation	19	
	Ambition become rich ($n = 264$)	To earn a living	86	High materialistic expectations can motivate but can also be a source of disillusionment
		To become rich	14	
	Business plan ($n = 307$)	No business plan	40	business plan seems to be advantageous, but experienced people as well as very simple firms may not need a business plan
		Business plan	60	
	Information and guidance ($n = 255$)	makes no use of it	23	Information and guidance seems to be advantageous, but experienced people as well as simple firms may not need support
		receives inf. and sup.	77%	

TABLE I
Continued

Approach	Variable	Categories	N (%)	Arguments
<i>Environment</i>	Financial			
	Third party money (<i>n</i> = 254)	only own money	59	With a loan better capitalization but with own money obtaining finance is no obstacle
	Start-up capital (<i>n</i> = 255)	makes a loan	41	Easy to start
		0–10,000	33	
		10,001–50,000	34	
		50,001–200,000	17	
		> 200,001	16	
	Network			
	Industry experience (<i>n</i> = 256)	0–1 year	26	More energy, less experience
		2–5 years	20	more experience, but rigid?
		6–10 years	26	
		> 10 years	28	
<i>Intended organization</i>	Ecological			
	Risk of the market (<i>n</i> = 262)	Hardly any risk	18	Higher risk means higher chances of failure
		A little bit of risk	68	
		Quite some risk	12	
		High risk	2	
	Ambition to grow large (<i>n</i> = 267)	To stay small	81	High growth ambitions give motivation but can also be a source of disillusionment
		To grow large	19	
	Start out part- or full-time (<i>n</i> = 258)	Part-time	52	Part-time less risk but less committed full-time more committed but more risk
		Full-time	48	
	Techno nascent (<i>n</i> = 271)	No	86	Higher risk, but also higher chances of success
		Yes	14	
		Solo team	63	
	Team (<i>n</i> = 266)		37	Lack of team complementarity risk of team disagreements
		Manufacturing	10	Serious entrepreneurs, but high entry barriers
		Trade	17	Easy to start, easy to fail
		Business services	34	Easy to start, easy to fail
		Consumer services	16	Easy to start, easy to fail

already operational, even though in a start-up phase, is considered an entrepreneur instead of a nascent entrepreneur. The latter exclusion was not made in the initial screening but rather in the follow up interview. The question 'Are you currently starting a business?' turned out to be quite ambiguous as a number of people consider themselves still in a starting phase whereas their business is already operational.

Those who in the initial wave state that they are setting up a business, and who in the follow up state that their business is operational and running, are asked to provide the start-up date. The follow up status assessment procedure is described below. If the date is prior to the initial interview, they are excluded from the sample (148 persons). This set of protocols resulted in a sample of 517 nascent entrepreneurs (2.4% of the sample, which indicates a prevalence rate of 2.4% within the Dutch population between 18 and 65 years old). This prevalence rate is comparable with Scandinavian countries but much lower than that in the United States (Delmar and Davidsson, 2000). In comparison with a control group ($N = 586$) taken from the 21,393 persons who state that they are not currently setting up a business, the typical nascent entrepreneur is male, young, has pursued higher education and earns a higher income.

5.1. Dependent variable

Follow-up interviews were scheduled at a six month, 1 year, 2 year and 3 year interval (follow-up 1–4) after initial screening. They included an assessment of the current status of the start-up effort. Respondents were asked: 'How would you classify your firm? Is it (1) operational and running; (2) are you still setting up the business; (3)

have you temporarily delayed your start-up effort; or (4) have you completely abandoned your start-up effort?' After three years, it could be established that 187 persons had succeeded in starting their business, and that 105 persons had abandoned their start-up effort. Table II presents figures for the number of start-ups and abandoned efforts that accrued during the four assessment periods. One hundred and sixteen Persons were never reached after the initial phone interview. The remaining 109 nascent entrepreneurs were still trying to set up their business the last time we contacted them (follow-up 1, 2, 3 and/or 4). Thus, a minimum of 36% of the sample started and a minimum of 20% abandoned the startup effort during the three-year period under study. Of the remaining 44% we do not have data about their eventual start-up status. If we compare the 116 persons of whom no follow up information is available with the 292 persons who either started or quitted their effort we find, surprisingly, the people that took part in follow ups tended to be less educated and higher in push motivation than those that dropped out of the study.

In our design it is the entrepreneur himself who defines whether his business is actually started or still in the start-up phase. This implies that entrepreneurs can use different criteria to judge whether they consider themselves started or not. In fact, the question why someone considered him- or herself started gave rise to a plethora of answers. This is consistent with results found by Reynolds and Miller (1992). In Table - III these answers are classified using the properties of emerging organizations given by Katz and Gartner (1988). This heterogeneity is, in fact, an argument to take the judgment of the nascent entrepreneur as the key criterion for start-up.

TABLE II
Moments of getting started/effort abandoned

	(t0)	t1 Half year	t2 One year	t3 Two years	t4 Three years	Total
Started		129	33	15	15	192
Abandoned		42	38	20	15	115
Total		171	71	35	30	307
(Unavailable/still trying		(346)	(275)	(240)	(210)	(210)
(Grand total)		(517)	(517)	(517)	(517)	(517)

TABLE III
Different definitions of start-up moments

Intention	Boundary	Resources	Exchange
Wish or desire	Registration ch. comm.	Arranged finance	First customer
Idea	Sign at magistracy	Hired personnel	First cash flow
Resolution	Official address	Arranged housing	Acceptation in market
Ambition	Business cards	Production of goods	A certain scale
Gave up job	Official opening	Bought inventory	To derive income
Searched information	Bank account	Got license	To buy stock

Only in this way the particular situation of each nascent entrepreneur will be reflected. We choose to use the subjective measure as we feel that the application of uniform, objective measures creates a degree of arbitrariness. For example, first sales might be taken as an indicator of being started, but many people start a business based on an activity for which they previously informally received money (for example, bookkeeping or repairing computers). In an opposite fashion, some firms start out with investing, and only after a certain period do first sales come in. So when interpreting the results, one has to bear in mind the underlying heterogeneity in the performance measure. In fact, in a different study using the present data set, the application of theory driven measures of whether a business actually started resulted in somewhat different explanatory success factors (Van Gelderen, 2001).

We limit our analysis to a comparison between those who succeed in starting a business and those who abandon the startup effort. The category of people still trying to start a business is not analyzed in this paper. There are two reasons for this decision. First of all, in the last follow up interview only a few people are still trying to start a business. Nascent entrepreneurs still trying who were reached in earlier follow up interview might very well either have started or stopped their effort after three years. Secondly, since the initial sample was collected at one point in time, people who were about to set up shop were represented in the sample as well as people who had just begun the start-up process. So even if one wants to analyze the group of still trying, one should correct for the fact that the still trying group shows an overrepresentation of people

who have only lately begun to set up their business.

5.2. Comparison with international efforts

The effort made in the Netherlands is comparable to those in the U.S. and Sweden in terms of sample size. However, for budgetary reasons the Dutch research used only a sample of the ERC phone – and interview questions. Amongst others, most questions on start-up activities and their timing are left out. Also, not all approaches discussed in our theory section are measured, such as the cognitive characteristics and personality traits. However, given the lack of empirical data about nascent entrepreneurship, in our opinion the data still warrant thorough investigation and publication. Moreover, while topics covered in the ERC questionnaire were assigned to particular persons and institutions (for example, an exclusive right to publish about birth order and its relationships), this was not the case in the Dutch study. This makes it possible to prevent an overview of success and risk factors in nascent entrepreneurship and an estimation of their relative strength. Finally, publication of the present results enables international comparison.

5.3. Independent variables

The independent variables that were used to establish the success and risk factors in nascent entrepreneurship are listed in Table I, together with their descriptive statistics. Some of the variables are only rough approximations of the approaches. For example, years of industry experience is taken as a proxy for the network of the

nascent entrepreneur. However, industry experience is biased in favor of older people, and does not describe the amount, strength or diversity of the ties that a person has with the industry. Four continuous variables (work experience, management experience, industry experience, and desired start-up capital) are recoded into categories to mitigate the effects of very large numbers. The categories become larger as the average value of the categories increases in order to reflect diminishing marginal returns. Age is recoded into categories to obtain insight into the relations of the different age categories with the other variables. Industry sector is recoded into four dummy variables (manufacturing, trade, business services, and consumer services). The individuals that are not assigned to any of these four industry variable represent start-up efforts in agriculture, artists, repair shops, etc. and used as the base case in the regression analysis.

Most independent variables have some missing data, though it never exceeds 10% of the cases. Missing values sometimes occur when persons do not know the value of the variable at the time of the first interview. The experience variables are ascertained for the first time in a follow up interview, which also generated some missing values (since not all people participated in a follow-up interview). For the multivariate analyses an expected maximization procedure is used to replace missing data based on underlying data patterns, while keeping means and standard deviations constant (Dempster et al., 1977). The independent variables are checked on possible multicollinearity.

Some frequency distributions of the independent variables are striking. Only a minority (19%) of the nascent entrepreneurs prefers to grow large or to become rich. Many distributions of variables are skewed suggesting limited underlying heterogeneity. Table I reports the initial values provided by the respondents. However, some variables changed over time, while others remained constant. In terms of approaches, the variables concerning the individual remain constant, while the other variables may have developed during the start-up process. We analyze success and failure using initial values as well as using the values reported in later follow-up interviews. In order

to limit the loss of degrees of freedom, only variables for which 5% or more of the respondents report changes are analyzed. These are business plan, risk of the market, team versus solo, start-up capital, and means of financing (third party loan versus own money). For development variables we use the data reported in the follow-up interview preceding the follow-up interview in which someone stated they had started or stopped.

Again it should be noted that the initial sample was collected at one point in time. This means that people who were about to open up shop are in the sample as well as people who had just begun the start-up process. With regard to the first group, no development data were available as many of them started within six months (before the first follow up). In fact, by the time of follow-up interview 1 already 56% of the respondents had either started or given up. On the other hand, there were also people who had begun their pre-start-up activities a long time ago (the maximum is 84 months in our sample). With these people, the observed values at the initial interview may already have developed since the very beginning of the start-up effort. However, we do not know with which values they started initially. In order to make the sample somewhat less heterogeneous, we decided to restrict the sample to those people who had started setting up their business in the preceding year. There were 36 respondents who had been preparing their business for more than a year. The final sample consisted of $307 - 36 = 271$ persons, of whom 174 got started (64%) and 97 abandoned the start-up process (36%).

5.4. Statistical strategy

As our explanatory variables are a mixture of categorical and ordinal variables, and our criterion measure is categorical, we use logistic regression analysis. Development variables are included in the second step. First, we report on success and failure characteristics for the total sample. However, this goes against the spirit of Gartner's framework since his main purpose was to show the large variety in start-up efforts. Therefore, we also conduct analyses for

subgroups. In order to find subgroups, we conducted a PRINCALS analysis to identify independent factors of compounded characteristics. PRINCALS, an acronym for PRINCIPAL Components analysis by Alternating Least Squares, is a non-linear principal component analysis method (Gifi, 1990). The PRINCALS method enables handling ordinal data.

A principal component analysis describes a number of variables with a smaller number of variables, termed the principal components, that still contain as much information, exhibited in the original variables, as possible. The results of the analysis reveal that two factors can be distinguished. The first factor can be typified as a factor measuring *ambition*, with the amount of start-up capital, ambition getting large, a full-time start-up, and ambition getting rich having component loadings above 0.50. The second factor can be typified as a factor measuring *experience*, with work experience, management experience and industry experience having component loadings above 0.50. Using standardized scores, these variables are combined into a single index. The sample is split by the mean in order to investigate success and risk factors within subgroups (low versus high ambition and low versus high in experience). The PRINCALS analysis showed gender (being male) to belong to the ambition factor, and age to

belong to the experience factor. These demographics were not made part of the collapsed variable but were left out of the respective regression analyses (Table IV).

Results

The logistic regression results for the complete sample are presented in Table V. The dependent variable distinguishes between a successful start-up (regardless of the firm's performance after the start-up) ($N = 174$, 64%) and an abandonment of the start-up effort (regardless of whether or not the nascent entrepreneur succeeds in setting up another business) ($N = 97$, 36%). Three variables directly relate to success both with regard to the initial (t_0) measures as well as in a dynamic sense (the development variables). As stated in the method section, 56% of the nascent entrepreneurs start or stop before the follow-up interview; so their initial (t_0) measure may also be an "end-measure". The observed initial value is not always truly initial. The first variable related to pre-start-up success is perceived risk of the market. There is a circularity to this finding: people who perceive less risk will start earlier, whether their risk perception is accurate or not. The same reasoning applies to starting full-time versus part-time: the decision to switch from part-time to full-time may be grounded on clear

TABLE IV
Description of change variables used in the regressions

Variable	Changed category	% N
Business plan	Business plan → no business plan	10 (4)
	No business plan → business plan	12 (4)
Start full-time/part-time	Full-time → part-time	6 (2)
	Part-time → full-time	8 (3)
Team	Team → solo	6 (2)
	Solo → team	9 (3)
Startup capital	Less capital two ordinal points	1 (1)
	Less capital one ordinal point	11 (1)
	More capital one ordinal point	15 (1)
	More capital two ordinal points	1 (1)
Risk of market	Perceived less risk three ordinal points	2 (1)
	Perceived less risk two ordinal points	2 (1)
	Perceived less risk one ordinal point	8 (3)
	Perceived more risk one ordinal point	34 (13)
	Perceived more risk two ordinal points	12 (5)
	Perceived more risk three ordinal points	10 (4)

TABLE V
Estimation results full sample ($N = 271$, 174 started, 97 stopped)

	Values in 1998		Development values		Without development values	
	Coefficiency	SE	Coefficient	SE	Coefficient	SE
Gender (female – male)	0.22	0.40			0.00	0.35
Age (young – old)	–0.37	0.23			–0.24	0.22
Push motivation	–0.51	0.40			–0.03	0.36
Education (low – high)	0.45	0.34			0.21	0.31
Work experience	0.11	0.27			0.06	0.25
Management experience	0.18	0.19			0.15	0.17
Experience in setting up	0.14	0.40			0.36	0.37
Business plan	0.04	0.34	0.58	0.54	0.11	0.30
Information and guidance	0.57	0.39			0.61*	0.36
Start (part-time – full-time)	0.77**	0.36	2.37**	0.89	0.68**	0.33
Industry experience	0.23	0.15			0.24*	0.14
Start up capital	–0.39**	0.19	–0.81*	0.44	–0.26	0.17
Third party loan	–0.24	0.38			–0.37	0.35
Risk of the market	–0.92**	0.29	–0.89**	0.22	–0.51**	0.24
Dummy manufacturing	1.38**	0.70			1.19*	0.66
Dummy trade	–0.09	0.48			–0.37	0.43
Dummy business services	0.49	0.44			0.26	0.40
Dummy consumer services	0.31	0.53			–0.29	0.46
Ambition becoming rich	0.15	0.47			0.20	0.44
Ambition becoming large	–0.45	0.42			–0.42	0.39
Techno nascent	–0.14	0.48			–0.25	0.44
Solo-team	–0.27	0.35	–0.38	0.68	–0.20	0.31
Constant	1.19	1.69			–0.22	1.47
Chi-square Model Test St	69.83**				37.57**	
Nagelkerke R^2	0.31				0.18	

Note: Values relate to initial questionnaire, developments relate to last moment before reported start-up or abandonment Respondents that were preparing the business for more than a year at the moment that they were contacted for the initial survey were excluded.

** $p < 0.05$ * $p < 0.10$.

indications that the entrepreneur can indeed start the business. Nascent entrepreneurs who intend to use more start-up capital have lower probabilities to get their business running. Change in required start-up capital (along the process) also has a significant effect, in other words those who lowered their capital requirements increased their chances of getting started. Nascent entrepreneurs wishing to start out in manufacturing have a higher probability of success in comparison with nascent entrepreneurs in other sectors.

A common supplementary measure for assessing the fit of the model in these kinds of applications is the Hosmer and Lemeshow test, where the probability of an outcome is specified rather than the actual occurrence of an outcome. This test rejects the hypothesis that the model does not fit well. For this test, cases are sorted by pre-

dicted outcome and then divided into 10 subgroups of equal sizes. For each subgroup, the numbers of observed and expected successes and failures are compared. The p -value associated with the associated chi-square test statistic equals 0.384, which provides support for using this particular model. Also, inclusion of the development of some explanatory variables results in a significant improvement as regards to overall model-fit. The associated increase in likelihood (leading to a likelihood ratio statistic of 32.26) is significant at the 5% level, using the chi-squared distribution with 5 (number of additional parameters) degrees of freedom. We also checked for the presence of curvilinear relationships as regards to the ordinal explanatory variables that are included in the analysis. There was no evidence for such curvilinear relationships.

The last two columns of Table V give the results of a logistic regression model when the change variables are not taken into account. After all, risk perception, time investment, and capital requirements may be changed in the process, but the potential entrepreneur wants to know his chances at the very beginning. Two additional variables taking on a significant positive impact are industry experience and exposure to guidance and advice agencies. Summarizing the results we conclude that few of the nascent entrepreneurs' characteristics are directly associated with success (a start-up). Most of the significant findings relate to the entrepreneur's *environment*: start-up capital and risk of the market

are seen to be the most important features. As characteristics of the intended organization, starting a manufacturing firm and of starting full-time are also important. Indicators of the followed process were not significant. Moreover, none of the included individual characteristics seem to distinguish successful nascent entrepreneurs from the unsuccessful ones. Of course, we only investigated direct effects, and there may be indirect (mediated or moderated) effects of these variables.

As stated in the design section of the method paragraph, we investigate success and risk factors for subgroups in the total sample. Two measures that collapse a number of variables are derived

TABLE VI
Estimation results separating low and high ambition

	Limited ambition		High ambition					
	Value in 1998		Development		Value in 1998		Development	
	coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Gender female – male								
Age young – old	0.73**	0.33			0.13	0.38		
Push motivation	0.60	0.55			1.51**	0.71		
Education low - high	0.02	0.45			0.53	0.54		
Work experience	0.01	0.35			0.20	0.48		
Management experience	0.27	0.25			0.54*	0.31		
Experience in setting up	0.70	0.61			0.06	0.61		
Business plan	0.84*	0.44	0.27	0.65	1.16*	0.64	2.13*	1.22
Information and guidance	0.44	0.54			0.97	0.66		
Start part-time - full-time								
Industry experience	0.28	0.20			0.14	0.27		
Start up capital								
Third party loan								
Risk of the market	0.75*	0.41	0.81**	0.27	1.31**	0.52	1.03**	0.41
Dummy manufacturing	0.94	0.98			2.24*	1.21		
Dummy trade	0.49	0.74			0.26	0.64		
Dummy business services	0.19	0.63			0.20	0.75		
Dummy consumer services	0.11	0.71			0.17	0.80		
Ambition becoming rich	0.40	0.72			0.36	0.61		
Ambition becoming large								
Techno nascent	0.23	0.69			0.70	0.74		
Solo – team	0.47	0.46			0.21	0.49		
Constant	0.71	2.22			3.79	2.77		
Chi-square Model Test St	40.75**				31.55**			
Nagelkerke R ²	0.31				0.34			

Notes: Values relate to initial questionnaire, developments relate to last moment before reported start-up or abandonment. Limited ambition: N = 164, 70% start, 30% stopped. High ambition: N = 107, 55% start, 45% stopped. Respondents that were preparing the business for more than a year at the moment that they were contacted for the initial survey were excluded. Developments on the variables 'start part-time – full-time' and 'solo – team' were excluded because of the low variation in subgroups.

** $p < 0.05$; * $p < 0.10$.

from a PRINCALS analysis and used as a basis for categorization. The ambition score is a standardized mean of the variables 'wish to grow large', 'start full-time', and 'start-up capital', and 'third party loan'. Gender is left out of the analysis. Splitting the sample by the mean, we identify a 'limited ambition group' (164 cases) and a 'high ambition group' (107 cases). We apply the same regression to both ambition subgroups as we did earlier to the total sample. Some interesting results emerge in Table VI.

Among the nascent entrepreneurs showing limited ambition in our sample, older people are less likely to get the business started. Interestingly, a business plan works positively for nascents with limited ambition but negatively for

nascents with high ambitions. Those with high ambitions who write a business plan later on, have increased chances of success. Management experience is also useful for those with high ambitions. From the characteristics that turned out to be significant in the entire sample, only the negative effect of market risk remains (although less significant). Among nascent entrepreneurs revealing high ambitions, risk of the market seems just as important as for those with lower ambitions. A push motivation combined with high ambition leads to a lower propensity to start-up.

Similarly, two subgroups distinguishing experiences of the nascent entrepreneurs are identified (141 with limited experience, 130 with high expe-

TABLE VII
Estimation results separating low and high experience

	Limited experience		Substantial experience					
	Value in 1998		Development		Value in 1998		Development	
	Coefficient	SE	Coefficient	SE	Coefficient	SE	Coefficient	SE
Gender (female-male)	0.64	0.50			-0.60	0.67		
Age (young-old)								
Push motivation	-0.16	0.57			-0.85	0.57		
Education (low-high)	0.23	0.46			0.20	0.49		
Work experience								
Management experience								
Experience in setting up	1.27*	0.69			-0.60	0.54		
Business plan	0.13	0.51	0.93	0.72	0.28	0.50	0.61	0.93
Information and guidance	0.97*	0.59			-0.23	0.56		
Start (part-time-full-time)	0.68	0.52			0.52	0.51		
Industry experience								
Start up capital	-0.51*	0.28	-1.01	0.68	-0.20	0.29	-0.67	0.59
Third party loan	-0.38	0.52			0.23	0.59		
Risk of the market	-0.91**	0.41	-0.82**	0.30	-1.13**	0.47	-0.98**	0.32
Dummy manufacturing	1.83	1.29			1.38	0.86		
Dummy trade	-0.49	0.68			0.35	0.79		
Dummy business services	0.35	0.63			0.74	0.65		
Dummy consumer services	0.01	0.79			0.29	0.75		
Ambition becoming rich	0.13	0.66			0.05	0.74		
Ambition becoming large	-0.93	0.57			0.36	0.71		
Techno nascent	-1.12	0.71			0.68	0.76		
Solo - team	-0.23	0.47			-0.48	0.55		
Constant	-0.18	2.33			4.98**	2.46		
Chi-square Model Test St	43.45**				25.16			
Nagelkerke R ²	0.36				0.25			

Notes: Values relate to initial questionnaire, developments relate to last moment before reported start-up or abandonment. Limited experience: N = 141, 59% start, 41% stopped. Substantial experience: N = 130, 70% start, 30% stopped. Respondents that were preparing the business for more than a year at the moment that they were contacted for the initial survey were excluded. Developments on the variables 'start part-time - full-time' and 'solo - team' were excluded because of the low variation in subgroups.

** $p < 0.05$ * $p < 0.10$.

rience). The experience score is a standardized mean of the variables 'work experience', 'management experience', and 'industry experience'. Age is left out of the analysis. The corresponding results are shown in Table VII. It appears that, apart from perceived market risk, there is not much to predict on the chances of success for nascent entrepreneurs with high degrees of experience. Among nascent entrepreneurs with limited experience, there is more variation that can be explained by the characteristics distinguished. Interestingly, making use of information and guidance increases the chances of success among less experienced business founders. People with experience in setting up a business but who have relatively little experienced otherwise also have an advantage.

7. Discussion

We have studied a range of approaches and their associated variables in their relationship with pre-start-up success. For the full sample, the results show four variables to be significantly related, three of them both in their initial values and as change variables. The association with success of starting part-time or full-time may appear to be a circular finding, as the amount of time that one can put in the business is a success measure by itself. Still, the position that it is easier to start a part-time business because of presumably smaller scale and financial risk receives no support, using our particular sample. Setting up a business part-time may be a disadvantage because there isn't a single focus on the business. One is distracted as an entrepreneur if not working full-time.

Similarly, the results with respect to perceived risk of the market cannot be considered trivial. They show the importance of risk management, as the effective use of risk reduction techniques will lead to lower perceived risk. Moreover, the central importance of market risk is reassuring in the sense that this is the result that one would prefer to find. In the end business success should be primarily a question of market selection and not of other factors. Still, risk perception may also be considered a mediator as conceptually all remaining variables may influence success

through the heightening or lowering of the perception of risk.

The third variable directly and negatively affecting performance proves to be the amount of intended start-up capital. This shows that it is easier to start with a small amount of capital. Amount of intended start-up capital will be related to intended size, and companies are easier to get started when they are smaller. Another explanation is that smaller capital may be often obtainable without having to go through the financial lending system and its risk evaluation criteria. A greater proportion of funds for smaller projects can be obtainable by pre-start-up savings, loans from friends or family, other partners in the venture, etc. For those who want to start with a high amount of capital but fail to do so, different processes may be responsible. On the one hand dreamers fail to gather their intended amount of start-up capital and are rightfully rejected by financiers; on the other hand people with a sound business concept may be unjustly rejected by financiers. It may also be that some of these people calculate their prospects carefully and back off if risks cannot be reduced (Carter *et al.*, 1995). Unfortunately we cannot assess the quality of the opportunity and of the business concept with our data.

A fourth finding is that people in manufacturing more often got started. An explanation may be that comparative to the other sectors it is less easy to start in manufacturing, as knowledge about and capital for production are required. This may have a selection effect on those who want to become nascent entrepreneurs. Another explanation may be that manufacturing enterprises are likely to invest capital in assets that can be sold in case of bankruptcy. This means that investing in those kind of companies can be less risky for financiers. Investors may anyhow be more likely to invest in "traditional" companies than in a service company. It is easier for financiers to assess the real worth of a company (and issue loans covered accordingly) as tangible assets are of much easier valuation than intangibles such as human capital skills.

On the approach level, direct effects are associated with environmental variables (risk of the market, start-up capital), and with characteristics of the intended organization (starting full-time,

starting in manufacturing). Approaches and variables not having a direct effect on pre-start-up success can still be influential. In this paper only direct effects are studied. Their effects may be moderated or mediated by other variables. For example, with regard to mediators, the correlations indicate that those who wish to start out full-time are characterized by being male, the ambition to grow large, and the intended use of a large amount of start-up capital. With regard to moderators, it may be argued that being female and having experience will interact positively in predicting success, just as push motivation and team start-up will interact negatively. Mediators and moderators need to be specified beforehand, and the results of this study give input for the derivation of hypotheses.

An issue that was taken up in this paper was the search for relatively homogeneous subsamples. Acknowledging heterogeneity in the sample of nascent entrepreneurs proved to be beneficial for predicting chances of success. In this particular sample, the success and failures of less experienced business founders and the business founders with high ambitions can be reasonably predicted. This is less so for their counterparts, i.e. the highly experienced business founder and the business founder with limited ambitions. Still, some interesting findings emerged. The results confirm that those with limited experience benefit from information and guidance. Apparently this is a fertile target group for guiding agencies.

Push motivation works negatively in combination with high ambitions. If forced to start a business, and on the lookout for organizational employment, it is advisable to start an operation limited in scope and scale. Finally, the writing of a business plan works out differentially for those with limited and high ambitions: for the limited ambition group it correlates positively, while for the high ambition group it correlates negatively. An interpretation is that for those who start a small scale business writing and having a plan helps them to structure and focus their activities. Those who start a large-scale business without a plan may be people who are so knowledgeable and experienced that they do not need a plan. Then, later in the start-up process, writing a business plan after turns out to be beneficial. This runs somewhat counter to Delmar and Shane's

(2004) findings, also using the ERC design but with different measures and analytical techniques, that a business plan is particularly useful in the early beginnings of the start-up phase as a means to obtain legitimacy.

The present study has a number of limitations. First, as stated above, only direct effects are studied. Second, not all approaches proposed in our theory section are studied, e.g. psychological approaches. Moreover, of those that are studied the operationalizations are sometimes crude. Third, the data prove to be far from perfect. Because the sample of nascent entrepreneurs is collected at a single point in time they vary in the number of months they had been preparing their business. Thus, both the initial values and the change variables are confounded: for some the initial values are in reality end values; and end values could be computed for a limited subset of the sample only. Fourth, our survey study does not shed light on variables that are less easily accessible. The so-called "how" variables (VanderWerf, 1993) are not taken into account, for example how resources are developed, how relationships are maintained, and how information is gained (Cooper, 1993).

Government policy in the old, managed economy was largely about control. High certainty dictated that it was known what to produce, how it should be produced, and who would produce it. The role of government was to constrain the power of large corporations, which were needed for efficiency under mass-production, but posed a threat to democracy through their concentration of power (Chandler, 1977 and 1990). Under the old, managed economy the policy debate centered on competition policies (antitrust), regulation and public ownership of business (Teece, 1993). In the new, entrepreneurial economy these constraining policies have become increasingly irrelevant. The central role of government policy in the new, entrepreneurial economy is enabling in nature. The focus is to foster the production and commercialization of knowledge. Rather than focus on limiting the freedom of firms to contract through antitrust, regulation and public ownership, government policy in the new, entrepreneurial economy targets education, increasing the skills and human capital of workers, and facilitating the mobility of workers and their abil-

ity to start new firms (Audretsch and Thurik, 2001). Knowledge of relevant factors and influences in the pre-start-up phase is essential for creating a portfolio of new enabling policies. Therefore, we believe that efforts to understand predictors of pre-start-up performance are an important part of entrepreneurship research. Characteristics of nascent, i.e. people who are in the process of setting up a business, are hardly dealt with in the area of entrepreneurship research. The present study is one of the first to contribute to this new area. We hope the simple models described here will encourage the work yet to be done.

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