

INTERPRETING PERFORMANCE IN RESEARCH ON INDEPENDENT ENTREPRENEURSHIP

Per Davidsson: Queensland University Of Technology, Brisbane, Australia

~

Contact: Per Davidsson, Queensland University of Technology, Gardens Point Campus, 4001
Brisbane, Australia, (T) +617 3864 2051, (F) +617 3864 1299, Email:
per.davidsson@qut.edu.au

ABSTRACT

The performance of the often young and independent businesses studied in entrepreneurship research is not only difficult to assess (Brush & Vanderwerf, 1992) and hard to predict (Cooper, 1995), but also a challenge to interpret. Is discontinuation a sign of failure, and always a worse outcome than continuation of the business? Is growth a sure sign of success and always a better outcome than stability? Based on empirical insights from several large research studies this paper will argue that greater care ought to be taken in the selection and interpretation of the dependent variable in entrepreneurship research. It will be argued that discontinuation of some incumbent firms is a necessary part of ‘creative destruction’ (Schumpeter, 1934) and that termination of a start-up effort may be the best outcome of an essentially sound experiment. If a venture idea is inherently non-viable it is better to learn that earlier rather than later and to minimize the losses rather than continuing dreaming perhaps because the founders shun any ‘acid test’ for as long as possible. As regards growth, empirical results demonstrate that many firm founders do embrace growth as a goal. Moreover, firms that embark on a growth trajectory starting from a situation of low profitability rarely become profitable as a result of their expansion. Instead, they often become low performing firms in terms of growth *and* profits in subsequent periods. Implication for entrepreneurs, policy-makers and researchers are discussed.

INTRODUCTION

For obvious reasons, researchers and policy-makers alike have an interest in assessing the performance of new and independent firms as well as in understanding the factors that contribute to it. Attaining such knowledge is not a trivial undertaking. Researchers have pointed out that the performance of the type of firms entrepreneurship researchers study can be difficult to assess (Brush & Vanderwerf, 1992) and also difficult to predict (Cooper, 1995). In this paper I will discuss the equally important and difficult issue of how research results regarding the performance of independent (and often small) businesses and its predictors can or should be *interpreted*. In particular, I will discuss whether commonly used performance indicators like survival vs. non-survival and growth vs. non-growth really reflect ‘good’ vs. ‘bad’ performance, as is commonly assumed. Although theory and other researchers’ findings will also be used to some extent, my exposition will rely heavily on experiences and illustrations from a number of research projects I have been directly involved in during the last 20 years.

The paper proceeds as follows. I will first question the assumption that business dissolution—often called ‘failure’—is a ‘bad’ outcome that best should be avoided from the aggregate perspective of the economic system. I will then continue to discuss ‘failure’ from more of a micro-perspective, arguing that most instances of dissolution of new or emerging firms are not associated with substantial financial losses and do not necessarily represent efforts that should have been avoided. Staying at the micro level I will then turn to the issue of firm growth and the conditions under which growth represents a ‘good’ outcome from the perspective of the firm’s principal stakeholders. I will then return to the aggregate level and discuss the extent to which firm level employment growth translates to net

increases of employment in the economy. Finally, the implications of the issues raised in the paper will be restated and discussed in the concluding section of the paper.

IS 'FAILURE' SUCH A BAD THING? A MACRO VIEW

Schumpeter (1934) introduced the notion of 'creative destruction' and suggested that innovations are often introduced by outsiders to an industry. Ever since, the notion that incumbents have problems introducing (radical) novelty has been a recurring theme. On the firm level, aspects of this has been discussed under various labels such as 'incumbent inertia' (Lieberman & Montgomery, 1988), 'core rigidities' (Leonard-Barton, 1992), 'liabilities of adolescence and obsolescence' (Henderson, 1999) and a range of other terms (Mosakowski, 2002). If there is any truth to incumbents' relative inability to innovate, entry of new firms becomes essential to the dynamism of the economy. Accordingly, researchers and policy-makers have shown a great deal of interest in firm entry.

But "Whatever happened to 'destruction' in 'creative destruction'?" asks McGrath (2003) rhetorically. While embracing the 'creative' side of Schumpeterian dynamism it seems that researchers and policy-makers have either neglected or failed to adjust their perhaps natural initial negative backbone reaction against the 'destructive' part of it. However, if it is accepted that new entry is important for the dynamism of the economy it must also be accepted that the new entrants need to get their resources and customers from somewhere. Schumpeter (1934) also emphasises "new combinations". That is, what new firms create is not totally new; they re-deploy resources already in existence. If there was no decline and demise of existing firms, there would be no premises to rent at reasonable rent and no low cost labour or high skilled knowledge workers, as the need may be, for the new challengers. Rather than incumbent firms' demise primarily reflecting destruction of resources it indicates, according to the Schumpeterian argument, redeployment in better use. As a result, individuals may get better, higher-paid jobs; investor may get higher returns, and customers may get better products at lower prices as new, superior business models force inferior ones out of the market.

While policy-makers on local and regional level seem largely unable to welcome any decline of established firms, entrepreneurship researchers may have some appreciation for entry inevitably leading to some decline and sometimes dissolution of existing organizations. The equally important opposite relationship is rarely considered: that exit gives room to entry. In an interesting, recent conference paper Aviad & Vertinsky (2006) explored and supported that hypothesis, using high quality Canadian data and a sophisticated analysis approach. It appears that it is not just that challengers crowd out incumbents, but also that incumbent exit leave room for challengers to make their move.

Even harder seems to be to accept that start-ups fail to establish themselves in the market. However, as will be discussed in the next section the rate and reality behind start-ups' and young firms discontinuation are far as dramatic or traumatic as is sometimes believed. Further, it is reasonable to ask that entrepreneurship researchers accept uncertainty as a fundamental quality of the economy. If so, start-ups are largely experiments and even an experiment that does not work out in the longer run may well have been a sound experiment based on the information available at the time (McGrath, 1999). If there were no failures among start-ups it would mean that only the very safest bets would be made at all. There are probably few who believe that the ventures that have most contributed to economic development looked like safe bets at their embryonic stage. Hence, a belief in a dynamic market economy must include an acceptance that a non-trivial proportion of all new ventures will never take off.

In the project *Business Dynamics in Sweden* (Davidsson, Lindmark, & Olofsson, 1994a, 1994b, 1995, 1996, 1998a, 1998b) we found some empirical support for this view. In this project we used a carefully customized data set based on a combination of Statistics Sweden's data bases in order to make it possible to track entry, exit, expansion and contraction among all commercially active business establishments in Sweden from 1985 to 1994. The level of analysis was the region. Following the example of Paul Reynolds and co-workers (Reynolds & Maki, 1990; Reynolds, Miller, & Maki, 1995) the country was subdivided into 80 Labour Market Areas (LMAs). In one of the analyses, which is reproduced in Table 1, we related measures of business dynamism during the first half of the period to the subsequent development of regional economic well-being. Two separate indices were used to assess the latter. The first consisted of four items reflecting net migration and increasing net income whereas the latter consisted of two items reflecting relative decrease in welfare recipients and payments.

For our current purposes there are three things about these results that are noteworthy. First, the predominance of positive coefficients suggests that regions with more dynamism experience better development of economic well-being. Second, the R-squares show that measures of gross dynamism can explain more of the variance than can net measures alone. This suggests that not only the 'creative' but also the 'destructive' side is important for economic development. Third, especially with respect to

the second well-being index, it is the variables directly reflecting churning—high levels of entry *and* exits—that are ascribed the positive effects. The implication of these results is that if two regions had zero net change in numbers of firms and jobs between two points in time and one region achieved that result through survival of all existing firms and jobs whereas the second region achieved the same net result through a large number of entries, exits, expansions and contractions numerically canceling out each other, the second region would experience better development of economic well-being.

Table 1. Gross and Net Regional Business Dynamism as Predictors of Subsequent Development of Regional Economic Well-being (Based on Davidsson et al., 1994)

Net Dynamism Model						
<i>Dependent variable</i>	<i>Well-being Index I</i>			<i>Well-being Index II</i>		
	<i>Corr.</i>	<i>Beta I</i>	<i>Beta II</i>	<i>Corr.</i>	<i>Beta I</i>	<i>Beta II</i>
<i>Independent variables</i>						
Net independent entry	.31	.31	.33	.42	.41	.43
Independent expansion surplus	.18	.14	.14	.26	.30	.29
Net branches entry	.15	.11	-	.11	-.05	-
Branches expansion surplus	.27	.04	-	.08	.11	-
Net large branches entry	.14	-.05	-	.18	.08	-
Large branches expansion surplus	.30	.28	.28	-.07	-.21	-
Adj. R ²		.16	.18		.22	.24
Gross Dynamism Model						
<i>Dependent variable</i>	<i>Well-being Index I</i>			<i>Well-being Index II</i>		
	<i>Corr.</i>	<i>Beta I</i>	<i>Beta II</i>	<i>Corr.</i>	<i>Beta I</i>	<i>Beta II</i>
<i>Independent variables</i>						
Gross new independent entry	.40	.46	.09	.09	-.03	-
Independents turnover (entry+exit)	.07	-.19	-	.44	.20	.18
Gross independent expansion	-.12	-.04	-	.08	.13	-
Gross branches entry	.18	-.07	-	.44	-.09	-
Branches turnover (entry+exit)	.20	.21	-	.64	.60	.55
Gross branches expansion	.38	.37	.39	.18	-.08	-
Adj. R ²		.29	.30		.41	.41

Note: ‘Independent’ refers to single-site firms. ‘Branches’ are entities within firms with multiple establishments. ‘Large’ branches have >20 employees. ‘Beta I’ is the standardized regression coefficient when all explanatory variables are entered. ‘Beta II’ is the standardized regression coefficient in a model only retaining variables that contribute to an increase in Adj. R²

While the results in Table 1 are admittedly not entirely conclusive they represent but one indication out of many in that project that not only entry and expansion but also exit and contraction are essential aspects of a well-performing economy. Teasing out the true effects of economic turbulence is not an easy task, and these effects are also likely to be contingent on business cycle conditions as well as country-specific factors. It is therefore not surprising that the collective, international evidence is not entirely conclusive, either. However, the balance of the evidence seems to support the Schumpeterian argument (Carree & Thurik, 2003: 457-458). Importantly, there is enough evidence to suggest that efforts to secure the survival of particular firms and particular jobs—i.e., reduce ‘failures’—may well be counter-productive because resources that would otherwise be redeployed in more productive use get locked into obsolete business practices. High numbers of exists are not a bad thing as long as the freed up resources are actually redeployed rather than destroyed. If this argument be accepted, the policy implication is that policies should facilitate rather than hinder this process of resource transfer.

IS ‘FAILURE’ SUCH A BAD THING? A MICRO VIEW

Figures showing that only x percent of start-ups survive the first n years are commonplace. Often the figures cited seem quite alarmingly low. Headd (2003) mentions, as an example, the US myth that nine out of ten businesses close during their first year of operation. Usually these estimates are also presented in such a way that one might think that they would not exactly serve as inspiration for intelligent individuals to try their luck in independent business start-ups. However, the very high estimates typically build on bad data. Firms change identification codes in statistical records because of geographical relocation, ownership changes, and changes of legal form or principal industry. Hence, business entry and exit are over reported (Dahlqvist, Davidsson & Wiklund, 2000). For example, in the *High Growth Firms* study (Davidsson & Delmar, 2003, 2006; Delmar, Davidsson, & Gartner, 2003) the observed survival of 25 percent of the firms in the study was affected by a correction for this issue, and this is in data that are of comparatively high quality already.

Moreover, business founders close down for a range of reasons including retirement or better opportunities in other businesses, either in employment or self-employment. Thus, far from all business closures represent 'failure' in any meaningful sense. The comprehensive study undertaken by Headd (2003) is a good example of what a closer and more careful look can reveal. First, his data shows that even in the highly dynamic US economy, 50 percent survive for at least four years. This is still not very high in comparison to conclusions based on high quality data from other countries. Second, start-ups that have employees and those that had more than USD 50 000 in start-up capital (in the early 1990s) were less than half as likely to terminate operations as the average start-up. Thus, most closures were not associated with losses of jobs or very substantial sums of money. Further, 29 percent of the owners reported their firms as successful at closure. Wennberg & Wiklund (2006) recently reported a very similar result for Sweden. About 30 percent of the discontinued firms in their large, longitudinal data base showed above median performance in the preceding year, indicating that their exit was not related to (objective) performance. Likewise using unique and high quality data, McGrath (2006) showed that out of more than 500 'de-listings' only 25% represented closure of independent businesses, and *none* was a bankruptcy. Clearly, dissolution does not always indicate 'failure'. In earlier work, McGrath (1999) has emphasised that even when the venture exit does represent a failure it may be associated with learning that is essential to the entrepreneur's success with a subsequent venture.

The perils of interpreting non-continuation as 'failure' is also something I have come across through my involvement in the Panel Study of Entrepreneurial Dynamics (PSED) (Gartner, Shaver, Carter, & Reynolds, 2004; Reynolds, 2000) and its international counterparts (Alsos & Kolvereid, 1998; Delmar & Davidsson, 2000; Diochon, Menzies, & Gasse, 2003; Van Gelderen, Thurik, & Bosma, 2005; cf. Davidsson, 2006). This is longitudinal research about on-going business start-ups. Not all of these attempts lead to up-and-running firms. Rather, a slight majority tends to be terminated before that stage (Wagner, 2004). Does this mean that the majority of start-up efforts are 'failures' that should have been avoided?

As this research concerns not yet up-and-running firms it is tempting to evaluate their performance on the basis of whether they are making progress in the start-up process or are abandoned. The logic of analysis techniques such as logistic regression (Davidsson & Honig, 2003) and event history analysis (Delmar & Shane, 2004) further makes it tempting to use a dichotomous dependent variable—abandoned vs. not-yet-abandoned—and interpret the former as 'success' and the latter as 'failure'. A serious shortcoming of this approach is that the 'not-yet-abandoned' group will consist of a mix of a) undoubtedly successful cases; b) cases that are unwisely continue although available information suggest they should be terminated, and c) those efforts that are never put to an 'acid test' and therefore continue to be classified as 'still trying'. The importance of this problem is illustrated by Carter, Gartner and Reynolds' (1996) finding that the 'up and running' and 'abandoned' cases seemed rather similar. Importantly, both categories may have been right in their respective decisions, and abandoned cases are not necessarily 'failures'. If business start-ups are regarded as experiments with uncertain outcomes, the only failed cases are the experiments that never lead to a conclusive answer. This insight begs the question whether 'still trying' cases are in most cases examples of a 'better' outcome than the abandoned ones. Abandoned cases may in many instances be regarded as experiments that were worth doing but which successfully established without significant financial losses that what initially seemed to be a profitable business opportunity probably was not.

This shows that abandoned vs. not-yet-abandoned—especially if interpreted as failed vs. (more) successful—is not suitable as sole dependent variable in research on emerging business ventures. It also suggests that normative conclusions like 'Our results demonstrate that entrepreneurs should complete business plans before talking to customers or initiate marketing and promotion' (Shane & Delmar, 2004: 783) should not be drawn on the basis of such analyses. In this particular instance it is conceivable, for example, that some of the planners who continue do so unwisely as victims of well known psychological phenomena such as 'escalation of commitment' (McCarthy, Schoorman, & Cooper, 1993) or 'failure to use negative information' (Davidsson & Wahlund, 1992). There is reason to believe that rather than being strongly associated with 'non-abandonment', predictors indicating some aspect of 'entrepreneurial expertise' should be associated with 'high financial performance' among survivors and with relatively rapid, low cost abandonment among non-survivors.

Canadian (Diochon, Menzies, & Gasse, 2003) as well as unpublished Swedish results from this type of research further suggest that those who abandon the project often do so because they want to (e.g., because other, more attractive employment or self-employment alternatives surfaced) and not because they have to, and also that they do not regret having engaged in the abandoned start-up. Further, McGrath (1999) reminds us that involvement in a 'failed' start-up may lead to learning that is a necessary prerequisite for the next success, and Sarasvathy (2004) rightfully emphasizes that a failed

venture does not mean a failed entrepreneur. Wennberg and Wiklund (2006) recently lent forceful empirical support to that notion.

It is also clear from PSED-type research that high-ambition start-ups are given up more readily than their low-ambition counterparts (Davidsson, 2006). This is reminiscent to the exemplary study by Gimeno, Folta, Cooper, and Woo (1997). Their research demonstrated that different founders have different thresholds for what is an acceptable level of performance. An important conclusion to be drawn from this is that because individuals with higher levels of human capital will have more attractive ‘other alternatives’ than will individuals with low levels of human capital, the effect of human capital on the likelihood of firm ‘survival’ at a given level of objective performance is likely to be negative.

In summary, research suggests that young, independent firms are not terminated at as high rates as previously thought; that many cases of termination are voluntary and even may be associated with considerable success; that other cases of closure represent viable businesses but that other alternatives are even more promising for the owners and hence that the termination is a sound decision; that still other cases are sound instances of experimentation leading to the insight that the business will not be viable, and that even when there is some aspect of real ‘failure’ involved the individuals involved can be happy with the experience and may have learnt invaluable lessons from it, which may contribute to future success. Business failures involving large financial losses and personal tragedy appear to be relatively infrequent. Efforts to help marginal business get started and survive may lock people (and other resources) into the wrong projects, potentially reducing both individual and societal utility compared with what non-intervention would have resulted in.

IS GROWTH SUCH A GOOD THING? A MICRO VIEW

A large number of studies have investigated the growth of new, small, and/or owner-managed firms (see, e.g., Ardichvili, Cardozo, Harmon, & Vadakath, 1998; Davidsson, Achtenhagen, & Naldi, forthcoming; Storey, 1994, and Wiklund, 1998 for reviews). Usually it is taken for granted that growth is an indicator of success. However, as we have already indicated above, different business owner-managers have different goals and growth may or may not lead to a situation which is, on balance, better in the view of the firm’s principal stakeholders. Growth changes the owner-managers’ situation in many ways, and many of them may not be willing to trade, e.g., increased financial gain for reduced autonomy (Sapienza, Korsgaard, & Forbes, 2003).

The clash between economic and business theories (where the willingness to expand is usually taken for granted) and business reality (where you do not have to talk to many business founders in order to realize that they are often reluctant to expand their firms even if they see profitable opportunities) was in fact my personal entry point to business research. Hence, I included in my dissertation study (Davidsson, 1989a) a set of questions about owner-managers’ expected consequences of growth, which I then related to their over all growth willingness (Davidsson, 1989b). Each question concerned whether the aspect in question would likely be better or worse if the firm were twice as big. The same set of questions were included in two other Swedish, survey-based dissertation projects in the 1990s, and the joint findings were published in Wiklund, Davidsson, & Delmar (2003)

The results can be summarized as follows. First, in the aggregate, negative and positive expectations exist along all investigated dimensions, and across dimensions negative and positive sentiments are about equally prevalent. The strongest dominance for positive expectations concerned personal income and the strongest dominance for negative expectation occurs for vulnerability, i.e., a majority believes the firm would have less crisis survival ability if its size were doubled. The vast majority of respondents expected some positive and some negative outcomes, i.e., growth is a dilemma for them. Finally, as is revealed in Table 2, all investigated dimensions were of some importance for overall growth willingness, and financial expectation did not stand out as the most important. Instead, concerns for employee well-being—probably the atmosphere of the small work place—was consistently the important predictor across the three studies as well as in breakdowns by size, age and industry. This expected outcome works as a growth deterrent more often than it works as a growth motivator, i.e., managers often fear some important ‘soft qualities’ of the firm would be lost if the firm grew and they therefore refrain from seeking expansion.

These results show that concerns other than economic rationality are important to firm owner-managers. However, even if economic rationality were the only guiding star it could still be questioned whether growth is in itself sufficient evidence that the stakeholders’ true goals are being met. Although both of these performance dimensions have been shown to be empirically related to increases in firm value (Cho & Pucic, 2005), neither high growth nor high profitability alone proves that the inherent potential in the underlying business opportunity is being optimally harvested. A firm can hypothetically

achieve infinite volume growth by giving away their products more or less for free. High percentage profitability, on the other hand, can be achieved by serving only the most profitable market segment although other segments could also be served at high, albeit not as high, absolute levels of profits.

Table 2. The effects of growth expectation on growth willingness in three separate studies (Wiklund et al., 2003)

Sample	1986 Sample n=287	Rank order	1994 Sample n=338	Ran k orde r	1996 Sample n=533	Ran k orde r	Joint proba- bility
Variable							
Workload	.11*	2	.04	7	.02	7	.0015
Work tasks	.04	7	.15**	2	.00	8	.0003
Empl. well-being	.27***	1	.19***	1	.25***	1	<.0000 1
Personal income	.07	4	.08	5	.12**	4	.000007
Control	.10*	3	.00	8	.13**	2	.00003
Independence	.07	4	.11*	3	.13**	2	.000004
Vulnerability	.07	4	.11*	3	.06	5	.0002
Quality	.04	7	.08	5	.03	6	.04
Adj. R ²	.23		.20		.23		

Note: Results build on responses from owner-managers of established businesses with 5-49 employees. Forced entry of independent variables is used. Standardized regression coefficients are displayed in the Table. *= p< .05; **= p< .01; ***= p< .001. Single-tailed test of significance is applied.

Hence, profitable growth ought to be the real economic goal of the firm, and these two performance dimensions ought to be considered simultaneously. This is the vantage point for our on-going research on SME Growth and Profitability (Davidsson, Steffens, & Fitzsimmons, 2005 and forthcoming). In this project we examine large, longitudinal secondary data sets capturing the development of SMEs in Australia and Sweden over time. More specifically, we focus on the development of firms that first show above average profits (at low levels of growth) with those that first show above average growth (at low levels of profit) in order to determine what category is more likely to score highly on both performance dimensions in subsequent periods, i.e., what firms are likely to attain the favourable state of profitable growth. Theoretical arguments can be put forward in favour of either route to profitable growth. For example, the existence of scale economies, experience effects or first mover advantages suggest firms may have to grow in order to become profitable, whereas other lines of reasoning suggest growth based on retained earnings is less costly and therefore more profitable (see Davidsson et al., 2005; forthcoming).

In order to perform the analysis the firms were first classified each year as belonging to one of the following five performance groups.

- Poor – low performance on both growth and profitability
- Middle – medium performance on both growth and profitability
- Growth – high performance on growth, but low on profitability
- Profit – high profitability but low growth
- Star – high performance on both growth and profitability

All these categorizations are relative to the industry average. In the end year there also exists a sixth possibility:

- Exit – the firm is no longer included in the data set as a separate entity

Tables 3 and 4 report some of the results. The one-year transitions in Table 3 show that firms in the 'Profit' category are two to three times more likely than firms in the Growth category to reach the desirable Star category in the following year. This is a first indication that attempting to 'grow

profitable' may be a dubious practice. However, a route from Growth to Profit would also indicate growth leading to profitability. However, this transition is quite unusual; only six percent of the firms in each country take that route. Instead firms in the Growth category alarmingly often end up in the Poor category instead, i.e., they become low performing firms according to both performance criteria. Firms that first secure a high level of profitability appear to have much better prospects. They transition to Star much more often and to Poor much more rarely than do the firms in the Growth category.

Table 3. Aggregated one-year performance group transition percentages for Australian and Swedish small and medium-sized firms (Based on Davidsson et al., forthcoming)

Australia		Initial (Year X) Performance Group					
		Poor (n=2057)	Middle (n=2964)	Growth (n=1588)	Profit (n=1499)	Star (n=2379)	TOTAL (n=10469)
Final (Year X+1) Performance Group	Exit	9.1	4.2	6.4	7.8	4.6	5.1
	Poor	30.8	17.9	30.3	11.0	12.9	19.7
	Middle	21.4	45.9	22.8	19.7	19.8	29.1
	Growth	21.2	9.5	22.6	5.6	6.2	12.9
	Profit	6.0	8.8	6.2	26.3	25.4	14.5
	Star	11.5	13.6	11.6	29.6	31.1	18.7
	TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
Sweden		Initial (Year X) Performance Group					
		Poor (n=590)	Middle (n=846)	Growth (n=434)	Profit (n=407)	Star (n=675)	TOTAL (n=2952)
Final (Year X+1) Performance Group	Exit	2.4	0.1	0.5	2.2	0.4	2.0
	Poor	35.4	16.0	28.3	17.7	11.0	21.5
	Middle	23.2	45.5	18.7	19.7	22.4	28.1
	Growth	21.9	9.8	30.9	3.7	6.4	13.2
	Profit	6.3	11.2	6.2	27.0	18.5	12.3
	Star	10.8	17.4	15.4	29.7	41.3	22.9
	TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

Note: The table reports percentage of firms in specified (initial state) performance group that transitions to specified (final state) performance groups. Two (Sweden) or three (Australia) one-year transitions are aggregated. Bold entries highlight results of particular interest.

In fact, firms in the Middle group, i.e., these firms showing balanced growth-profit development in the first period—also outperform the Growth firms in the following period. The Middle firms transition to Star more often and to Poor more seldom. It should be noted that the interpretation of transitions to Exit is unclear. This category is a mix of failures and termination for other—sometimes very positive—reasons (cf. above).

It may be suspected that the positive effects of embarking on a growth trajectory are longer term. Regrettably, the data sets we use cover only three and four years for Swedish and Australian firms,

respectively. In Table 4 we repeat the analysis using the maximum available time span. While the results are less dramatic they still point very clearly in the same direction. Firms that first grow starting from low profitability ('Growth') end up in the Star category more seldom, and in the Poor category more often, than do firms that first attain higher than average levels of profitability ('Profit'). Analyses not displayed here suggest this pattern is fairly robust across sub-categories of firm by industry, size and age. And again, over this somewhat longer analysis period the Growth firms are outperformed not only by the Profit firms but also by the Middle category. Overall, the displayed results give reason to question whether growth per se is a sound business goal. They also suggest that those owner-managers who suspect growth does not pay (Davidsson, 1989b) are not always wrong and the findings also cast more favourable light over owner-managers' widespread reluctance to finance growth through infusions of external equity (Sapienza et al., 2003).

Table 4. Multi-year performance group transition percentages for Australian and Swedish small and medium-sized firms (Based on Davidsson et al., forthcoming)

Australia		Initial (1995) Performance Group					
		Poor (n=619)	Middle (n=930)	Growth (n=605)	Profit (n=486)	Star (n=848)	TOTAL (n=3488)
Final (1998) Performance Group	Exit	31.5	17.2	26.3	28.4	20.5	23.7
	Poor	21.6	14.8	23.1	12.1	12.7	16.6
	Middle	20.4	37.4	18.8	15.6	19.0	23.7
	Growth	11.5	8.9	15.0	3.9	9.0	9.7
	Profit	5.8	10.6	6.4	23.5	15.7	12.1
	Star	9.2	11.0	10.2	16.5	23.1	14.2
	TOTAL	100.0	100.0	100.0	100.0	100.0	100.0
Sweden		Initial (1998) Performance Group					
		Poor (n=295)	Middle (n=429)	Growth (n=226)	Profit (n=195)	Star (n=337)	TOTAL (n=1482)
Final (2000) Performance Group	Exit	3.7	0.7	1.8	3.6	1.2	2.0
	Poor	33.6	20.0	26.1	19.0	11.0	21.5
	Middle	22.7	42.2	24.3	19.5	22.6	28.1
	Growth	21.0	7.5	24.8	7.2	9.5	13.2
	Profit	8.1	10.5	11.5	17.9	15.4	12.3
	Star	10.8	19.1	11.5	32.8	40.4	22.9
	TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

Note: The table reports percentage of firms in specified start year (initial state) performance group that transitions to specified end year (final state) performance group. The Australian data have 1995 and 1998 as start and end years, while the corresponding years for the Swedish data are 1998 and 2000. Bold entries highlight results of particular interest.

There may, of course, be exceptions where externally financed growth before proof of profitability is needed in order to achieve long term maximization of firm value or optimal utilization of the inherent potential of the firm's business idea. One might suspect, for example, that the displayed results are not generalisable to high-tech ventures. However, the view that profitability should be given pre-eminence over growth has emerged also from research on much more special groups of firms. For example, Christensen & Raynor (2003) profess "impatience for profits, but patience for growth" in the context of disruptive innovation, which is not exactly what the average start-up engages in. Thus, the notion that firms should go for growth only after first securing a sound level of profitability may have rather broad applicability.

IS GROWTH SUCH A GOOD THING? A MACRO VIEW

Following David Birch's research and coining of the gazelles concept (e.g., Birch & Medoff, 1994) as well as research in other countries making similar claims, it has become popular beliefs that a small number of rapidly growing firms create most of the new jobs in the economy. The empirical truth of such a statement will inevitably vary by country and time period. For Sweden during the 1980s and 1990s our research shows it was not the case that a small number of gazelles were the heroes of the economy (Davidsson & Delmar, 2003, 2006; Davidsson et al., 1996, 1998b). Rather, it was predominantly the entry of many new, independent businesses and their in most cases very limited early growth that added up to very significant aggregate employment effects. The 'gazelles', while sometimes impressive on a case-by-case basis, were not numerous enough to add up to comparable total numbers of new jobs.

This does not show that the 'gazelles' story is generally wrong. However, those who are interested in who creates most new jobs in a particular country during a particular period of time are unlikely to be able to derive a true answer from theory or from studies of other empirical contexts. They would likely have to perform or consult studies of the particular empirical context they are interested in. In doing so it is advisable to watch out for a particular method artefact that automatically produces the result that a small proportion of firms are responsible for the lion's share of all new jobs (or other economic contributions). This is when the analysis focuses on the development over time or a single cohort of start-ups, forgetting about the job dynamics of firms started before and after that cohort.

Table 5. Simulated size development for a cohort of new firms (Davidsson, 2004)

<i>Firm</i>	<i>Year 1</i> <i>Size</i>	<i>Year 2</i> <i>size</i>	<i>Year 3</i> <i>size</i>	<i>Year 4</i> <i>size</i>	<i>Year 5</i> <i>size</i>	<i>Year 6</i> <i>Size</i>	<i>Year 7</i> <i>size</i>	<i>Year 8</i> <i>size</i>	<i>Year 9</i> <i>size</i>	<i>Year 10</i> <i>Size</i>
1	4	1	X	X	X	X	X	X	X	X
2	4	8	4.5	9.5	15.5	20.5	23.5	28	24.5	29.5
3	4	1	5	10.5	13.5	10	11	12.5	9	6
4	4	9	11	15	10.5	13.5	10	13	8	11.5
5	4	10	13	17.5	13.5	18.5	16.5	14.5	11.5	15
6	4	1	X	X	X	X	X	X	X	X
7	4	0.5	4.5	2.5	8	14	10	14	10	14
8	4	8.5	4.5	7.5	4	1	X	X	X	X
9	4	X	X	X	X	X	X	X	X	X
10	4	7	9	5	8.5	11	7.5	6	11.5	16.5
11	4	6	3.5	4.5	2.5	X	X	X	X	X
12	4	1.5	X	X	X	X	X	X	X	X
13	4	0.5	X	X	X	X	X	X	X	X
14	4	8.5	12	15.5	18.5	22.5	18.5	23	18	23
15	4	7	4.5	10	7	4.5	1	X	X	X
16	4	8	12	15.5	11	7.5	13.5	15.5	12	15
17	4	10	7	3	0.5	X	X	X	X	X
18	4	2	X	X	X	X	X	X	X	X
19	4	9	12.5	15	17.5	14	18	22	18.5	23
20	4	5.5	9.5	6	3.5	X	X	X	X	X
<i>Total jobs</i>	80	104	112.5	128	134	137	129.5	148.5	123	153.5

The simple simulation in Table 5 illustrates why (cf. Davidsson, 2004: 161-163). This simulation postulates the existence of 20 firms, which were all started ten years ago and which had four

employees each at founding. For each firm each year, their growth was determined by first throwing one die. If it showed three or less, the firm would shrink; if it showed four or more it would grow. A second throw of a pair of dice determined their amount of growth; the average value of the dice was added to or subtracted from the firm's current size. If through this process a firm reached size zero or less that firm was considered 'dead' (dissolved) from that point on.

The results show that as few as three firms, i.e., 15 percent of the original cohort, jointly employed 75.5 people in the final year. This means that 15 percent of the firms accounted for more than 85 percent ($63.5/(153.5-80)$) of all job creation subsequent to their start-up year. This is not due to particularities of this round of simulation. As long as there is any variation in outcomes at all—albeit completely random—and especially if firms towards the negative end of the performance spectrum permanently leave the cohort, it will always be the case that some cases stand out from the others. Chance alone guarantees that. The best performers need not necessarily impress us and we need not necessarily seek substantive explanations for their superior performance. Stochastic processes ensure a small percentage of the firms in any cohort create most of that cohort's total jobs.

Studies following cohorts can be valuable for many purposes, but they are deceptive when they are used for making the claim that x percent of the firms accounted for y percent of the jobs. This is because what they do not tell is that many more jobs are created by firms that were already in existence and by firms started in years $t+1, t+2, \dots, t+n$. In short, in order to tell what proportion of jobs (or other contributions) a particular category of firm makes, the contribution has to be compared with total job creation in the economy and not only to the lesser firms in their own cohort.

Another important issue to consider for policy-makers who are interested in high-growth firms for their job creating potential is the extent to which firm level growth really reflects employment growth in the aggregate. Firms can grow either organically or through acquisition. Population studies relying on secondary data from national statistical agencies or the like can normally not distinguish between these two forms of growth. When preparing the data set for the *High Growth Firms* study (Davidsson & Delmar, 2003, 2006; Delmar et al., 2003) we found a way to solve that problem. Hence, we are here dealing with a data set covering all firms in Sweden, which were commercially active and had at least 20 employees as per November 1996. The data set back tracks the development of these firms for ten years or to the first year they appear in the underlying records. Their employment changes, if any, can be decomposed into organic versus acquisition-based. Tables 6 and displays the results broken down by firm age. 'High-growth firms' were defined as the ten percent of the firms in the data base showing the highest average annual growth in (absolute) employment.

Table 6 Total and organic growth for high growth firms of different age (Davidsson & Delmar, 2006)

Firm age (years)	No. of cases (n)	Cumulative employment growth	total employment growth	Cumulative organic employment growth	Percent organic growth
2	148	3319	3191	3191	96.1
3	205	8865	7052	7052	79.5
4	137	6984	6118	6118	87.6
5	77	7043	6619	6619	94.0
6	40	3912	3429	3429	87.7
7	42	6364	4401	4401	69.2
8	38	3920	2992	2992	76.3
9	29	6919	4038	4038	58.4
10	437	137938	22200	22200	16.1
<i>Total</i>	<i>1153</i>	<i>185264</i>	<i>60040</i>	<i>60040</i>	<i>32.4</i>

The results are quite illuminating. First, they show that slightly less than 1/3 of the employment growth in 'high growth firms' actually represents creation of new jobs. Thus, on the aggregate level most of what is going on is redistribution of existing jobs among organizations. Second, the analysis reveals very strong relationships between firm age on the one hand, and mode of growth on the other. In a nutshell, young firms tend to grow organically whereas older firms tend to grow through acquisition. Thus, for younger firms it is a reasonable assumption that job creation on the firm level is predominantly organic and therefore reflects true additions of new jobs in the economy at large. However, as further explicated in Davidsson (2004, Ch. 8) this type of head counting exercise on the micro level has limited value for understanding aggregate level outcomes, because even when acquisition and direct job transfer are not involved the organic growth of one firm may indirectly crowd out jobs previously existing in competitor firms (and, as emphasized above, this 'creative destruction' is often a good thing).

Firms of different age (or size, or type of ownership) do not compete with one another for the title as job-creation champions. Firms have different types of inter-relationships ranging from being almost entirely unrelated to unidirectional dependence to symbiosis or heads on competition (cf. Aldrich & Wiedenmayer, 1993). Firms do not aim at maximizing or minimizing the number of people employed, neither in their own firms nor in the economy at large. However, by pursuing their real goals they may create (potential for) jobs somewhere in the economy. From this perspective, chasing the truth about what category creates most jobs internally is myopic. If the true interest is in development on the aggregate level it may be advisable to analyse patterns on that level directly rather than making potentially erroneous inferences from firm level analysis.

CONCLUDING DISCUSSION

This review has demonstrated that ‘it ain’t that easy.’ Termination of start-up efforts and closure of established firms are not necessarily worse outcomes than continuation and hence they should not be interpreted as ‘failure.’ Firm growth, in turn, does not always have the straightforward, positive relationship to the true goals of micro- and macro-level stakeholders, and neither is it always a better outcome than non-growth. If these insights be accepted, the next questions are ‘What are the implications?’ and ‘What can we do about it?’

For business founders I would hold that the first conclusion to be derived from our discussion of ‘failure’ is that the goal of the founder should not be to avoid ‘failure’ at any cost. Safe bets are usually low potential bets. That is, a business start-up that has a very low likelihood of failure is probably based on widely available information and therefore it also has a limited maximum upside gain. What skilled entrepreneurs tend to do seems to be to reduce the stakes by applying various financial bootstrapping techniques (Winborg & Landström, 2001) and adopting a flexible, incremental strategy, which has the double advantage of increasing survival probabilities by adapting the venture to early market reactions and to limit the losses in case the effort has to be terminated (Sarasvathy, 2001). Further, in order not to let one adverse experience terminate what could be a highly successful entrepreneurial career, business founders may want to embrace the notion that a failed venture is not equal to a failed entrepreneur (Sarasvathy, 2004)—although they should also be advised to actively learn from the experience (McGrath, 1999).

As regards growth, some fears that business owner-managers often have—for example, as we found, that increased size would make the firm more vulnerable in a crises—seem unwarranted. The correlation between either size or growth on the one hand, and survival on the other, tends to be positive (Kirchhoff, 1994). Other than that it would seem wise for business owner-managers to continue not to accept uncritically the pro-growth mantra they often get to hear. If growth is at all to be in line with their true goals, it is probably profitable and sustainable growth that should be pursued. If market conditions at all permit it, it then seems advisable to first establish a sound level of profitability and to base growth to a considerable extent on retained earnings.

For policy-makers an important insight is that any attempt to micro-manage the economy is likely to discriminate in favour of existing firms and against not-yet-existing ones. When measures are taken in order to save particular firms and particular jobs there is a very real risk that resource redeployment that would benefit the economy is being slowed down. As regards start-ups, any attempt to minimize the number of ‘failures’ among them inevitably brings with it the risk of reducing the level of sound experimentation in the economy to a sub-optimally low level. The important issue does not seem to be to minimize the number of terminated experiments, but to maximize the number of successful ones. Under the plausible assumptions that ‘picking winners’ is largely a futile exercise, increasing the number of start-up experiments is the way to achieve a larger number of successes. Hence, depending on what the current situation is (there could be a risk of unduly discriminating against incumbent firms, too) policy-makers may want to reduce the cost of undertaking start-up experiments and remove or reduce any cultural or institutionalized ways in which those who are involved in terminated start-ups are stigmatized. Again, a failed start-up should not be seen as evidence of incompetence or wrong-doing on the part of the individuals involved. Based on the available information it may very well have been a sound experiment to undertake.

As regards growth, policy-makers need to realize that firm level growth does not always translate to growth on the aggregate level. Much of firm growth reflects redistribution of activity among business organizations. Often such redistribution may lead to increased efficiency, but it is less likely to have a direct, positive link to employment growth on the aggregate level. Second, policy-makers should realize that firm growth is not necessarily in line with the owner-managers’ own goals. Thus, it is not so easy—as it is often portrayed—that young and independent firms in general represent an untapped pool of growth potential and growth willingness, and that external infusion of knowledge and financial capital is all that is needed to realize that potential. Many independent businesses do not

have much growth potential, and among many of those that do the principal stakeholders may not want to expand—especially not if that means they have to involve external owners (Sapienza, Korsgaard, & Forbes, 2003). Third, the review has shown that growth that is not matched by sound levels of profitability is often not sustainable. For these reasons I find it advisable that policy-makers not push firms towards growth that they may not want and may not be ready for. Instead, policies can be directed towards helping firms become more profitable—an outcome that is not likely to be in conflict with their own goals. Our research suggests that profitable firms often become sound growing firms. Thus, with an emphasis on profitability rather than directly on growth there seems to be better prospects of alignment of the goals of the policy-makers and the owner-managers.

Moreover, the difficulty of establishing straightforward links between firm level outcomes and the aggregate, societal level interests of policy-makers also suggests that they should primarily base their policies on insights from aggregate- rather than firm-level analysis. Is there enough dynamism in the economy? Is there enough new and growing activity in new relative to old industries? Can new and growing firms get hold of the resources they need, or are these artificially locked into obsolete structures? Conversely, are the human and other resources that are freed up through firm contractions and dissolutions effectively redeployed in new and growing firms, or do they remain idle? Questions like these should arguable attain greater interest from policy-makers than should the fate of individual businesses.

For entrepreneurship researchers the problem of how conventional business performance indicators should be interpreted has profound implications. One of the most important is that predictors of ‘survival’ should not necessarily be regarded as predictors of business success. Research has shown that the predictors of survival and high performance whether subjective or objective) are in part different (Cooper, Gimeno-Gascon, & Woo, 1994; Dahlgvist et al., 2000; Headd, 2003). Therefore, in analyses of categorical outcomes more than two categories may have to be included—and the analysis method chosen accordingly. Further, it is not necessarily the case that ‘marginal survival’ should be regarded a ‘better’ outcome than ‘dissolution’ when, e.g., the three outcomes ‘dissolution’, ‘marginal survival’ and ‘high performance’ are used. As noted above, there is reason to believe that predictors indicating some aspect of ‘entrepreneurial expertise’ should be associated with ‘high performance’ among survivors and with relatively rapid, low cost abandonment among non-survivors. If the analysis method dictates two outcomes the pairwise contrasting of several categories may be better than lumping together cases that may represent theoretically very different phenomena in a single ‘survival’ category. When abandonment or closure is used as an outcome criterion the interpretation can be improved if the analysis distinguishes between ‘voluntary’ and ‘non-voluntary’ abandonment (Delmar & Shane, 2002); between closures reported as successful vs. unsuccessful by the owner (Headd, 2003) or between cases terminated with and without significant financial loss. There are also examples of sophisticated analysis approaches that researchers may want to adopt in future efforts in this area, such as Gimeno et al.’s modelling of variation in the individual threshold for acceptable performance, and Eckhardt, Shane and Delmar's (2006) multistage selection approach.

As regards growth it seems advisable that researchers regard this as an intermediary variable rather than as the ultimate dependent variable that reflects attainment of business goals. In doing so, it seems advisable that researchers also pay attention to the type of growth. Firm growth is not a homogeneous phenomenon (Davidsson & Wiklund, 2000; Delmar, Davidsson, & Gartner, 2003; Levie, 1997) and it is likely that different forms of growth are differently related to more ‘final’ business outcomes. If possible, growth should then be related to a more indisputably positive outcome like firm value (Cho & Pucic, 2005). As this is a measure that is very difficult to obtain—especially for independent, non-traded firms—subjective measures of goal attainment may be used instead. This should not be regarded only as a second best choice (or second to worst, as it is sometimes portrayed) necessitated by lack of data. As pointed out by Venkataraman (1997) the heterogeneity of firm resources and goals put in question whether performance relative to other firms really is the most relevant outcome assessment. More ideally, firms should be assessed relatively to what was maximally attainable with their unique resource configurations—and relative to what they tried to achieve. The latter gives subjective outcome measures a legitimate place in business research.

In conclusion, assessing and interpreting the firm performance in entrepreneurship research is difficult. However, the situation is far from hopeless. The above has shown that knowledge we have already gained about the performance of independent businesses can help business founders, policy-makers and researchers improve the chances of attaining the true goals of their respective activities.

REFERENCES

- Aldrich, H. E., & Wiedenmayer, G. (1993). From traits to rates: an ecological perspective on organizational foundings. In J. Katz & R. Brockhaus (Eds.), *Advances in Entrepreneurship, Firm Emergence, and Growth* (Vol. 1, pp. 145-196.). Greenwich, CT: JAI Press.
- Alsos, G. A., & Kolvereid, L. (1998). The business gestation process of novice, serial and parallel business founders. *Entrepreneurship Theory and Practice*, 22(4), 101-114.
- Ardichvili, A., Cardozo, S., Harmon, S., & Vadakath, S. (1998, May 21-23). Towards a theory of new venture growth. Paper presented at the 1998 Babson Entrepreneurship Research Conference, Ghent, Belgium.
- Aviad, P., & Vertinsky, I. (2006). Firm exits as determinants of new entry: Is there evidence of local creative destruction? Paper presented at the *Academy of Management Meeting*, Atlanta.
- Birch, D. L., & Medoff, J. (1994). Gazelles. In L. C. Solmon & A. R. Levenson (Eds.), *Labor Markets, Employment policy and Job Creation*. Boulder and London: Westview Press.
- Brush, C. G., & Vanderwerf, P. A. (1992). A comparison of methods and sources for obtaining estimates of new venture performance. *Journal of Business Venturing*, 7(2), 157-170.
- Carree, M., & Thurik, R. (2003). The impact of entrepreneurship on economic growth. In Z.J. Acs & D. B. Audretsch (Eds.), *Handbook of Entrepreneurship Research*. Dordrecht, NL: Kluwer.
- Carter, N. M., Gartner, W. B., & Reynolds, P. D. (1996). Exploring start-up event sequences. *Journal of Business Venturing*, 11, 151-166.
- Cho, H.-J., & Pucic, V. (2005). Relationship between innovation, quality, growth, profitability and market value. *Strategic Management Journal*, 26, 555-575.
- Christensen, C. M., & Raynor, M. E. (2003). *The Innovator's Solution*. Boston: Harvard Business School Press.
- Cooper, A. C. (1995). Challenges in predicting new venture performance. In I. Bull, H. Thomas & G. Willard (Eds.), *Entrepreneurship: Perspectives on Theory Building*. London: Elsevier Science Ltd.
- Cooper, A. C., Gimeno-Gascon, F. J., & Woo, C. Y. (1994). Initial human and financial capital as predictors of new venture performance. *Journal of Business Venturing*, 9(5), 371-395.
- Dahlqvist, J., Davidsson, P., & Wiklund, J. (2000). Initial conditions as predictors of new venture performance: a replication and extension of the Cooper et al. study. *Enterprise and Innovation Management Studies*, 1(1), 1-17.
- Davidsson, P. (1989a). *Continued Entrepreneurship and Small Firm Growth*. Doctoral dissertation. Stockholm: Stockholm School of Economics.
- Davidsson, P. (1989b). *Entrepreneurship -- and after? A study of growth willingness in small firms*. *Journal of Business Venturing*, 4(3), 211-226.
- Davidsson, P. (2004). *Researching Entrepreneurship*. New York: Springer.
- Davidsson, P. (2006). *Nascent entrepreneurship: Empirical studies and developments*. *Foundations and Trends in Entrepreneurship*, 2(1), 1-76.
- Davidsson, P., Achtenhagen, L., & Naldi, L. (forthcoming). What do we know about small firm growth? In S. Parker (Ed.), *Handbook of Entrepreneurship Research* (Vol. 3). New York: Springer.
- Davidsson, P., & Delmar, F. (2003). Hunting for new employment: the role of high-growth firms. In D. Kirby & A. Watson (Eds.), *Small Firms and Economic Development in Developed and Transition Economies: A Reader* (pp. 7-20). Aldershot, UK: Ashgate.
- Davidsson, P., & Delmar, F. (2006). High-growth firms and their contribution to employment: The case of Sweden 1987-96. In P. Davidsson, F. Delmar & J. Wiklund (Eds.), *Entrepreneurship and the Growth of Firms*. Cheltenham, UK: Elgar.
- Davidsson, P., & Honig, B. (2003). The role of social and human capital among nascent entrepreneurs. *Journal of Business Venturing*, 18(3), 301-331.
- Davidsson, P., Lindmark, L., & Olofsson, C. (1994a). *Dynamiken i svenskt näringsliv* (Business Dynamics in Sweden). Lund, Sweden: Studentlitteratur.
- Davidsson, P., Lindmark, L., & Olofsson, C. (1994b). New firm formation and regional development in Sweden. *Regional Studies*, 28, 395-410.
- Davidsson, P., Lindmark, L., & Olofsson, C. (1995). Small firms, business dynamics and differential development of economic well-being. *Small Business Economics*, 7, 301-315.
- Davidsson, P., Lindmark, L., & Olofsson, C. (1996). *Näringslivsdynamik under 90-talet* (Business Dynamics in the 90s). Stockholm: NUTEK.
- Davidsson, P., Lindmark, L., & Olofsson, C. (1998a). Small firms and job creation during a recession and recovery. In Z. Acs, B. Carlsson & C. Karlsson (Eds.), *Entrepreneurship, Small and*

- Medium-sized Enterprises and the Macroeconomy (pp. 286-309). Cambridge, MA: Cambridge University Press.
- Davidsson, P., Lindmark, L., & Olofsson, C. (1998b). Smallness, newness and regional development. *Swedish Journal of Agricultural Research*, 28(1), 57-71. Reprinted in P. Davidsson (Ed.) (forthcoming). *New Firm Start-Ups*. Elgar.
- Davidsson, P., Steffens, P., & Fitzsimmons, J. (2005). Growing profitable or growing from profits: Putting the horse in front of the cart? Paper presented at the Academy of Management Best Paper Proceedings.
- Davidsson, P., Steffens, P., & Fitzsimmons, J. (forthcoming). Growing profitable or growing from profits: Putting the horse in front of the cart? In review.
- Davidsson, P., & Wahlund, R. (1992). A note on the failure to use negative information. *Journal of Economic Psychology*, 13, 343-353.
- Davidsson, P., & Wiklund, J. (2000). Conceptual and empirical challenges in the study of firm growth. In D. Sexton & H. Landström (Eds.), *The Blackwell Handbook of Entrepreneurship* (pp. 26-44). Oxford, MA: Blackwell Business.
- Delmar, F., & Davidsson, P. (2000). Where do they come from? Prevalence and characteristics of nascent entrepreneurs. *Entrepreneurship & Regional Development*, 12, 1-23.
- Delmar, F., Davidsson, P., & Gartner, W. (2003). Arriving at the high-growth firm. *Journal of Business Venturing*, 18(2), 189-216.
- Delmar, F., & Shane, S. (2002). What founders do: A longitudinal study of the start-up process. In W. D. Bygrave et al. (Ed.), *Frontiers of Entrepreneurship Research 2002* (pp. 632-645). Wellesley, MA.
- Delmar, F., & Shane, S. (2004). Legitimizing first: Organizing activities and the survival of new ventures. *Journal of Business Venturing*, 19, 385-410.
- Diochon, M., Menzies, M., & Gasse, Y. (2003). Insights into the dynamics of Canadian nascent entrepreneurs' start-up efforts and the role individual factors play in the process. Paper presented at the 20th Annual CCSBE Conference, Victoria.
- Eckhardt, J., Shane, S., & Delmar, F. (2006). Multistage selection and the financing of new ventures. *Management Science*, 52(2), 220-232.
- Gartner, W. B., Shaver, K. G., Carter, N. M., & Reynolds, P. D. (2004). *Handbook of Entrepreneurial Dynamics: The Process of Business Creation*. Thousand Oaks, CA: Sage.
- Gimeno, J., Folta, T. B., Cooper, A. C., & Woo, C. Y. (1997). Survival of the fittest? Entrepreneurial human capital and the persistence of underperforming firms. *Administrative Science Quarterly*, 42, 750-783.
- Headd, B. (2003). Redefining business success: Distinguishing between closure and failure. *Small Business Economics*, 21(1), 51-61.
- Henderson, A. D. (1999). Firm strategy and age dependence: A contingent view of the liabilities of newness, adolescence and obsolescence. *Administrative Science Quarterly*, 44(281-314).
- Kirchhoff, B. A. (1994). *Entrepreneurship and Dynamic Capitalism: The Economics of Business Firm Formation and Growth*. Westport: CT: Praeger.
- Leonard-Barton, D. (1992). Core capabilities and core rigidities. *Strategic Management Journal*, 13 (special summer issue), 111-125.
- Levie, J. (1997). Patterns of growth and performance: an empirical study of young, growing ventures in France, Ireland and Scotland. In P.D. Reynolds, W. D. Bygrave, N. M. Carter, P. Davidsson, W. B. Gartner, C. Mason & P. P. McDougall (Eds.), *Frontiers of Entrepreneurship 1997* (pp. 419-443). Wellesley: Babson College.
- Lieberman, M. B., & Montgomery, D. B. (1988). First-mover advantages. *Strategic Management Journal*, 9, 41-58.
- McCarthy, A. M., Schoorman, F. D., & Cooper, A. C. (1993). Reinvestment decisions by entrepreneurs: rational decision making or escalation of commitment. *Journal of Business Venturing*(8), 9-24.
- McGrath, R. G. (1999). Falling forward: Real options reasoning and entrepreneurial failure. *Academy of Management Review*, 24(1), 13-30.
- McGrath, R. G. (2003). Connecting the study of entrepreneurship and theories of capitalist progress: An epilogue. In Z. J. Acs & D. B. Audretsch (Eds.), *Handbook of Entrepreneurship Research* (pp. 299-325). Dordrecht, NL: Kluwer.
- McGrath, R. G. (2006). Rumors of my mortality have been greatly exaggerated. *An empirical examination of the mortality hypothesis*. Paper presented at the *Academy of Management Meeting*, Atlanta.

- Mosakowski, E. (2002). Overcoming resource disadvantages in entrepreneurial firms: When less is more. In M. A. Hitt, R. D. Ireland, S. M. Camp & D. L. Sexton (Eds.), *Strategic Entrepreneurship: Creating a New Mindset* (pp. 106-126). Oxford, UK: Blackwell.
- Reynolds, P. D. (2000). National panel study of US business start-ups. Background and methodology. In J. A. Katz (Ed.), *Advances in Entrepreneurship, Firm Emergence and Growth* (Vol. 4, pp. 153-227). Stamford, CT: JAI Press.
- Reynolds, P. D., & Maki, W. R. (1990). *Business Volatility and Economic Growth*. Final Report. Washington, D.C.: Small Business Administration.
- Reynolds, P. D., Miller, B., & Maki, W. R. (1995). Explaining regional variation in business births and deaths: U.S. 1976-1988. *Small Business Economics*, 7, 389-407.
- Sapienza, H. J., Korsgaard, M. A., & Forbes, D. P. (2003). The self-determination motive and entrepreneurs' choice of financing. In J. Katz & D. Shepherd (Eds.), *Cognitive Approaches to Entrepreneurship Research. Advances in Entrepreneurship, Firm Emergence, and Growth* (Vol. 6, pp. 107-140). Oxford, UK: Elsevier/JAI Press.
- Sarasvathy, S. (2001). Causation and effectuation: towards a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of Management Review*, 26(2), 243-288.
- Sarasvathy, S. (2004). The questions we ask and the questions we care about: Reformulating some problems in entrepreneurship research. *Journal of Business Venturing*, 19(5), 707-720.
- Schumpeter, J. A. (1934). *The Theory of Economic Development*. Cambridge, MA: Harvard University Press.
- Shane, S., & Delmar, F. (2004). Planning for the market: business planning before marketing and the continuation of organizing efforts. *Journal of Business Venturing*, 19, 767-785.
- Storey, D. J. (1994). *Understanding the Small Business Sector*. London: Routledge.
- Van Gelderen, M., Thurik, A. R., & Bosma, N. (2005). Success and risk factors in the pre-startup phase. *Small Business Economics*, 24, 365-380.
- Venkataraman, S. (1997). The distinctive domain of entrepreneurship research: An editor's perspective. In J. Katz & R. Brockhaus (Eds.), *Advances in Entrepreneurship, Firm Emergence, and Growth* (Vol. 3, pp. 119-138). Greenwich, CT: JAI Press.
- Wagner, J. (2004). *Nascent Entrepreneurs*. IZA DP No. 1293. Bonn, Germany: Forschungsinstitut zur Zukunft der Arbeit.
- Wennberg, K., & Wiklund, J. (2006). Entrepreneurial exit. Paper presented at the *Academy of Management Meeting*, Atlanta.
- Wiklund, J. (1998). *Small Firm Growth and Performance: Entrepreneurship and Beyond*. Doctoral dissertation. Jönköping: Jönköping International Business School.
- Wiklund, J., Davidsson, P., & Delmar, F. (2003). What do they think and feel about growth? An expectancy-value approach to small business managers' attitudes towards growth. *Entrepreneurship Theory & Practice*, 27(3), 247-269.
- Winborg, J., & Landström, H. (2001). Financial bootstrapping in small businesses : examining small business managers' resource acquisition behaviors. *Journal of Business Venturing*, 16(3), 235-254.