



# A little bit of knowledge is a dangerous thing: Entrepreneurial experience and new venture disengagement



Rasmus Vendler Toft-Kehler<sup>a,b,\*</sup>, Karl Wennberg<sup>c,d</sup>, Phillip H. Kim<sup>e</sup>

<sup>a</sup> Copenhagen Business School, Kilevej 14a, 2000 Frederiksberg, Denmark

<sup>b</sup> Accelerace, Fruebjergvej 3, 2100 Copenhagen, Denmark

<sup>c</sup> Stockholm School of Economics, P.O. Box 6501, 113 83 Stockholm, Sweden

<sup>d</sup> Institute of Analytical Sociology, Linköping University, Sweden

<sup>e</sup> Babson College, Arthur M. Blank Center for Entrepreneurship, 231 Forest Street, Babson Park, MA 02457, USA

## ARTICLE INFO

### Keywords:

Serial entrepreneurship  
Disengagement  
Experience curves  
Entrepreneurial behavior

## ABSTRACT

Existing research has offered conflicting narratives of how entrepreneurial experience influences whether founders will continue working on or disengage from their ventures. We theorize and test how entrepreneurs with varying levels of experience disengage from early-stage companies. Findings reveal a U-shaped relationship, such that novices and highly experienced entrepreneurs are more likely to quit their ventures, while moderately experienced entrepreneurs are more likely to persist in their pursuits. We offer both theoretical and empirical explanations for how the propensity to disengage from new ventures evolves with entrepreneurial experience.

## 1. Introduction

Entrepreneurs gain many skills as they launch their ventures. Scholars and practitioners alike expect that with more entrepreneurial attempts, founders will become better at creating profitable businesses (Gompers et al., 2010; Holland and Shepherd, 2013; Lévesque et al., 2009). Yet, most ventures do not develop as anticipated and eventually, founders must determine whether to persist or disengage from their ventures. By *disengage*, we mean a decision to withdraw from full-time work on the business due to unmet expectations and pursue other career opportunities. While practitioners have urged entrepreneurs to gain awareness of when to quit (Ries, 2011), we argue that disengagement-as-a-skill has been underemphasized by academics analyzing how experience influences venture performance (Sarvasvathy et al., 2013; Wiltbank et al., 2006). Research on the experience-disengagement relationship has yet to reveal consistent patterns. One reason for this may be because experience is perceived to have a linear relationship on disengagement. We develop an alternate theory that portrays experience as having a non-linear relationship on disengagement, such that novice and expert entrepreneurs will disengage at different rates than those with moderate experience. Our longitudinal analysis offers evidence for this relationship and its corresponding implications for scholars and practitioners.

## 2. Entrepreneurial experience and venture disengagement

Conventional thinking suggests experience's influence is linear – additional experience will more strongly influence entrepreneurial outcomes. However, research on the experience-disengagement relationship has yielded inconsistent conclusions. A comprehensive review (Please see Appendix A) led us to a total of 22 papers on this topic, the majority of which were based on

\* Corresponding author at: Copenhagen Business School, 2100 Copenhagen, Denmark

E-mail addresses: [rasmus@toft.us](mailto:rasmus@toft.us) (R.V. Toft-Kehler), [karl.wennberg@hhs.se](mailto:karl.wennberg@hhs.se) (K. Wennberg), [pkim1@babson.edu](mailto:pkim1@babson.edu) (P.H. Kim).

<http://dx.doi.org/10.1016/j.jbvi.2016.10.001>

Received 5 August 2016; Received in revised form 26 September 2016; Accepted 3 October 2016

2352-6734/ © 2016 Elsevier Inc. All rights reserved.

small, cross-sectional samples. Ten studies showed insignificant effects between experience and the likelihood of disengagement, seven showed a negative relationship, two had mixed findings, and three revealed a positive relationship. None of the studies presented or reported findings of curvilinear results. As such, we propose a framework that revisits the fundamental assumption about experience and its influence on entrepreneurial trajectories. We turned to research demonstrating the non-linear influence of experience. A closer examination of cognition, strategic management, and entrepreneurship studies reveals that novices, the moderately experienced, and experts all leverage their experience differently in their pursuits (Cormier and Hagman, 1987; Haleblan and Finkelstein, 1999; Toft-Kehler et al., 2014). This research reveals that “a little bit of experience can be a dangerous thing” – at low levels, actors inappropriately apply experience to seemingly similar, yet inherently different, tasks. We argue that the differential effects of experience may also produce a non-linear relationship on the decision to disengage.

### 3. Methods and data

To answer our research question we created a longitudinal dataset with information about founders and their ventures. We constructed our sample using two databases maintained by Statistics Sweden: RAMS (yearly data on all firms) and LISA (yearly data on all Swedish inhabitants from 1989). From RAMS we sampled three full cohorts of firms started 1994, 1995, and 1996, followed until 2002.<sup>1</sup> From LISA we created experience variables for all prior venturing activities from 1989 to 1993 and used National Tax Board data to gather financial information. To decrease industry heterogeneity, we limited our sample to firms in knowledge-intensive sectors based on OECD classifications (Götzfried, 2004).<sup>2</sup> As a result, our sample consists of the full population of 29,338 new knowledge-intensive ventures founded in Sweden between 1994–1996.

#### 3.1. Dependent variable

The dependent variable, *likelihood of disengagement*, is based on a yearly indicator of whether an individual is still working full-time in their venture (1= disengaged, 0=working full-time). The founder disengages when they begin work on or at another firm. We highlight two other decisions related to this variable: We retained bankrupt firms in our sample, since this is a viable pathway for disengagement, and bankruptcy and liquidation are rare (Thorburn, 2000). However, we dropped firms that experienced a trade sale which is generally considered an exit-outcome which does not reflect disengagement due to unmet expectations (Arora and Nandkumar, 2011).<sup>3</sup>

#### 3.2. Independent variable

Our independent variable is *entrepreneurial experience*, defined as years of full-time involvement as a founder or co-founder in a prior venture. To reduce the effect of individuals arbitrarily entering and exiting (e.g. tax speculation or engaging in “portfolio entrepreneurship” (Westhead and Wright, 1998)), we required a two-year gap between ventures in the same industry and location to be considered a separate venturing activity.

#### 3.3. Control variables

To address alternative explanations, we included several control variables. We control for founders’ basic demographic characteristics: *gender* (1=male), *age*, and *number of children* living at home (updated annually). To account for entrepreneurs’ ability to support the firm, we included household *wealth* based on equity reported to tax authorities, which tracks wealth excess of 800,000 SEK (~100,000 USD). Firms in our data are either incorporated (limited liability) or unincorporated (partnerships and proprietorships with unlimited liability). Since financial liability may affect the likelihood of disengagement, we controlled for *legal form* (1= incorporations). To account for additional investments in underperforming firms, we included a *new investments* variable based on yearly equity injections (Wennberg et al., 2010). We controlled for *entrepreneurial earnings* as a measure of performance. We used firm-level performance variables from RAMS and individual-level data from LISA to calculate earnings based on Hamilton’s (2000) definition [revenues – expenses = money taken out + entrepreneurial earnings] and used its natural log value to correct for skewness. *Education* was measured in years. We also controlled for other types of experience: *Management experience* was based on a “personnel responsibility” categorical variable in the 1990 census (0=no experience, 1=some experience, and 2=extensive experience). *Industry experience* was a count of years within the focal industry. *Venture similarity experience* was based on Finkelstein and Haleblan’s (1999) measure of comparing industry affiliations of prior ventures. Last, we controlled for industry (at the SIC-2 level) and time-varying effects (year dummies).

<sup>1</sup> To minimize right censoring and incorporate up to five years of data prior to the focal venture.

<sup>2</sup> In Sweden, 35% of all new firms belong to these sectors, including information technology, chemicals, medicine, telecom, finance, business services, education and research (Folta et al., 2010).

<sup>3</sup> We deleted 1102 trade sales (representing 1.2% of disengaged founders) from the dataset. One limitation of our sample is that we are unable to directly measure the number of bankruptcies. However, according to the Swedish census data, the recent average number of annual bankruptcies is 0.19% of all privately held firms (from 2010 to 2015).

**Table 1**  
Descriptive statistics and correlations.

#	Variable	Mean	Std. Dev.	Min	Max	1	2	3	4	5	6	7	8	9	10	11	12	13	
1	Disengagement	0.15	0.35	0	1														
2	Sex	0.69	0.46	0	1	0.01													
3	Age	45.45	10.75	0	95	-0.11	0.02												
4	Children	0.83	1.08	0	8	0.01	####	####											
5	Wealth	359,663	#####	0	2.4E+08	0.00	####	0.14	####										
6	Legal form	0.41	0.15	0	1	0.19	0.08	0.01	0.02	0.04									
7	New investments this year	60,800	42,400	-9.2E+06	1.3E+09	0.02	0.00	0.00	0.00	0.00	0.02								
8	Ent. earnings (ln)	7.41	5.66	0	15.584	-0.45	####	0.12	0.01	0.04	####	####							
9	Years of education	12.93	2.50	0	20	-0.01	0.05	####	0.07	0.04	0.02	0.00	0.09						
10	Management experience	0.51	0.56	0	2	-0.02	0.14	0.23	####	0.06	0.03	0.00	0.10	0.29					
11	Industry experience	1.41	1.97	0	5	-0.03	0.04	0.11	0.00	0.01	0.13	####	####	0.02	0.08				
12	Venture similarity	2.70	1.94	0	12.41	0.02	####	####	0.01	####	####	####	0.10	0.00	####	####			
13	Entrepreneurial experience	0.34	0.74	0	5	-0.01	0.06	0.12	####	0.01	0.04	0.01	####	0.00	####	0.02	####		
14	Ent. experience <sup>2</sup>	0.66	2.03	0	25	0.00	0.04	0.10	####	0.01	0.01	0.00	####	0.01	####	0.00	0.00	0.00	0.91

**Table 2**  
Cox regression on new venture disengagement.

	Model 1	Model 2	Model 3
Sex	0.891*** (0.018)	0.902*** (0.019)	0.905*** (0.019)
Age	0.995*** (0.001)	0.996*** (0.001)	0.997*** (0.001)
Children	1.013 (0.008)	1.017 <sup>†</sup> (0.008)	1.017 <sup>†</sup> (0.008)
Wealth	1.000*** (0.000)	1.000*** (0.000)	1.000*** (0.000)
Legal form	1.043*** (0.002)	1.043*** (0.002)	1.043*** (0.002)
New investments this year	1.000** (0.000)	1.000** (0.000)	1.000** (0.000)
Ent. earnings (ln)	0.799*** (0.002)	0.798*** (0.002)	0.798*** (0.002)
Years of education	1.006 (0.004)	1.008+ (0.004)	1.007 (0.004)
Management experience	1.109*** (0.020)	1.096*** (0.020)	1.098*** (0.020)
industry experience	0.991 (0.006)	0.990 (0.006)	0.991 (0.006)
Venture similarity	1.071*** (0.006)	1.070*** (0.006)	1.070*** (0.006)
Entrepreneurial experience		0.885*** (0.012)	0.686*** (0.020)
Ent. experience <sup>2</sup>			1.108*** (0.011)
Log-likelihood value:	-115,649	-115,605	-115,558
Likelihood ratio test:		87.26***	88.42***
Akaike Information Criterion (AIC)	78,264	78,261	78,246
Ventures:	29,338	29,338	29,338
Disengaged ventures:	12,719	12,719	12,719
Venture-year observations:	89,296	89,296	89,296

*Note:*

Coefficients in hazard rate form; standard errors clustered on the venture level in parenthesis. All models include industry dummies and time dummies.

<sup>†</sup> p < 0.05,

\*\* p < 0.01,

\*\*\* p < 0.001.

### 3.4. Empirical strategy

We used a Cox proportional hazard model to estimate the likelihood of disengagement. The Cox model does not require assumptions about the underlying shape of the hazard distribution. To address “tied events” in the data, we used the Efron procedure. All coefficients in the regressions are displayed as Hazard Ratios (HR) to ease interpretation of marginal effects. A coefficient of 0.95 can be interpreted as “a one-unit increase in covariate X *decreases* the likelihood of the outcome variable by 5%,” while 1.05 indicates that “a one-unit increase in covariate X *increases* the likelihood of the outcome variable by 5%.”

To ensure that predicted effects did not deviate abnormally from observed values and that proportional-hazard assumptions were met, we plotted Kaplan–Meier survival curves for relevant variables and compared them with predictions from the Cox models. [Table 1](#) includes means, standard deviations, and a correlation matrix for the variables. We saw no evidence of multicollinearity (VIF < =4).

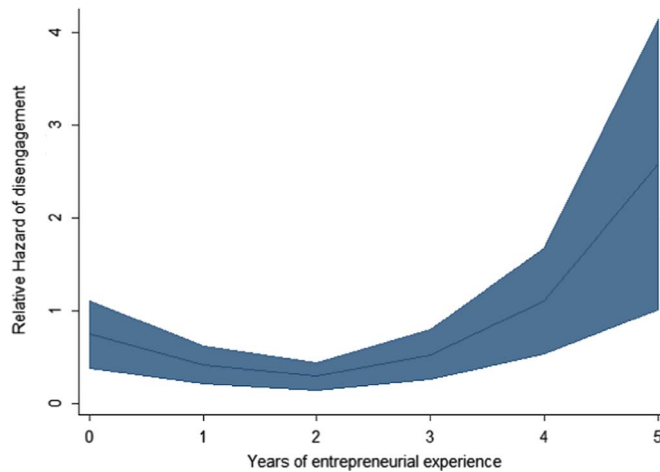


Fig. 1. : Marginal effects of entrepreneurial experience on disengagement.

## 4. Results

Table 2 provides the Cox model results predicting disengagement. Model 1 is the base model with control variables only. Models 2 and 3 introduce the independent variables hierarchically. The increase in fit statistics (log-likelihood and AIC values) across Models 1–3 demonstrates that the independent variables add explanatory power to the model beyond the controls.

To summarize Model 1: founders who were men, with children, greater wealth, incorporated ventures, who received additional investments and had management experience or experience with similar ventures were all more likely to disengage. Founders who were older or running more profitable ventures were less likely to disengage. In Model 2, the hazard ratio for entrepreneurial experience is less than one ( $HR=0.885$ ;  $p < 0.001$ ). In Model 3, the quadratic hazard ratio is positive ( $HR=1.108$ ;  $p < 0.001$ ), while the linear term remains negative and statistically significant. Plotted marginal effects in Fig. 1 reveal experience to have the U-shaped effect, with the likelihood of venture disengagement lowest at moderate levels of entrepreneurial experience.

Results remained consistent after mean centering our key variables and trimming outliers. We also experimented with controls for performance in prior ventures to approximate innate entrepreneurial skills, however this did not affect the overall patterns reported (results available upon request).

### 4.1. Robustness checks

Since the databases are left censored at 1989, it is possible that especially older entrepreneurs may have experience unaccounted for in the dataset. As this introduces potential type-2 errors (falsely rejecting our hypothesis) the left-censored experience variable induces a conservative test of our hypotheses. Results remained consistent even with three robustness tests: First, we controlled for censoring with a dummy for entrepreneurs with 5+ years of experience. This slightly decreased effects sizes, but significance levels of the experience and experience<sup>2</sup> variables were still well below 5%. Second, we estimated our model on three previous cohorts where the experience variable was censored at 3, 4, and 5 years of experience, respectively. Although effects sizes weakened, we still observed the same U-shaped effect. Third, we estimated models including only those people ‘at risk’ of running a venture before the start of the observation period, meaning they were 19 years or older in 1989. We then compare the observed distribution of entrepreneurial experience in this dataset to that of our full data to compare whether there is a potential bias in not accounting for these older entrepreneurs who could have more extensive experience than what we observe. Results were qualitatively identical. To explore the possibility of differential effects produced by other disengagement outcomes, we also ran a competing risks model (with trade sale as the alternate event). We observed similar results for our original dependent variable, but did not observe the same relationship for the trade sale outcome.

## 5. Discussion

This study's main objective is to promote a new approach to understanding the entrepreneurial experience-disengagement relationship. We argue that one reason for the inconsistencies of existing research is because experience has a curvilinear relationship with venture disengagement – a pattern not identified in prior work. Like other acquired skills, knowing when to call it quits comes with experience. Our analyses reveal that novice and highly experienced entrepreneurs are more likely to disengage with their ventures than those with moderate levels of experience, albeit for different reasons. This U-shaped pattern helps clarify why the experience-disengagement relationship can go in opposite directions under some circumstances. For example, Delmar and Shane (2006) reported a negative relationship based on analyses of a shorter timeframe (30 months), while Wennberg et al. (2010)

demonstrated a positive relationship. Although these studies operationalized experience differently, our model offers a unified framework for these seemingly contradictory conclusions.

To explain these findings, we focus on each section of the U-shaped pattern, starting with the novice entrepreneurs, proceeding to moderately experienced, and concluding with experts. *Novice entrepreneurs* are at risk of high disengagement because they are most reliant on external feedback to bridge their knowledge gaps about their business ideas and early venturing efforts. These entrepreneurs will seek out and receive unfiltered suggestions and criticisms from advisors, lead users and customers, and other stakeholders. Without first-hand experience, these novices lack perspective to discern true signals from noisy feedback generated by all new ventures. Without this perspective, novices may disengage prematurely by misinterpreting slow customer traction or stagnant user adoption as leading indicators of their prospects for growth and survival. They are most vulnerable to stakeholder skepticism and succumb to doubts about whether their ventures can actually succeed. Some ventures simply require time to achieve product-market fit, but novices may not be patient enough for their efforts to mature (Kim et al., 2015). Moreover, stress and financial uncertainties associated with the entrepreneurial lifestyle may take its toll on novices, leading them to disengage rather quickly to pursue other endeavors.

While novices are prone to disengage quickly, our results show that moderately experienced entrepreneurs are more determined to persist. We speculate that their ongoing efforts are driven in part by the competence traps they face associated with their modest expertise. Having just enough experience to exhibit some confidence, these entrepreneurs are susceptible to superstitious learning – making incorrect inferences from past events – and trust their “gut feelings” without systematically gathering and analyzing relevant data from their stakeholders (Cooper et al., 1988; Levitt and March, 1988; Toft-Kehler et al., 2014). As organizational learning research has shown, making accurate inferences from past experiences is not a trivial exercise since the mapping between experiences often occurs out of context, resulting in outdated or misguided applications. This is especially important for entrepreneurship since building a new venture is a complex undertaking and differences in industry, location, and length of time can affect the accuracy of the inferences. When moderately experienced entrepreneurs rely heavily on their limited knowledge, they become vulnerable to falling into competence traps and convince themselves their ventures can succeed if they only persist longer. Thus, these entrepreneurs are least likely to disengage, even if it may be in their best interest.

For our last group – the expert entrepreneurs – we speculate that their past experiences enable them to be most discerning than their less-experienced counterparts, enabling them to disengage quickly from unpromising ventures (Raffiee and Feng, 2013; Shepherd et al., 2007). With extensive experience, expert entrepreneurs can assess venture potential more quickly. With the perspective gained from their experiences, these entrepreneurs also know how and where to obtain reliable information to validate nascent opportunities and can analyze incoming information more accurately. They are more decisive about disengaging, because they understand the opportunity costs of persisting in less-promising ventures. While expert entrepreneurs are as likely to disengage as novices, the reasons for doing so differ considerably.

In summary, we show how entrepreneurial experience provides a basis for concrete strategic actions to disengage from unpromising ventures (Delmar and Shane, 2006; Holland and Shepherd, 2013; Zahra and Wright, 2011). Our work highlights disengagement – in addition to venture creation and growth – as an important outcome of experience (Arora and Nandkumar, 2011; Dimov, 2010). Our findings suggest expert entrepreneurs are best positioned to determine when to persist or disengage from new ventures (Sarasvathy, 2008). Our work highlights how experience helps entrepreneurs discern when to stop devoting resources to unsustainable efforts (Sarasvathy and Venkataraman, 2011) and more effectively manage entrepreneurial risk (Gunther McGrath, 1999). Over the arc of a career, time and capital are also valuable resources, so knowing when to quit may also increase overall career success (Burton et al., 2016; Dimov, 2010).

We offer several opportunities for future research to further refine our study. One popular technique amongst practitioners is to “pivot” quickly when the business model is not working. Our study design cannot capture these fine-grained but substantive changes, but this limitation opens up opportunities for future studies on disengagement *within* firms (e.g., Bakker and Shepherd, 2015). For example, highly experienced entrepreneurs may pivot more quickly based on their unwillingness to bear the opportunity costs of underperformance (Blank, 2013; Ries, 2011). Future research may also seek to pinpoint the mechanisms jointly contributing to disengagement and the likelihood of re-entry as a way to further probe these practitioner recommendations (Parker, 2013; Rocha et al., 2015). While our study provides one empirical analysis of a non-linear, U-shaped relationship between experience and disengagement, future work in other contexts and with longer observation windows can help further generalize these insights and determine more precisely the inflection point on the experience curve to differentiate novice, moderately experienced, and expert entrepreneurs.

## 6. Conclusion

Findings of a U-shaped relationship between entrepreneurial experience and the likelihood of disengagement showed that novices and highly experienced entrepreneurs are more likely to disengage from new ventures as compared to moderately experienced entrepreneurs. Our study offers clarity into the conflicting outcomes of prior research, emphasizes disengagement as an acquired skill, and offers empirical support to behaviors advocated by entrepreneurial practitioners.

## Acknowledgement

We are grateful for feedback and comments from the editor Dimo Dimov, an anonymous referee, Aviad Pe'er, Nadav Shir, Melissa Schilling, Finn Valentin, Toke Reichstein, Jörg Claussen, Peter Torstensen, Christine Henriques, Mai-Britt Zocca, Shailendra

Vyakarnam, Saras Sarasvathy, Mingxiang Li, and Nikki Bown. Generous funding was provided by Accelerace, Industriens Fond, and the Swedish Research Council (340-2013-5460).

## **Appendix A: Review of empirical literature on entrepreneurial experience and disengagement**

In our review of papers associating entrepreneurial experience and disengagement we searched the Journal of Business Venturing Insights, Journal of Business Venturing, Entrepreneurship Theory and Practice, and Strategic Entrepreneurship Journal, Academy of Management Journal, Administrative Science Quarterly, Journal of Management Studies, Organization Science, Strategic Management Journal, and Small Business Economics for papers with the key words "entrepreneurial experience", "start-up experience", "business ownership experience", "serial entrepreneur", "habitual entrepreneur", "expert entrepreneur", "repeat entrepreneur", "repeat business owner" and "experienced entrepreneur". We added all papers identified through Web of Science and Google Scholar, as well as papers cited in prior literature reviews (e.g. Delmar and Shane, 2006; Ucbasaran et al., 2008).

We selected only empirical papers correlating entrepreneurial experience with an outcome denoted as "exit", "survival", "duration", or "disengagement", noting sample, operationalization of experience, outcome variable(s) and key findings. We excluded qualitative papers and papers with a strict focus on firm failure (e.g. financial distress/bankruptcy) since a singular view on failure may reflect a forced exit from a given venture and not a volitional decision of the entrepreneur to disengage. One paper by DeTienne, McKelvie and Chandler (2014) that used age as a proxy for experience was excluded.

In summary, 22 studies were found to empirically test the effect of entrepreneurial experience on disengagement. Of these, 10 studies show insignificant effect of entrepreneurial experience on disengagement. 3 studies show lower likelihood of disengagement. 2 find mixed results and 7 studies find that prior entrepreneurial experience decreases likelihood of disengagement (many of which are cross sectional and small sample studies). Only one of the 22 studies (Shane and Delmar, 2006) mentioned to have investigated the potential of curvilinear effect of entrepreneurial experience on disengagement in unreported models, but found no apparent curvilinear effects of entrepreneurial experience on founders' venture disengagement during the first 30 months of venturing efforts.

See [Table A1](#).

**Table A1**  
Empirical papers on entrepreneurial experience and survival.

Author and year	Sample	Measure of entrepreneurial experience	Entrepreneurial experience impact on survival	Lower likelihood	Higher likelihood	Mixed findings	Not significant	Curvilinear effect
Adams, Fontana and Malarba (2016)	936 start-ups in the US semiconductor industry between 1997 and 2007	Entrepreneurial experience measured as a binary variable equal to one if the founder, or a member of the founding team, had previously founded another firm	Impact of prior entrepreneurial experience was insignificant. In terms of performance, firms founded by serial entrepreneurs have a lower hazard of exit by acquisition.				1	
Baptista, Karaöz, and Mendonça (2014)	A longitudinal matched employer-employee dataset built from information submitted annually by all firms with at least one wage earner to the Portuguese Ministry of Employment and Social Security covering the period from 1986 to 2005.	Entrepreneurial experience was measured as a binary variable	Prior entrepreneurial experience increases likelihood of survival	1				
Bosma et al. (2004)	896 new businesses started in the Netherlands in 1994 and registered in database of Dutch chamber of commerce. Surveyed annually until 1997.	Previous business ownership experience measured as a binary variable.	Start-up experience not significantly related to new venture survival				1	
Brideri, Preisendorfer and Ziegler (1992)	Retrospective survey data from 1849 business founders in Germany.	Self-employment experience measured as a binary variable.	Self-employment experience is associated with extended new firm survival.	1				
Ciavarella, Buchholtz, Riordanb, Gatewoodb and Stokes (2004)	Survey data of 111 US entrepreneurs based on their experiences from 1972 to 1995.	Binary measure of prior start-up experience	Start-up experience not significantly related to new venture survival				1	
Coad, Frankish, Roberts and Storey (2013)	Longitudinal study of 6247 UK start-ups which began trading in the same quarter of 2004 and were customers of Barclays Bank.	Dummy variable equal to 0 if the owner-manager(s) has previous experience from managing a business.	Prior business experience not significantly related to likelihood of exit				1	
Delmar and Shane (2003)	Longitudinal survey of 223 entrepreneurs in the Swedish PSED 1998 – 2000.	Founding team joint entrepreneurial experience	Team entrepreneurial experience lower likelihood of exit	1				
Delmar and Shane (2006)	223 new Swedish ventures followed over a 30-month period	Previous start-up experience measured at the founder team level as the log of the total number of firms previously started by the members of the founding team. On average, the founding teams had started three previous firms, but 52 percent of the teams had no previous start-up experience.	Founding teams with prior start-up experience more likely to survive. The marginal effect of prior founding experience is decreasing and is almost exclusively denoted by the difference between any and no prior start-up experience	1				
Dencker, Gruber and Shah (2009)	436 individuals in the Munich region who founded their own firms as an alternative to continued unemployment.	Prior founding experience measured as a binary variable (included as a control variable).	Prior founding experience does not have any significant effect survival				1	

(continued on next page)



Table A1 (continued)

Author and year	Sample	Measure of entrepreneurial experience	Entrepreneurial experience impact on survival	Lower likelihood	Higher likelihood	Mixed findings	Not significant	Curvilinear effect
Gimeno, Folta, Cooper and Woo (1997)	1547 entrepreneurs of new businesses in the US founded in 1983–1985. Yearly data collections from 1985 to 1987.	Entrepreneurial experience measured as a binary variable.	Entrepreneurial experience not significantly related to exit.				1	
Heaad (2003)	U.S. Census Bureau's Business Information Tracking Series (BITS) used to track status of new employers during the early 1990s. U.S. Census Bureau's Characteristics of Business Owners (CBO) used to analyze status of closed businesses.	Entrepreneurial experience measured as a binary variable	Prior entrepreneurial experience increases likelihood of survival	1				
Kalleberg and Leicht (1991)	411 companies in the computer sales and software, food and drink, and health industries in South Central India from 1985-1987	Longitudinal studies of organization's mortality used to measure entrepreneurial experience.	Prior entrepreneurial experience increase likelihood of exit for male entrepreneurs, but not for women		1			
Lafontaine and Shaw (NBER Working Paper 2014)	All new business establishments started any time between 1990 and 2011 to sell taxable goods and services in the state of Texas: In total 2.3 million retail businesses. 25 percent were started by owners who had started at least one business before.	Owner's prior experience at starting a business measured as a binary variable.	Prior experience increases the survival although not in the restaurant sector				1	
Oberschachtsiek (2012)	645 self-employment observations (1998: n = 184; 1999: n = 292; 2000: n = 169) with a maximum observation period of 55 months.	Self employment was defined as the difference between the start-up date and the point in time at which the self-employment ended.	The results show that previous self-employment experience is associated with early exits.		1			
Paik (2014)	Panel data from 172 U.S. VC-financed semiconductor firms that entered the market during 1995-1999 - including firms founded by teams.	Previous business ownership experience in the founding team (at least one team member's experience) measured as a binary variable.	Prior entrepreneurial experience extends survival	1				
Raffee and Feng (2014)	Longitudinal data on 1,093 entrepreneurs followed from 1994 to 2008	Entrepreneurial experience measured the cumulative number of businesses started	The main effect of entrepreneurial experience associated with an increased likelihood of exit		1			
Reuber and Fischer (1994)	43 Canadian biotechnology and telecom firms with mean annual revenues of 23.2m USD and 68 employees in 1992.	Previous start-up experience measured as number of start-ups.	Previous start-up experience has insignificant effect on survival				1	
Schollhammer (1991)	Cross-sectional survey data of 138 start-ups	Successful and unsuccessful prior entrepreneurial experience	Successful prior experience led to prolonged survival. Failed prior experience led to reduced survival.			1		
Shane and Stuart (2002)	134 firms founded to exploit MIT-assigned inventions during	Binary variable coded 1 if at least one member of the founding team	Start-up experience not significantly related to new venture survival				1	

(continued on next page)

Table A1 (continued)

Author and year	Sample	Measure of entrepreneurial experience	Entrepreneurial experience impact on survival	Lower likelihood	Higher likelihood	Mixed findings	Not significant	Curvilinear effect
Taylor (1999)	the 1980–1996 period A nationally representative random sample of some 5,500 households and 10,000 individuals.	had previously launched a new company. Lifetime job history data and labors market activity.	Prior entrepreneurial experience lower likelihood of exit	1				
Van Praag (2003)	Longitudinal survey of 12,000 respondents between 14 and 22 years from 1979–1989	Self-employment experience measured as a binary variable.	Prior entrepreneurial experience not significantly related to likelihood of exit				1	
Wennberg, Wiklund, DeTienne & Cardon (2010)	1735 new Swedish ventures and their founders followed over eight years	Number of years of experience between 1989–1995	Experienced entrepreneurs more likely to exit via harvest sale over continuation, liquidation, distress liquidation, and distress sale. In unreported models, entrepreneurial experience found to increase likelihood of exit.		1			
<b>TOTAL</b>	<b>22 papers</b>			<b>7</b>	<b>3</b>	<b>2</b>	<b>10</b>	<b>0</b>

## References

- Arora, A., Nandkumar, A., 2011. Cash-out or flameout! Opportunity cost and entrepreneurial strategy: theory, and evidence from the information security industry. *Manag. Sci.* 57 (10), 1844–1860.
- Bakker, R.M., Shepherd, D., 2015. Pull the plug or take the plunge: multiple opportunities and the speed of venturing decisions in the Australian mining industry. *Acad. Manag. J.*, 2013, (JOUR).
- Blank, S., 2013. Why the lean start-up changes everything. *Harv. Bus. Rev.* 91 (5), 63–72, (JOUR).
- Burton, M.D., Sørensen, J.B., Dobrev, S.D., 2016. A careers perspective on entrepreneurship. *Entrep. Theory Pract.* 40 (2), 237–247, (JOUR).
- Cooper, A.C., Woo, C.Y., Dunkelberg, W.C., 1988. Entrepreneurs' perceived chances for success. *J. Bus. Ventur.* 3 (2), 97–108, (JOUR).
- Cormier, S., Hagman, J., 1987. Transfer of learning. *Contemp. Res. Appl.*, (JOUR).
- Delmar, F., Shane, S., 2006. Does experience matter? The effect of founding team experience on the survival and sales of newly founded ventures. *Strateg. Organ.* 4 (3), (215:247. Journal Article).
- Dimov, D., 2010. Nascent entrepreneurs and venture emergence: opportunity confidence, human capital, and early planning. *J. Manag. Stud.* 47 (6), 1123–1153. <http://dx.doi.org/10.1111/j.1467-6486.2009.00874.x>.
- Folta, T.B., Delmar, F., Wennberg, K., 2010. Hybrid entrepreneurship. *Manag. Sci.* 56 (2), 253–269. <http://dx.doi.org/10.1287/mnsc.1090.1094>.
- Gompers, P., Kovner, A., Lerner, J., Scharfstein, D., 2010. Performance persistence in entrepreneurship. *J. Financ. Econ.* 96 (1), 18–32. <http://dx.doi.org/10.1016/j.jfineco.2009.11.001>.
- Götzfried, A., 2004. European employment increasing in services and especially in knowledge-intensive services. BOOK, Eurostat.
- Gunther McGrath, R., 1999. Falling forward: real options reasoning and entrepreneurial failure. *Acad. Manag. Rev.* 24 (1), 13–30.
- Haleblian, J., Finkelstein, S., 1999. The influence of organizational acquisition experience on acquisition performance: a behavioral learning perspective. *Adm. Sci. Q.* 44 (1), 29–56, (Journal Article).
- Hamilton, B.H., 2000. Does entrepreneurship pay? An empirical analysis of the returns of self-employment. *J. Political Econ.* 108 (3), 604–631, (Journal Article).
- Holland, D.V., Shepherd, D.A., 2013. Deciding to persist: adversity, values, and entrepreneurs' decision policies. *Entrep. Theory Pract.* 37 (2), 331–358, (JOUR).
- Kim, P.H., Longest, K.C., Lippmann, S., 2015. The tortoise versus the hare: progress and business viability differences between conventional and leisure-based founders. *J. Bus. Ventur.* 30 (2), 185–204.
- Lévesque, M., Minniti, M., Shepherd, D., 2009. Entrepreneurs' decisions on timing of entry: learning from participation and from the experiences of others. *Entrep. Theory Pract.* 33 (2), 547–570, (JOUR).
- Levitt, B., March, J.G., 1988. Organizational learning. *Annu. Rev. Sociol.* 14 (1), 319–338, (Journal Article).
- Parker, S.C., 2013. Do serial entrepreneurs run successively better-performing businesses? *J. Bus. Ventur.* 28 (5), 652–666. <http://dx.doi.org/10.1016/j.jbusvent.2012.08.001>.
- Raffiee, J., Feng, J., 2013. Should i quit my day job? A hybrid path to entrepreneurship. *Acad. Manag. J.*. <http://dx.doi.org/10.5465/amj.2012.0522>.
- Ries, E., 2011. *The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses* 1st ed.. Crown Business, New York.
- Rocha, V., Carneiro, A., Varum, C.A., 2015. Serial entrepreneurship, learning by doing and self-selection. *Int. J. Ind. Organ.* 40, 91–106, (JOUR).
- Sarasvathy, S.D., 2008. *Effectuation: Elements of Entrepreneurial Expertise*. Edward Elgar, BOOK, Cheltenham, UK.
- Sarasvathy, S.D., Menon, A.R., Kuechle, G., 2013. Failing firms and successful entrepreneurs: serial entrepreneurship as a temporal portfolio. *Small Bus. Econ.* 40 (2), 417–434, (JOUR).
- Sarasvathy, S.D., Venkataraman, S., 2011. Entrepreneurship as method: open questions for an entrepreneurial future. *Entrep. Theory Pract.* 35 (1), 113–135, (JOUR).
- Shepherd, D.A., McMullen, J.S., Jennings, P.D., 2007. The formation of opportunity beliefs: overcoming ignorance and reducing doubt. *Strateg. Entrep. J.* 1 (1–2), 75–95. <http://dx.doi.org/10.1002/sej.3>.
- Thorburn, K.S., 2000. Bankruptcy auctions: costs, debt recovery, and firm survival. *J. Financ. Econ.* 58 (3), 337–368, (JOUR).
- Toft-Kehler, R., Wennberg, K., Kim, P.H., 2014. Practice makes perfect: entrepreneurial-experience curves and venture performance. *J. Bus. Ventur.* 29 (4), 453–470.
- Wennberg, K., Wiklund, J., DeTienne, D.R., Cardon, M.S., 2010. Reconceptualizing entrepreneurial exit: divergent exit routes and their drivers. *J. Bus. Ventur.* 25 (4), 361–375, (JOUR).
- Westhead, P., Wright, M., 1998. Novice, portfolio, and serial founders: are they different? *J. Bus. Ventur.* 13 (3), 173–204, (JOUR).
- Wiltbank, R., Dew, N., Read, S., Sarasvathy, S.D., 2006. What to do next? The case for non-predictive strategy. *Strateg. Manag. J.* 27 (10), 981–998, (JOUR).
- Zahra, S.A., Wright, M., 2011. Entrepreneurship's next act. *Acad. Manag. Perspect.*, 67–83.