

Bootstrapping Techniques and New Venture Emergence

John T. Perry
Gaylen N. Chandler
Xin Yao
James A. Wolff

Among nascent entrepreneurial ventures, are some types of bootstrapping techniques more successful than others? We compare externally oriented and internally oriented techniques with respect to the likelihood of becoming an operational venture; and we compare cash-increasing and cost-decreasing techniques with respect to becoming operational. Using data from the first Panel Study of Entrepreneurial Dynamics, we find evidence suggesting that when bootstrapping a new venture, the percentage of cash-increasing and cost-decreasing externally oriented bootstrapping techniques that a venture's owners use are positive predictors of subsequent positive cash flow (one and two years later). But, internally oriented techniques are not related to subsequent cash flow.

Keywords: financing, bootstrapping, new ventures, PSED, resource based view

Financial bootstrapping in new ventures refers to a variety of techniques that business founders use to raise funds from nontraditional business funding sources (e.g., spouses, friends and family) and limit business expenses (e.g., by utilizing used machinery, delaying salaries) (Bhide, 1992; Payne, 2007; Winborg and Landstrom, 2001). For the founders of new ventures, bootstrapping is a particularly important source of financing because they often do not have access to traditional sources of business funding such as bank loans, venture capital financing, and public equity (Stouder, 2002).

Although researchers have documented the types of bootstrapping techniques founders use (Carter and Van Auken, 2005; Ebben and Johnson, 2006; Van Auken, 2004; Van Auken, and Neeley, 1998), the literature is silent regarding the effectiveness of different types of financial bootstrapping techniques. Are certain types of bootstrapping techniques more effective in helping a venture become operational? Are the founders who focus on raising funds to support the venture more successful than those who focus on limiting expenses? Are the founders who focus on obtaining money and free services from individuals outside the venture more successful than those who focus on obtaining money and free services from insiders? Research identifying and validating boot-

strapping techniques that facilitate new venture launch has significant implications for nascent entrepreneurs.

In this research we provide answers to these questions. To do so, we review and integrate the bootstrapping and organizational emergence literature. We build on earlier categorizations of bootstrapping techniques to parsimoniously investigate differences in effectiveness (Payne, 2007; Winborg and Landstrom, 2001). We utilize arguments grounded in the resource-based view of the firm and institutional theory to develop testable hypotheses regarding the effectiveness of different categories of bootstrapping techniques. Subsequently we describe our sample, discuss the construction of the variables, and describe the analytical method employed. Finally, we present the results of our analysis and discuss our findings.

Theory Development

Our research model stipulates that different types of bootstrapping techniques have different influence on whether a nascent venture emerges as an operational venture. We use institutional theory and the resource-based view to develop hypotheses. Our arguments are founded on a belief that acquiring resources that either increase cash or decrease monetary costs from external sources helps build the social legitimacy of the nascent business and leads to an increased probability of successful emergence. In this section of the article, we define the constructs relevant to our arguments and develop hypotheses.

This research is designed to focus on the relationship between bootstrapping and organizational emergence. The creation of business organizations is a central issue in entrepreneurship research. Hence the demarcation of organizational emergence is important in spite of significant challenges in determining the point of emergence (e.g. Gartner and Carter, 2003). Our dependent variable, organizational emergence, is defined as the transition point at which a nascent venture becomes an operational organization (Carter, Gartner and Reynolds, 1996; Tornikoski and Newbert, 2007). Although it is recognized that organizational emergence is a process, there has been significant discussion in the literature regarding the point in time at which a new venture can be deemed a viable venture (Carter, Gartner, and Reynolds, 1996;

Gartner and Carter, 2003). Of the researchers who have used the first Panel Study of Entrepreneurial Dynamics (PSED I) to study organizational emergence (Lichtenstein, Carter, Dooley, and Gartner, 2007; Newbert, 2005; Tornikoski and Newbert, 2007), many have operationalized organizational emergence as occurring when the venture's revenues exceed expenses. Although arguments for other points in time could be constructed, we posit that the point in time when revenues exceed expenses provides an indicator of a successful initial experiment and provides a base for future development. Thus, building on this logic and previous research, we also use positive cash flow as the indicator of when a venture becomes operational.

The term "bootstrap" has been part of the business lexicon for decades. However, one of the earliest uses of bootstrap in the academic literature was in a 1992 *Harvard Business Review* article titled "Bootstrap finance: The art of startups" (Bhide, 1992). Bootstrap finance was defined in this article as "launching ventures with modest personal funds" (Bhide, 1992: 110). More recently, bootstrap finance has been defined as "the use of methods for meeting the need for resources without relying on long-term external finance from debt holders and/or new owners" (Winborg and Landstrom, 2001: 235–236), and described as a method by which entrepreneurs can "extend the runway" from which to launch their business (Payne, 2007). Entrepreneurs often use bootstrapping techniques because they lack access to traditional sources of capital, or because they wish to maintain full control and ownership of their ventures, or both (Stouder, 2002). Specific techniques include practices such as continued regular employment, investment of personal savings, borrowing from family members, using personal credit cards, bartering for needed goods and services, state and local government grants, and making pre-agreements with suppliers and customers. (See Payne, 2007 and Winborg and Landstrom, 2001 for a full listing of bootstrapping techniques.)

Research on bootstrapping has been largely descriptive. (See Table 1 for a summary.) Early work in the area examined the types of bootstrap techniques that have been used and the degree to which managers of companies (not just new ventures) have used them (Van Auken and Neeley, 1998). This is a necessary first step in the examination of any important area. Researchers must first understand the "what" of an area before tackling the "why" and "how." The descriptive work indicates that sole proprietorships and firms outside the construction and manufacturing sectors are more likely to employ bootstrapping techniques. In addition, research that examines the degree to which entrepreneurs use bootstrap financing versus traditional forms of capital acquisition finds that bootstrap finance usage is related to market size, perceived firm risk, recent funding search (Van Auken, 2004), and the managers' assessment of their own ability (Carter and

Van Auken, 2005). Moreover, the use of particular bootstrap techniques (e.g., delaying payment to suppliers, customer-related bootstrapping) is positively related to perceived firm risk (Van Auken, 2004) and organizational age (Ebben and Johnson, 2006). Though some contingent relationships have been part of the above work (e.g. Van Auken, 2004; Ebben and Johnson, 2006), extension of the research from descriptive to normative is the next step in the development of the bootstrap finance area as it relates to entrepreneurship.

Cash-Increasing versus Cost-Decreasing Techniques

Bootstrap finance techniques can be categorized as cash-increasing or cost-decreasing (Payne, 2007). Cash-increasing techniques include continuing to work for others while starting a new venture; obtaining funding from spouses, friends, family, and current employers; obtaining a second mortgage; utilizing credit cards and personal financing; and founders investing their own money in a venture. The assumption of these techniques is that the money raised from using these techniques will be used to fund the venture. Cash-increasing techniques add value by bringing cash to a venture that can be used for multiple purposes. Cash-increasing techniques, therefore, are direct substitutes for traditional forms of financial capital.

Cost-decreasing techniques include delaying payments to suppliers, deferring salaries, utilizing used machinery, and obtaining professional services for free. Cost-decreasing techniques add value to a venture by reducing the need for cash. Cost-decreasing techniques are specific to tasks (e.g., free advice, deferred salaries) and they are not transferable across tasks. They are not direct substitutes for traditional forms of financial capital. Thus, the byproducts of cash-increasing and cost-decreasing techniques differ. The byproduct of a cash-increasing technique is cash. The byproduct of a cost-decreasing technique is a cost saving.

The resource-based view of the firm (RBV) contends that some resources are superior to other resources and superior resources are more likely to serve as sources of competitive advantage (Barney, 1991; Peteraf, 1993). Within an industry or competitive environment (e.g., a pool of new ventures), the resources that organizations possess are heterogeneous. Therefore, some organizations possess marginal resources and some organizations possess superior resources. Superior resources allow an organization to either produce goods or services more economically or incorporate elements that enable premium pricing. Producing goods or services economically or incorporating elements that enable premium pricing allows an organization to generate superior returns. Superior returns then allows the organization to enjoy a competitive advantage (Peteraf, 1993). For new ventures, the successful utilization of bootstrap financing techniques can pro-

vide them with potentially important resources, namely, cash and cost savings.

Because of the substitutability of cash, and the lack of substitutability of cost savings, we view a cash-increasing technique as a means of obtaining a more valuable resource (i.e., a superior resource) than a cost-decreasing technique. We view the successful employment of cash-increasing techniques as more likely to increase a venture's likelihood of becoming operational (e.g., an indicator of organizational performance) than the successful employment of cost-decreasing techniques. Therefore we believe that the founders of new ventures who successfully employ more cash-increasing bootstrapping techniques than cost-decreasing techniques will be more likely to have their venture become operational.

Hypothesis 1: Among nascent ventures, those whose founders successfully employ a higher percentage of cash-increasing bootstrap finance techniques versus cost-decreasing techniques will be more likely to become operational.

Internal versus External Bootstrapping Techniques

The bootstrap financing techniques of new venture founders can be categorized as being internally oriented (within the direct control of the founders) or externally oriented (requiring intervention from stakeholders outside the new venture). Building on new venture research that has examined ventures' resources that derive from internal capabilities and external networks (Lee, Lee, and Pennings, 2001), we extend the study of internal and external resources to founders'

Table 1. Summary of Bootstrap Financing Studies

<i>Study</i>	<i>Sample</i>	<i>Data Collection Technique</i>	<i>Independent Variables</i>	<i>Dependent Variables</i>	<i>Findings</i>
Carter & Van Auken, 2005	84 Iowa small firms	questionnaire	Perceived risk Perceived ability constraints Perceived effort constraints Firm age	Use of BS techniques - delaying payments - minimizing accounts receivable - minimizing investment - private owner financing - sharing resources with other businesses	Perceived risk is positively related to the use of delaying payments, minimizing investment, private owner financing, and sharing resources. Perceived ability constraints are negatively related to private owner financing.
Ebben & Johnson, 2006	146 retail and services firms in the Midwest that were between 2 and 40 years old	questionnaire	Time	Change in the use of BS techniques - customer-related - delaying payments - owner-related - joint-utilization	The use of customer-related bootstrapping techniques increases as a firm ages The use of delaying payments, owner-related, and joint-utilization bootstrapping techniques decrease as a firm ages.
Van Auken, 2004	44 small technology-based firms at two university-based research parks in a Midwestern state	questionnaire	Risk Size of market served Time devoted to raising capital Firm age Capital acquired	Use of bootstrap financing	Risk is positively related to the use of bootstrap financing. The size of the market served is negatively related to the use of bootstrap financing. The time devoted to raising capital is negatively related to the use of bootstrap financing.
Van Auken & Neeley, 1998	78 small businesses served by the Small Business Development Center in a Midwestern state	questionnaire	Type of business ownership Size of community in which business is located Industry	Use of nontraditional financing	Businesses owned as sole proprietorships used more nontraditional financing than did other businesses. Businesses in the construction and manufacturing industries used less nontraditional financing than other businesses.

financial bootstrapping efforts. Internal bootstrapping techniques include founders' continuing to work for others while starting a new venture, deferring salaries to themselves, obtaining a second mortgage, utilizing credit cards and personal financing, investing their own money in a venture, utilizing used machinery, and providing free services to the venture. External techniques include obtaining funding from friends, family, and current employers; delaying payments to suppliers; and obtaining professional services for free from outsiders.

Within the institutional theory-based organizational emergence stream, researchers have found that ventures in which founders undertook actions designed to legitimize their nascent venture to prospective customers and suppliers (e.g., they developed a model or prototype, purchased materials, bought or rented facilities and equipment, hired employees, and began promotional efforts) were more likely to have made a sale than those that did not engage in these activities (Newbert, 2005). Researchers have also found that legitimization activities undertaken with respect to a broader context of business community institutions (e.g., marketing or promotion efforts, projecting financial statements, opening a bank account, becoming listed in a telephone book, becoming listed with Dun and Bradstreet, asking for funds, and establishing credit with suppliers) improved a venture's likelihood of being perceived as an operating organization (Tornikoski and Newbert, 2007). Neither of these research streams, however, have addressed whether founders' financing choices, in particular, their bootstrapping practices, have affected their ventures' ability to become operational.

To be successful, internal bootstrapping techniques do not require external validation. Therefore they are not dependent on conforming to institutional norms. On the other hand, to be successful, external bootstrap finance techniques do require external validation. This means that whereas the successful employment of internal techniques include cash and cost savings, which are valuable to a new venture, the successful employment of external techniques include cash, cost savings, and a greater sense of social legitimacy. Greater legitimacy can then help generate more resources for a venture. Therefore, we believe that ventures that successfully employ greater levels of externally oriented techniques will be more institutionalized and have a greater sense of legitimacy than the ventures that employ more internal techniques; and a greater sense of legitimacy will provide these ventures with a greater likelihood of becoming operational.

Institutional theory contends that stakeholders in organizational fields have preferences and values that firms ignore at their peril. Stakeholders are comfortable with these preferences and values and subtly coerce organizations to conform to them by rewarding the conforming organizations with resources and punishing the nonconforming organizations

by withholding resources. The resources they offer motivate organizations to conform, and thus the preferences and values become institutionalized (Perrow, 1986). For new ventures, the resources offered to conforming ventures also include social legitimacy, which is crucial to a new venture's likelihood of survival (DiMaggio and Powell, 1983; Meyer and Rowan, 1977; Tornikoski and Newbert, 2007).

The process of conforming to institutional norms (i.e., stakeholders' preferences and values) implicitly involves an externalization process, a process of conforming to and validating with external stakeholders' preferences and values rather than internal firm preferences and values (Perrow, 1986). Once an organization conforms to institutional norms, external stakeholders then provide resources to the organization, including a greater sense of organizational legitimacy and increased capital. Institutional theory suggests the greater sense of legitimacy and resources will improve the organization's likelihood of survival compared to other organizations that do not receive external resources (Meyer and Rowan, 1977). For new ventures, the successful utilization of bootstrapping techniques that appeal to external stakeholders may provide ventures with greater legitimacy and resources.

Hypothesis 2: Among new ventures, those whose founders successfully employ a higher percentage of externally oriented bootstrap financing techniques versus internally oriented bootstrap finance techniques will be more likely to become operational.

Methods

To test our hypotheses, we used data from the PSED I dataset. The PSED I dataset is composed of 830 individuals who were in the new venture process when the study began and 431 comparison individuals. (For more information about the PSED, see Gartner, Shaver, Carter, and Reynolds, 2004.) To limit our sample to only new ventures, we used kscleans (Shaver, 2006), a publicly available SPSS syntax file, to reduce the sample. In using kscleans, we eliminated the comparison individuals and six ventures that should have been screened out of the dataset because they did not qualify as new ventures (i.e., at the beginning of the study, these ventures had positive cash flow). Finally, we eliminated ventures that were spin-offs of other companies (i.e., nonpersons owned more than 50% of the venture). This resulted in a sample of 817 new ventures. Excluding ventures with missing data further reduced the sample size. The final sample consisted of 207 ventures at time 1 (one year after the beginning of the PSED study) and 157 ventures at time 2 (two years after the beginning of the study). Although PSED data were collected annually for three years after the beginning of the study, data were not collected from all of the ventures in the sample for all

three years. In particular, data were collected from ventures started by minority groups for only two years (Gartner et al., 2004). Therefore, in the interest of producing generalizable results, we did not examine data from the final PSED wave.

Measures

Organizational Emergence

Items R621 and S621 from the PSED asked, does the venture's monthly cash revenue exceed monthly expenses? If the respondent answered yes, this variable was coded as 1. Otherwise it was coded as 0. R621 and S621 were items collected in the second and third waves of the PSED (i.e., one and two years after the initial data collection). Following the advice of Schaubroeck (1990), we used lagged dependent variables as a means of showing that our independent variables, which were collected in the initial data collection wave, were related to later organizational performance.

In terms of independent variables, the PSED dataset contains information about founders' use of 10 bootstrapping items: continuing to work for others, employer financing, family and friend financing, owner investing, spousal financing, using a second mortgage, using credit cards, using free helper-provided services, using free owner-provided services, and using personal financing.

To test our hypotheses we separated bootstrapping items into four categories represented by a 2x2 matrix.

Percentage of Techniques Used that Are Cash-Increasing and External. This variable represents the percentage of all the bootstrapping techniques that a venture used that were cash-increasing and external. These included spousal financing, family and friend financing, and employer financing.

Percentage of Techniques Used that Are Cash-Increasing and Internal. This variable represents internally oriented cash-increasing techniques. It is operationalized as the percentage of all of the bootstrapping techniques used that fit these categories and included using a second mortgage, using credit cards, using personal financing, owner investing, and continuing to work for others.

Percentage of Techniques Used that Are Cost-Decreasing and External. This variable represents externally oriented cost-decreasing techniques. It includes using free helper-provided services.

Percentage of Techniques Used that Are Cost-Decreasing and Internal. This variable represents internally oriented cost-decreasing techniques and includes using free owner-provided services.

To control for other explanations of why new ventures become operational, we included several control variables.

Entrepreneurial Experience. Within the knowledge-based organizational emergence stream, founders' entrepreneurial experience (the number of new ventures an entrepreneur or entrepreneurial team has helped start) and industry experience has often been used as an indicator of knowledge-based resources available to the firm. Entrepreneurial experience, as measured by the number of new ventures an entrepreneur or entrepreneurial team has helped start, has been shown to be positively related to a new venture's likelihood of survival (Delmar and Shane, 2006; Klepper, 2001; Stuart and Abetti, 1990; Taylor, 1999). Therefore we control for entrepreneurial experience by using PSED item Q200 for solo entrepreneurs and PSED item Q214 for teams.

Industry Experience. The startup team's industry experience has been shown to be positively related to a new venture's likelihood of survival (Bates and Sevron, 2000; Bosma, van Praag, Thurik, and de Wit, 2004; Bruderl, Preisendorfer, and Ziegler, 1992; Bruderl and Preisendorfer, 1998; Gimeno et al., 1997; van Praag, 2003; Wicker and King, 1989). Therefore, we control for industry experience (the number of cumulative years of experience of all team members in the venture's industry) by using PSED item Q199 for solo entrepreneurs and PSED item Q213 for teams.

Total Amount of Money Raised. Arguing from a resource-based perspective, new venture researchers have suggested that the amount of money provided to a startup will relate positively to the likelihood that the venture will be successful (Bruderl et al., 1992; Brush, Greene, and Hart, 2001; Shane and Stuart, 2002). The amount of money provided can include money raised by bootstrapping, but it can also include money raised from traditional funding sources (i.e., loans and investments from parties not associated to the venture or its founders). Traditionally, the founders of new ventures have experienced difficulty raising funds from traditional sources (Stouder, 2002; Winborg and Landstrom, 2001). Nevertheless, for those ventures that do receive funding from traditional funding sources, this funding may increase their likelihood of becoming operational. Therefore we control for the amount of money that a venture has or will receive in funding from traditional funding sources. This amount includes money that a venture has or will receive from bank loans, Small Business Administration loans, and venture capitalists.

Growth Propensity. New venture research has found that the performance of a new venture, including whether a venture successfully becomes an operational company, depends, in part, on the threshold performance level of the venture (i.e., the level of performance that the venture's founders view as acceptable; Gimeno et al., 1997). This finding suggests that a lower threshold performance level would allow a venture to exist for a longer period of time, which may increase a venture's likelihood of becoming an operational company. A way of capturing a founder's threshold performance is by determining his or her ambitions for the future size of the venture. If the founder wants the venture to

grow as large as possible, then his or her threshold performance might be low. That is, the founder may not be willing to allow the new venture to flounder for a long period of time without becoming operational. Conversely, if the founder wants the venture to be a size that is manageable by a few key employees and him or her, then the founder's threshold performance may be higher. That is, the founder may be willing to allow the venture to grow slowly and take a while before becoming operational. We used PSED item Q322 to capture this variable. The item asks for the respondent's preference for the future size of the venture. We coded this variable as 0 if the respondent answered that he or she "wants a size I can manage myself or with a few key employees," and we coded it as 1 if the answer was "I want it to be as large as possible."

Industry. Lastly, new venture research has suggested that in some industries in which large barriers to entry exist (e.g., biotechnology industries), attaining successful performance (e.g., becoming operational) may take a longer time than in other industries (Stouder, 2002). To control for industry effects, we coded each venture's industry using the PSED item SUSECT10 to identify a venture's industry. This item categorizes a venture's industry into 11 categories. We excluded the industries that were not represented in the sample (i.e., mining and other). Eight dummy variables were then used to represent whether the venture is in a given industry. They are (1) agriculture, forestry, or fish industries; (2) construction; (3) manufacturing; (4) transportation, communication, or utilities industries; (5) wholesale trade; (6) retail trade; (7) financial, insurance, or real estate industries; and (8) public administration. Services was the omitted industry.

Results

Descriptive statistics and correlations of the study variables are displayed in Table 2. The correlations show that the four independent variables, the percentages of techniques used that are cash increasing and internal, cash increasing and external, cost decreasing and internal, and cost decreasing and external, are significantly and negatively correlated ($r = -.42$, $r = -.41$, $r = -.54$, $r = -.14$, $r = -.11$, and $r = -.28$). This is expected because the categories are interdependent in such a way that collectively they sum to 1.00. Therefore, an increase in one variable will often be related to decreases in other variables.

Table 3 displays the results of hypothesis testing. Because of the binary nature of the dependent variable in the two time periods examined, we used binary logistic regression to test the hypotheses. Also, following the counsel of the PSED architects (Gartner et al., 2004), we used weighted items in our analyses.

Hypothesis 1 stated that among new ventures, those that have founders who successfully employ a higher percentage of cash-increasing bootstrapping techniques versus cost-

decreasing techniques will be more likely to become operational. Significant results at Time 2 indicate that the ventures of founders who use a higher percentage of techniques that are *cash-increasing* and external are more likely to become operational than the ventures of those who use a lower percentage ($b = 3.12$, $Wald = 5.61$, $p < .05$). At Time 1, however, the results do not indicate that cash-increasing techniques influence which ventures obtain positive cash flow. Taking into account the results of both cash-increasing independent variables in both periods, it appears that the results are inconclusive. Therefore, hypothesis 1 is not supported.

Hypothesis 2 stated that among new ventures, those that have founders who successfully employ a higher percentage of external bootstrapping techniques versus internal bootstrapping techniques will be more likely to become operational. As noted above, significant results at Time 2 indicate that the ventures of founders who use a higher percentage of techniques that are cash-increasing and *external* are more likely to become operational than the ventures of those who use a lower percentage ($b = 3.12$, $Wald = 5.61$, $p < .05$). Additionally, significant results at Time 1 indicate that the ventures of founders who use a higher percentage of techniques that are cost-decreasing and external are more likely to become operational than the ventures of those who use a lower percentage ($b = 1.53$, $Wald = 4.03$, $p < .05$). Taking into account the results of all the external techniques, we find that in both time periods, a higher percentage of external techniques is related to a venture's positive cash flow. Therefore, hypothesis 2 is supported.

Note that we used cumulative measures of the entrepreneurial experience and industry experience variables. That is, to measure these items, we looked at the cumulative number of companies that all founders had helped start and the cumulative number years of industry experience by all venture founders. We did so because we argued that the cumulative experience of all founders would matter more to organizational emergence than the mean experience of each founder. This argument, however, suggests that founder teams should have greater success at bringing a venture to organizational emergence than solo founders, because founder teams will generally have greater cumulative experience than solo founders. To challenge this argument, we performed supplementary analysis in which we recalculated entrepreneurial experience and industry experience to equal the team means, and we then used these means in our analysis instead of the cumulative items. The results did not significantly change the results.

Discussion

Our major finding is that external bootstrapping techniques, both cash-increasing and cost-decreasing, are positively linked to successful organizational emergence. This study

Table 2. Descriptive Statistics and Correlations among Study Variables

Variable	Mean	Std Dev	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Industry 1	.04	.19	1																
2. Industry 2	.05	.23	-.05	1															
3. Industry 3	.06	.24	-.05	-.06	1														
4. Industry 4	.02	.15	-.03	-.04	-.04	1													
5. Industry 5	.03	.17	-.04	-.04	-.05	-.03	1												
6. Industry 6	.26	.44	-.12**	-.14**	-.15**	-.09*	-.11**	1											
7. Industry 7	.06	.24	-.05	-.06	-.06	-.04	-.05	-.15**	1										
8. Industry 8	.00	.06	-.01	-.02	-.02	-.01	-.01	-.04	-.02	1									
9. Growth propensity	.22	.42	.01	.01	.13**	-.04	-.04	.05	-.02	-.03	1								
10. Entrepreneurial experience	1.84	3.67	.00	-.01	.10**	.00	.02	-.01	.02	.00	.10**	1							
11. Industry experience	5.99	12.08	.00	.06	.08*	-.01	.00	-.10**	-.09*	.00	.02	.14**	1						
12. Total amount of money raised	62143.08	82779.26	.00	-.01	-.01	.00	-.01	-.03	-.01	-.01	.08*	.09*	.06	1					
13. % of techniques used that are cash increasing and internal	.61	.24	-.03	.03	.00	-.02	.01	.02	-.05	.01	-.01	-.06	.00	-.02	1				
14. % of techniques used that are cash increasing and external	.09	.15	.05	-.05	-.02	-.03	.00	-.01	.05	.01	-.03	.07	-.07	.01	-.42**	1			
15. % of techniques used that are cost decreasing and internal	.13	.17	-.03	.03	.02	-.01	-.01	-.05	.00	-.05	.05	-.02	.10**	-.01	-.41**	-.14**	1		
16. % of techniques used that are cost decreasing and external	.17	.19	.03	-.03	-.01	.06	.00	.04	.02	.02	-.01	.04	-.03	.03	-.54**	-.11**	-.28**	1	
17. Positive cash flow at Time 1	.48	.50	-.05	.15*	-.05	.01	.10	-.17*	.06	-.07	.06	-.03	.09	.04	.00	-.07	-.01	.06	1
18. Positive cash flow at Time 2	.30	.46	.06	.08	.02	-.12	.17*	-.07	.03	.12	-.12	.17*	.06	.05	-.03	.05	-.14	.13	a

*p<.05; **p<.01

a. Cannot be computed because at least one of the variables is constant.

Unweighted variables were used to calculate correlations.

adds to the nascent entrepreneurship literature that is increasingly showing that institutional forces that increase a venture's social legitimacy play large roles in determining whether ventures become operational (Delmar and Shane, 2004; Tornikoski and Newbert, 2006). For new ventures seeking to become operational, resources provided externally are more valuable than resources provided internally. This may be because external parties can provide a sense of legitimacy to new ventures that they do not obtain from internal resources—and this legitimacy may contribute to a venture's becoming operational.

Table 3. Positive Cash Flow Regressed on Bootstrapping Variables

Variable	Time 1		Time 2	
	b	Wald	b	Wald
Industry 1	-1.04	.87	.28	.09
Industry 2	.96	1.75	.98	1.02
Industry 3	-.74	1.12	-.97	.92
Industry 4	-.41	.14	-2.72	.00
Industry 5	.90	1.43	21.79	.00
Industry 6	-.86	4.89*	-.14	.09
Industry 7	1.16	1.66	1.25	1.36
Industry 8	-20.79	.00	21.40	.00
Growth propensity	.39	1.34	.20	.20
Entrepreneurial experience	-.03	.50	.04	2.17
Industry experience	.04	3.97*	.04	2.48
Total amount of money raised	.00	1.21	.00	1.53
% of techniques used that are cash increasing and internal	.22	.31	.30	.35
% of techniques used that are cash increasing and external	-1.26	1.62	3.12	5.61*
% of techniques used that are cost decreasing and internal	.23	.05	-1.89	2.37
% of techniques used that are cost decreasing and external	1.53	4.03*	.94	.93
Intercept	-.41	.98	-1.62	10.23**
N	207		157	
Chi-square	28.357		29.385	
p	.029		.021	
-2 log likelihood	258.486		160.526	
Cox & Snell R ²	.128		.171	
Nagelkerke R ²	.171		.243	

-p<.10; *p<.05; **p<.01; ***p<.001

Note: The independent variables, including the bootstrapping questions, were only asked in the first wave of data collection—at Time 0
Omitted industry = the services industry

Conversely, internal bootstrapping techniques are not significantly related to a venture's becoming operational. The key difference between external and internal techniques that may allow external techniques to be significantly related to the likelihood of a venture's becoming operational may be largely due to the greater sense of legitimacy that successfully employed external techniques offer.

In drawing conclusions from this study, our evidence suggests that the use of external bootstrapping techniques at least partially meets the requirements of explaining causality. That is, to try to show a causal link between bootstrapping techniques and organizational emergence, we lagged the collection of the dependent variable. In addition, we included several control variables. The relationship between external bootstrapping practices and organizational emergence remain significant after control variables are entered into the equation. However, there may be other factors that we have not considered that might offer a competing explanation.

The study does have some limitations. First, it is somewhat limited because the PSED collected data related to only 10 bootstrapping variables, and previous bootstrapping research has identified 32 bootstrapping techniques (Winborg and Landstrom, 2001). In addition, our theoretical framework is partially derived from institutional theory, but we did not directly examine conformity to institutional norms. Instead we examined the successful result of external bootstrapping (i.e., whether founders were able to obtain resources from outside the venture). We assumed that if founders successfully employed external techniques, they must have conformed to institutional norms.

We suggest three ways in which this study could seed future research. First, it would be useful to verify if the internal/external and cost-decreasing/cash-increasing schema we used to categorize bootstrapping techniques is adequate when using the 32 bootstrapping techniques previously identified (Winborg and Landstrom, 2001). Second, future research should include measures of legitimacy-seeking behavior in order to confirm our argument that external techniques are more efficacious because they conform to institutional theory arguments. Third, the study could be broadened to analyze other legitimacy seeking behaviors. For example, one way that founders may attempt to gain legitimacy is by managing the impression of their ventures in the eyes of important stakeholders and potential stakeholders (Elsbach, 1994). Thus, future research could examine whether the successful employment of certain impression management techniques influences external stakeholders, and consequentially, a venture's likelihood of becoming operational.

This research has some obvious implications for practice. Our results indicate that ventures moving toward emergence are more likely to be successful by employing externally ori-

ented bootstrapping techniques that both increase cash and decrease costs. Reliance on internally oriented techniques is not significantly associated with organizational emergence.

In conclusion this research makes some significant contributions. First, it provides new insights into bootstrapping, an important facet of venture emergence that has not received a great deal of research attention. Second, it goes beyond simply describing bootstrapping by showing that external tech-

niques are more efficacious with respect to the successful emergence of a new venture than internal techniques. Third, it is able to provide some evidence for causality by examining relationships across multiple time periods. Finally, the results are not likely to be influenced adversely by recall bias because the PSED data were collected during the process of organizational emergence at multiple time periods.

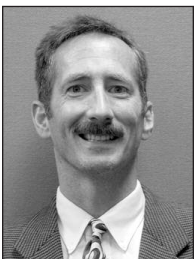
References

- Barney, J. B. (1991) Firm resources and sustained competitive advantage. *Journal of Management*, 17, 99–120.
- Bates, T., and Sevron, L. (2000) Viewing self-employment as a response to lack of suitable opportunities for wage work. *National Journal of Sociology*, 12: 23–53.
- Bhide, A. (1992) Bootstrap finance: The art of start-ups. *Harvard Business Review*, 13: 109–117.
- Bosma, N., van Praag, M., Thurik, R., and de Wit, G. (2004) The value of human and social capital investments for the business performance of startups. *Small Business Economics*, 23: 227–236.
- Bruderl, J., and Preisendorfer, P. (1998) Network support and the success of newly founded businesses. *Small Business Economics*, 10: 213–225.
- Bruderl, J., Preisendorfer, P., and Ziegler, R. (1992) Survival chances of newly founded business organizations. *American Sociological Review*, 57: 227–242.
- Brush, C. G., Greene, P. G., and Hart, M. (2001) From initial idea to unique advantage: The entrepreneurial challenge of constructing a resource base. *Academy of Management Executive*, 15: 64–78.
- Carter, N. M., Gartner, W. B., and Reynolds, P. D. (1996) Exploring start-up event sequences. *Journal of Business Venturing*, 11, 151–166.
- Carter, R. B., and Van Auken, H. E. (2005) Bootstrap financing and owners' perceptions of their business constraints and opportunities. *Entrepreneurial and Small Business Finance*, 17: 129–144.
- Delmar, F., and Shane, S. (2004) Legitimizing first: Organizing activities and the survival of new ventures. *Journal of New Business Venturing*, 19: 385–410.
- Delmar, F., and Shane, S. (2006) Does experience matter? The effect of founding team experience on the survival and sales of newly founded ventures. *Strategic Organization*, 4: 215–247.
- DiMaggio, P., and Powell, W. W. (1983) The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48: 147–160.
- Ebben, J., and Johnson, A. (2006) Bootstrapping in small firms: An empirical analysis of change over time. *Journal of Business Venturing*, 21: 851–865.
- Elsbach, K. D. (1994) Managing organizational legitimacy in the California cattle industry: The construction and effectiveness of verbal accounts. *Administrative Science Quarterly*, 39: 57–88.
- Gartner, W. B., and Carter, N. M. (2003) Entrepreneurial behavior and firm organizing processes. In Zoltan J. Acs and David B. Audretsch, eds., *Handbook of Entrepreneurship Research: An Interdisciplinary Survey and Introduction*. Boston, MA: Kluwer Academic, 195–221.
- Gartner, W. B., Shaver, K. G., Carter, N. M., and 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., and Woo, C. Y. (1997) Survival of the fittest? Entrepreneurial human capital and the persistence of underperforming firms. *Administrative Science Quarterly*, 42: 750–783.
- Klepper, S. (2001) Employee startups in high-tech industries. *Industrial and Corporate Change*, 10: 639–674.
- Lee, C., Lee, K., and Pennings, J. M. (2001) Internal capabilities, external networks, and performance: A study of technology-based ventures. *Strategic Management Journal*, 22: 615–640.
- Lichtenstein, B. B., Carter, N. M., Dooley, K. J., and Gartner, W. B. (2007) Complexity dynamics of nascent entrepreneurship. *Journal of Business Venturing*, 22: 236–261.

- Meyer, J. W., and Rowan, B. (1977) Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, 83: 340-363.
- Newbert, S. L. (2005) New firm formation: A dynamic capability perspective. *Journal of Small Business Management*, 43: 55-77.
- Payne, W. H. (2007) Bootstrapping your business. Kauffman eVenturing: The entrepreneur's trusted guide to high growth. <http://www.eventuring.org>. March 1, 2007.
- Perrow, C. (1986) *Complex Organizations: A Critical Essay*. 3rd ed. New York: McGraw-Hill.
- Peteraf, M. A. (1993) The cornerstones of competitive advantage: A resource-based view. *Strategic Management Journal*, 14: 179-191.
- Schaubroeck, J. (1990) Investigating reciprocal causation in organizational behavior research. *Journal of Organizational Behavior*, 11: 17-28.
- Shane, S. and Stuart, T. (2002) Organizational endowments and the performance of university start-ups. *Management Science*, 48: 154-170.
- Shaver, K. G. (2006) kscleans.sps. Downloaded from <http://www.cofc.edu/~shaverk/kscleans06.sps> on August 1, 2007.
- Stouder, M. D. (2002) The capital structure of decisions of nascent entrepreneurs. Doctoral dissertation. Rutgers, The State University of New Jersey, Newark.
- Stuart, R. W., and Abetti, P. A. (1990) Impact of entrepreneurial and management experience on early performance. *Journal of Business Venturing*, 5: 151-162.
- Taylor, M. P. (1999) Survival of the fittest? An analysis of self-employment duration in Britain. *The Economic Journal*, 109: C140-C155.
- Tornikoski, E. T., and Newbert, S. L. (2007) Exploring the determinants of organizational emergence: A legitimacy perspective. *Journal of Business Venturing*, 22: 311-335.
- Van Auken, H. E. and Neeley, L. (1998) Evidence of bootstrap financing among small start-up firms. *Entrepreneurial and Small Business Finance*, 5: 235-249.
- Van Auken, H. E. (2004) The use of financing among small technology-based firms. *Journal of Developmental Entrepreneurship*, 9: 145-159.
- van Praag, C. M. (2003) Business survival and success of young small business owners. *Small Business Economics*, 21: 1-17.
- Wicker, A., and King, J. (1989) Employment, ownership, and survival in microbusinesses: A study of new retail and service establishments. *Small Business Economics*, 1: 137-152.
- Winborg, J., and Landstrom, H. (2001) Financial bootstrapping in small businesses: Examining business managers' resource acquisition behaviors. *Journal of Business Venturing*, 16: 235-254.



About the Authors



JOHN PERRY (john.perry@wichita.edu) is an assistant professor of strategic management at Wichita State University. He earned his PhD in Management (2006) from the Smeal College of Business at Penn State University. Dr. Perry's research interests include succession issues related to entrepreneurial strategies and family business.



GAYLEN CHANDLER (gaylen.chandler@wichita.edu) is a professor of entrepreneurship and W. Frank Barton Distinguished Chair in Entrepreneurship at Wichita State University. He received his PhD (1990) from the University of Utah. His research interests include opportunity recognition processes, the role of ongoing learning in new venture development, and new venture teams.



XIN YAO (xin.yao@colorado.edu) is an assistant professor of management and entrepreneurship at the Leeds School of Business, University of Colorado at Boulder. She received her PhD from the University of Washington. Her research interests include with entrepreneur identity and motivation, early stage venture financing, venture capital, and creativity.



JAMES A. WOLFF (jim.wolff@wichita.edu) is a professor of strategic management and Kincaid Faculty at Wichita State University. He earned his PhD in Strategic Management (1995) from the Washington State University. Dr. Wolff's research interests include small business performance and growth, corporate entrepreneurship, innovation, and international entrepreneurship.