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A MULTIDIMENSIONAL MODEL OF VENTURE GROWTH

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We drew upon strategic management theory, organizational behavior theory, organization theory, and entrepreneurship models to form an integrated model of venture growth including 17 concepts from five micro and macro research domains. The model was tested with responses from 307 companies from the architectural woodworking industry. CEOs' specific competencies and motivations and firm competitive strategies were direct predictors of venture growth. CEOs' traits and general competencies and the environment had significant indirect effects.

This research explores the causes of venture growth. In past entrepreneurship research, individual differences (Begley & Boyd, 1987), strategic management concepts (McDougall, Robinson, & DeNisi, 1992), and organization theory concepts (Aldrich & Wiedenmayer, 1993) have often been studied as isolated causes of venture performance. The authors of more recent studies have proposed that individual, organizational, and environmental dimensions combine to provide a more comprehensive prediction of venture development and growth than any one dimension in isolation (Chrisman, Bauerschmidt, & Hofer, 1998; Covin & Slevin, 1997; Herron & Robinson, 1993; Lumpkin & Dess, 1996; Naffziger, Hornsby, & Kuratko, 1994; Sandberg, 1986). However, there has been limited examination of these multilevel models.

Our purpose was to propose and test a comprehensive multilevel model of venture growth. We included five research domains that have been theoretically identified as antecedents of venture performance: personality traits and general motives, personal competencies, situationally specific motivation, competitive strategies, and business environment. We chose venture growth as our performance measure, rather than other indicators of performance, because entrepreneurship researchers have pointed to growth as the crucial indicator of venture success (Covin & Slevin, 1997; Low & MacMillan, 1988). Our goals were: (1) to test whether a multilevel model that sampled relevant concepts from individual, organizational, and environmental domains would predict firm performance successfully, (2) to test whether each domain would contribute something to the prediction, and (3) to explore alternative forms of the relationship among the domains and performance. By empirically examining multiple domains across multiple levels, we hoped to produce a more complete understanding of venture growth.

THEORY AND HYPOTHESES

Direct Effects: Entrepreneurs

Traits and motives. Personality theories point to the importance of personal predispositions for venture success (McClelland, 1965), and venture capitalists have reported that entrepreneur characteristics are extremely important for venture success (MacMillan, Siegel, & SubbaNarisimha, 1985). Some traits and motives of successful entrepreneurs have been identified, but these concepts have typically produced weak relationships (accounting for less than 7 percent of the variance) with venture performance (Begley & Boyd, 1987; Low & MacMillan, 1988). Furthermore, Sandberg and Hofer (1987) found that organizational and industry variables completely dominated individual-level variables as causes of venture success. There are three possible implications of these prior results: (1) traits do not matter, (2) traits do not work in isolation from other factors, and (3) the wrong traits have been tested in past entrepreneurship studies. Our research design examined the second possibility. To control for the third, we included additional traits in our study that have been proposed as characteristics of successful leaders: tenacity, proactivity, and passion (Bass, 1990; Locke, 1997). Furthermore, entrepreneurship theorists have proposed that tenacity and proactivity-initiative are important for the successful establishment and operation of new ventures (Bird, 1989, Chandler & Jansen, 1992). And Smilor suggested that passion is "perhaps the most observed phenomenon of the entrepreneurial process" (1997: 342). Thus, we predicted:

Hypothesis 1. With other antecedents of venture growth controlled, the greater the tenacity,

proactivity, and passion for work of a venture's CEO, the greater the venture's growth.

Individual competencies. Competencies here refer to individual characteristics such as the knowledge, skills, and/or abilities required to perform a specific job. Testing his job performance theory, Boyatzis (1982) found significant performance relationships with "general" people and organization competencies (oral presentation skill, decision-making ability, conceptualization ability, diagnostic use of concepts, and use of power) and "specific" competencies (technical skill and industry skill). Entrepreneurship studies have developed skill-ability clusters that are similar to those found in Boyatzis's management-leadership theory (Bird, 1989; Chandler & Jansen, 1992; Herron & Robinson, 1990); however, opportunity recognition appears in these studies as an important additional general skill of entrepreneurs, and the components of people and organization competency are combined as "managerial skill" (Chandler & Jansen, 1992). We focus on two general and two specific competencies that appear in common in entrepreneurship studies and predict that:

Hypothesis 2. The greater the general competency of a venture's CEO with respect to organizational skills and opportunity recognition skills, the greater the venture's growth.

Hypothesis 3. The greater the specific competency of a venture's CEO with respect to industry skill and technical skill, the greater the venture's growth.

Situationally specific motivation. In this domain, we chose to study vision, growth goals, and self-efficacy as motivation concepts, because: (1) all three concepts have demonstrated significant empirical relationships with business performance and (2) entrepreneurship theorists have pointed to the importance of vision, business goals, and self-efficacy for planning and venture performance (Bird, 1989; Low & MacMillan, 1988). Vision is a core element of motivation in charismatic leadership theory (Bass, 1990). Indeed, two laboratory simulations have shown direct and indirect performance effects for vision. More scientific validity has been demonstrated for the goal theory proposition that specific, challenging goals lead to higher performance than for any other motivation theory (Locke & Latham, 1990). Entrepreneurship researchers have found that entrepreneurs' self-efficacy (task-specific self-confidence [Bandura, 1986]) in relation to their ability to start and "grow" their ventures is associated with venture performance (Chandler & Jansen, 1992). We examine the direct effects of these three aspects of motivation and predict:

Hypothesis 4. The greater the situationally specific motivation of a venture's CEO with respect to vision, growth goals, and self-efficacy, the greater the venture's growth.

Direct Effects: Competitive Strategy

Following Porter (1980), we conceive of strategy in terms of three broad business-level choices: focus, low cost, and differentiation. Focus (a narrow scope) refers to competitive strategies that target a particular set of customers, segment of a product line, or geographic market. The low-cost strategy involves the construction of efficient-scale facilities, the aggressive pursuit of cost reduction and cost minimization in all functions of an organization, and offering products to price-sensitive customers (Dess & Davis, 1984). Differentiation strategies are designed to create and market innovative, high-quality products and/or services industrywide (Porter, 1980). According to Porter, the three competitive strategies are alternative viable approaches for dealing with environmental forces. Firms that fail to select one of these strategies are "stuck in the middle" and, therefore, almost always doomed to failure (Porter, 1980: 42). As Porter noted, a stuck-in-the-middle firm lacks the investment in low-cost structure to compete on price, the industrywide differentiation to offset the need for a low-cost position, and the focus to achieve differentiation or a low cost within a limited market space. Indeed, Dess and Davis (1984) found empirical support for this hypothesis. Thus, we argue that firms that select one of the three types of strategies will outperform those that deploy a combined strategy.

Hypothesis 5. A firm's competitive strategy will be related to performance; more specifically, firms that emphasize either a focus, low-cost, or differentiation strategy will achieve the highest growth.

Direct Effects: Environment

Theories have been proposed and empirically supported suggesting that organizations are affected by their environments (Aldrich & Wiedenmayer, 1993). This study focused on three dimensions of environment: dynamism, munificence, and complexity. Dynamism (negative stability) refers to the level of environmental predictability; it is manifested in the rate of market and industry change and the level of uncertainty about forces that are

beyond the control of individual businesses (Dess & Beard, 1984). Because stable environments are easier to navigate, we expect environmental stability to be positively related to venture growth. Munificence refers to an environment's support for organizational growth (Dess & Beard, 1984). High munificence enables firms to cope with challenges by obtaining outside resources. Complexity represents the concentration or dispersion of organizations in the environment (Aldrich & Wiedenmayer, 1993). Complex environments, composed of many firms, may be more difficult for entrepreneurs to comprehend. Thus, we propose:

Hypothesis 6. A firm's environment will be related to venture growth; more specifically, ventures in stable, munificent, and simple environments will achieve the highest growth.

Indirect Effects

Effects among traits, competencies, and motivation. Entrepreneurship researchers have pointed to the likelihood that personality works in conjunction with other factors (Naffziger, 1995), or that the relation of personality with performance is mediated by other factors (Herron & Robinson, 1993). First, we propose that traits affect competencies because individuals practice what they like, and practice develops skill. For example, someone who is tenacious and proactive and has a passion for piano is likely to engage in daily keyboard practice, but someone who is without these traits will tend to avoid skill-building practice. Indeed, Boyatzis (1982) found that managers' traits were manifested in their competencies. Thus, we propose:

Hypothesis 7. The greater the tenacity, proactivity, and passion for work of a venture's CEO, the greater his or her general and specific competency.

Second, we propose an indirect effect from traits to venture growth mediated by situationally specific motivation. Locke (in press) showed that situationally specific goals and self-efficacy mediated the effects of general traits on performance, and Bird (1989), in her discussion of strategic vision and goals, suggested that vision and goals are, in part, a reflection of personality. Personality traits (proactivity and tenacity) affect self-efficacy (Bandura, 1986); thus, we propose:

Hypothesis 8. The greater the tenacity, proactivity, and passion for work of a venture's CEO, the greater his or her situationally specific motivation with respect to vision, goals, and self-efficacy.

Thirdly, we propose that general competencies affect specific competencies and situationally specific motivation. Drawing upon Maier's (1965) theory that general ability and motivation combine to produce performance, Bird (1989) proposed that personal ability affects specific skills, vision, and goals, which, in turn, cause entrepreneurship success. The path from general competencies to specific motivation is also consistent with social cognitive and goal theories that explain that people base their goals and their efficacy evaluations on self-knowledge about ability (Bandura, 1986).

Hypothesis 9. The greater the general competencies of a venture's CEO in terms of organizational skills and opportunity recognition skills, the greater the CEO's specific competency in terms of industry skill and technical skill.

Hypothesis 10. The greater the general competencies of a venture's CEO, the greater his or her situationally specific motivation with respect to vision, goals, and self-efficacy.

Effects of traits, competencies, motivation, and competitive strategy. Competitive strategies reflect the choices of managers (Child, 1972). Thus, the determinants of individual decision making and behavior are among the determinants of strategy because people choose plans in part on the basis of (1) what they are predisposed to do, (2) what they are motivated to do, and (3) what they think they can do (Bandura, 1986; Hollenbeck & Whitener, 1988).

Strategy researchers have empirically linked top management characteristics to innovation strategy, strategic change, and other aspects of strategy (Grimm & Smith, 1991; Michel & Hambrick, 1992). Furthermore, the strategy implementation literature points to the importance of personal traits in strategy formulation and communication. Since these studies support the view that individual traits are determinants of cognition and behavior, we propose that traits affect strategic choice. In particular, we believe that tenacity, proactivity, and passion for work will lead CEOs to recognize the value of competitive strategy for enhancing venture growth.

Hypothesis 11. The greater the tenacity, proactivity, and passion for work of a venture's CEO, the greater the likelihood that the venture will select a focus, low-cost, or differentiation strategy.

We also expect that general competencies will affect the choice and implementation of competi-

tive strategy. Individuals tend to adopt and commit to strategies that they believe are achievable (Bandura, 1986; Covin & Slevin, 1997; Herron & Robinson, 1993), and skills and ability may limit performance despite the existence of high goals and the "right" strategy (Bird, 1989; Locke & Latham, 1990). In addition, the resource-based view of the firm and the strategic choice literature (Child, 1972) emphasize the link between managerial competence and strategy.

Hypothesis 12. The greater the general competency of a venture's CEO with respect to organizational skills and opportunity recognition skills, the greater the likelihood that the venture will select a focus, low-cost, or differentiation strategy.

We believe that an indirect causal effect from motivation to venture growth is mediated by competitive strategy. Bandura (1986) asserted that motivation is a codeterminant (with environment) of task strategies, the individual-level version of company strategies. Goal theory research has found that task strategy can mediate the goal-to-performance relation (Locke & Latham, 1990), and entrepreneurship theorists propose that business vision and personal goals affect competitive strategies (Bird, 1989). Therefore, we expect a CEO's motivation will lead to recognition of the importance of competitive strategies for venture growth.

Hypothesis 13. The greater the motivation of a venture's CEO with respect to vision, goals, and self-efficacy, the greater the likelihood that the venture will select a focus, low-cost, or differentiation strategy.

Effects of environment upon strategy. We expect the environment domain to affect competitive strategies, a view that is consistent with the views of economists (Scherer & Ross, 1990), strategic management theorists (Bourgeois, 1980), and social psychologists (Bandura, 1986), and with the empirical findings of entrepreneurship researchers (Sandberg & Hofer, 1987). For example, the entire structure (environment)—conduct (strategy)—performance paradigm in industrial organizational economics rests on the premise that strategy (conduct) will be influenced by industry structure, which will in turn affect performance (Mason, 1939; Scherer & Ross, 1990). Furthermore, since strategic decision-making is a human behavior, social cognitive theory (Bandura, 1986) points to the determination of behavior by environmental (and personal) forces. Finally, entrepreneurship research has found that new venture strategies are formed in response to environmental forces (McDougall et al., 1992; Sandberg, 1986). Thus, we propose:

Hypothesis 14. Environmental stability, munificence, and simplicity will be related to a venture's strategy and, more specifically, to its propensity to select a focus, low-cost, or differentiation strategy.

In summary, Hypotheses 1–6 represent a direct effects model, which reflects a straightforward integration of concepts from multiple research domains. With Hypotheses 7–14, we present a more complex set of indirect effects, explaining how entrepreneurial characteristics are interrelated and how these characteristics and environmental forces impact strategic decisions.

There is theory to support this more complex integration: (1) Existing personality, competency, and motivation theories underlie our hypothesized individual-level indirect effects (Bandura, 1986; Boyatzis, 1982; Hollenbeck & Whitener, 1988; Locke & Latham, 1990; Maier, 1965). And growing recognition of the importance of (2) individual differences (Grimm & Smith, 1991; Michel & Hambrick, 1992) and (3) environmental conditions (Scherer & Ross, 1990; Schwenk, 1988) as inputs into the strategic decision process supports our proposed cross-level effects. Indeed, Schwenk (1988) pointed to the importance both of rational choice and cognitive heuristics theory from cognitive psychology and of environmental analysis and scanning systems such as the CP/IA (competitive position/industry attractiveness) matrix (Hofer & Schendel, 1978) for understanding the outcomes of strategic decision making. The theoretical link between these indirect effects and venture growth is competitive strategy. That is, strategic choice theory itself (Child, 1972) points to the efficacy of strategic decision making for organizational performance, guiding our prediction that strategies affect venture growth directly (Hypothesis 4).

We studied a single industry to avoid confounding by industry type (for example, mom-and-pop versus high-potential industries) and industry-specific externalities. That is, we followed those who have suggested that universal organizational patterns and processes will be most apparent in single-industry studies. In addition, we controlled for organization size because size may systematically influence other concepts of interest. Indeed, hundreds of studies have shown that size is an important determinant of organization process and performance.

METHODS

Industry and Participants

U.S. firms that manufacture and install architectural woodwork (doors, windows, stairs, cabinets, and trim for residential, commercial, and major public buildings) were studied; these enterprises fall into Standard Industrial Classification (SIC) code 2431. Their products are sold to general contractors, architects, and interior designers. Typical firms employ skilled woodworkers, production-oriented high-tech machinery operators, carpentry installers, and project managers.

In 1993, the industry's 849 CEOs were invited to participate; 442 agreed. Following an extensive pilot test, the questionnaire was mailed to each CEO, and an adapted version was also sent separately to 202 employees whose participation had been authorized by their CEOs. The employee data were used to test the validity of the CEO self-reports. The questionnaire contained measures of the 17 predictor concepts studied and 1992 performance. The employee and the CEO versions were identical except that references in the CEO version to "you" and "your company" were changed to "the CEO" and "the company" in the employee version. Performance data for 1994 were collected in 1995 via a second questionnaire sent to the CEOs.

We received 414 CEO responses (49 percent), and we used 307 in our study (36 percent of the population). We disqualified CEOs who (1) had founded their businesses or purchased going concerns less than two years or more than eight years prior to the 1993 survey, (2) had no or only one employee, (3) were not active owner-managers, or (4) supplied incomplete data. The average qualified CEO respondent had 16 employees and $1.5 million in sales in 1992. Our net employee sample included 131 directly reporting employees (43 percent of the net qualified CEO sample) who had worked with the responding CEO for two or more years and had submitted complete data. The typical employee participant was a manager who had been in the industry for six years.

To test whether the 414 respondents were representative of the population, we compared the mean numbers of employees and the mean sales volumes of the respondents with the population; differences were not significant (employees, $Z = 0.32$, $p < .38$; sales, $Z = 1.0$, $p < .16$).

Measures

Data were collected for the 17 theory-based predictor concepts from the entrepreneur-CEOs and the employees, and the CEOs supplied data for the control and performance concepts. Table 1 shows the number of items, format, composite reliability, and research source for the 17 predictor concepts. Details are available from the first author.

We calculated three measures of venture growth using data from the 1993 and 1995 CEO questionnaires. The first measure of the dependent variable, average annual percent sales growth, was one-half the difference between 1992 and 1994 sales, divided by the base year (1992). Similar calculations produced the second and third measures, average annual percent employment growth and average annual percent profit growth (composite reliability = .87). We evaluated the accuracy of the raw performance data by checking the agreement of results for a random sample of 25 of the firms against Dun & Bradstreet reports of 1992 performance. For the 21 of these cases for which Dun & Bradstreet data were available, correlations were high (the smallest $r = .94$, $p < .001$), and none of the means differences were significant (the largest $t = .96$, $p < .36$).

Organization size, measured as the number of full-time equivalent employees at the end of 1992, was entered as a control variable.

RESULTS

LISREL 8 and PRELIS 2 were used to (1) impute missing data, (2) evaluate concept validity (reliability, including dual-source similarity and convergent and discriminant validity), (3) perform confirmatory factor analyses to verify the validity of the proposed configuration of concepts and domains, and (4) test the hypotheses. Univariate homogeneity testing (PRELIS 2 HT) and multiple sample analysis (LISREL MSA) confirmed the similarity of the response distributions of the 131 pairs of entrepreneur-CEOs and employee participants, as well as the distributions of the entrepreneur-CEOs with ($n = 131$) and without matched employee participants ($n = 176$).

As shown in Table 1, the measurement model had ten concepts each with a composite reliability (CR) greater than .80, six concepts with a CR between .70 and .79, and three with a CR between .60 and .69. All the concept-to-domain coefficients were statistically significant ($t > 2.0$, $p < .05$); thus, convergent validity was established. We verified discriminant validity by determining that the average variance extracted by each latent variable's measures was larger than its shared variance with any other latent variable. The overall fit was acceptable ($\chi^2_{2,572} = 5{,}961$, $p < .00$; GFI = .90, AGFI =

TABLE 1
Predictor Measures

Domain and Predictor	Number of Items	Format	Composite Reliability[a]	Source
Traits				
Tenacity	5	Likert-type response scales	.85	Chandler and Jansen, 1992
Proactivity	5	Likert-type response scales	.81	Bird, 1989
Passion	5	Likert-type response scales	.85	Smilor, 1997
General competencies				
Organization skill	3	Likert-type response scales		Boyatzis, 1982
	1	Decision scenario	.74	Chandler and Jansen, 1992
Opportunity skill	5	Likert-type response scales	.68	Chandler and Jansen, 1992
Specific competencies				
Industry skill	5	Scales developed for project	.63	Doutriaux and Simyar, 1987
Technical skill	5	Scales developed for project	.79	Doutriaux and Simyar, 1987
Motivation				
Vision	2	Expert coding of quality and content	.77	Kirkpatrick and Locke, 1996
Goals	3	Self-reports	.71	Locke and Latham, 1990
Self-efficacy	3	Scales developed for project	.86	Bandura, 1997
Competitive strategies				
Focus	4	Scales developed for project	.76	Porter, 1980
Low-cost	1	Scale developed for project		
	4	Likert-type response scales	.81	Porter, 1980
Differentiation: Innovation	2	Scales developed for project		
	3	Likert-type response scales	.84	Porter, 1980
Differentiation: Quality/Service	1	Scale developed for project		
	4	Likert-type response scales	.87	Porter, 1980
Environment				
Dynamism	4	Likert-type response scales	.84	Dess and Beard, 1984
Munificence	4	Likert-type response scales	.73	Dess and Beard, 1984
Complexity	2	Scales developed for project	.68	Aldrich and Wiedenmayer, 1993

[a] Conceptually similar to alphas.

.88, PNFI = .55, RMSR = .08, RMSEA = .09).[1] We checked for common source bias with LISREL confirmatory factor analysis by linking a common latent variable with all of the measures. The resultant coefficient lambda (.16, t = .40, $p < .05$) indicated that common variance was less than 3 percent.

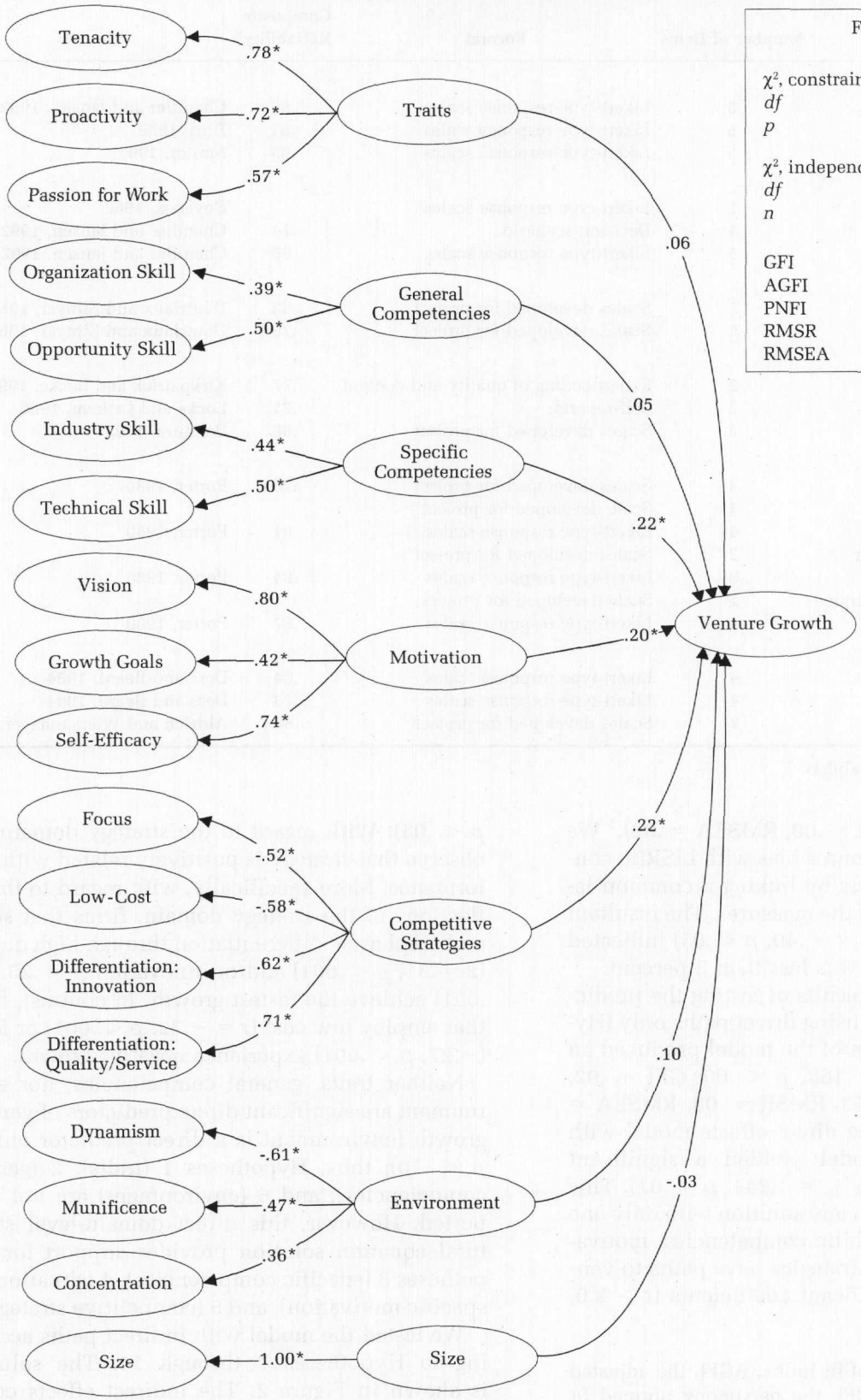
Figure 1 shows the results of testing the prediction of venture growth using direct paths only (Hypotheses 1–6). Solution of the model produced an acceptable fit (χ^2_{102} = 168, $p < .00$; GFI = .92, AGFI = .89, PNFI = .63, RMSR = .06, RMSEA = .08). Comparison of the direct effects model with the independence model yielded a significant change in chi-square (χ^2_{36} = 1,244, $p < .01$). This solution was better than any solution with only one predictor domain. Specific competencies, motivation, and competitive strategies have paths to venture growth with significant coefficients ($t > 2.0$, $p < .05$). With regard to the strategy domain, we observe that strategy is positively related with performance. More specifically, with regard to the reflections of the strategy domain, firms that select and emphasize differentiation through high quality (r = .31, $p < .001$) and/or innovation (r = .25, $p <$ .001) achieve the fastest growth. In contrast, firms that employ low cost (r = −.22, $p < .001$) or focus (−.27, $p < .001$) experience negative growth.

Neither traits, general competencies, nor environment are significant direct predictors of venture growth (environment is a direct predictor only at $p < .10$); thus, Hypotheses 1 (traits), 2 (general competencies), and 6 (environment) are not supported. However, this direct domain-level structural equation solution provides support for Hypotheses 3 (specific competencies), 4 (situationally specific motivation), and 5 (competitive strategies).

We tested the model with indirect paths according to Hypotheses 7 through 14. The solution is shown in Figure 2. The indirect effects configuration produced a good fit (χ^2_{93} = 148, $p < .00$; GFI = .95, AGFI = .92, PNFI = .69, RMSR = .06,

[1] GFI is the goodness-of-fit index; AGFI, the adjusted goodness-of-fit index; PNFI, the parsimony normed fit index; RMSR, the root-mean-square residual; RMSEA, the root-mean-square error of approximation.

FIGURE 1
Structural Equation Results, Direct Effects Model[a]



Fit Statistics	
χ^2, constrained model	168
df	102
p	<.00
χ^2, independence model	1,412
df	138
n	307
GFI	.92
AGFI	.89
PNFI	.63
RMSR	.06
RMSEA	.08

[a] Phi (ϕ) is symmetric with a standard diagonal. Psi (Ψ) and θ_ε and θ_δ are diagonal.
$^*p < .05$

RMSEA = .07), with 62 percent of the variance explained. Indeed, the fit of data to the indirect and direct effects model is better than the fit of the direct domain-level model alone.

With the indirect effects model, we find that specific competencies, motivation, and competitive strategy have significant direct effects upon venture growth and that traits, general competencies, and environment have significant indirect effects. Traits affect specific competencies, motivation, and competitive strategy, all of which are likely predictors of venture growth, and this pattern of findings confirms Hypotheses 7, 8, and 11. Similarly, general competencies affect motivation and strategy, which confirms Hypotheses 10 and 12. General competencies also affect specific competencies (Hypothesis 9). Motivation has a positive effect upon strategy, which in turn affects venture growth, confirming Hypothesis 13. Environment affects venture growth through its impact upon strategy, which supports Hypothesis 14. Our prediction that complexity would be a negative reflection of the environment domain did not hold; nevertheless, the environment domain had a significant, positive effect upon competitive strategy, as hypothesized.

With direct and indirect effects taken together, the LISREL total effects solution confirms that all domains exhibit significant effects on venture growth.

DISCUSSION AND CONCLUSION

The most important finding of this study is that individual, organizational, and environmental research domains predict venture growth better when the web of complex indirect relationships among them is included than when only multiple simultaneous direct effects are studied. Furthermore, all domains figure in the prediction of venture growth when these total effects are considered, so that venture growth cannot be adequately explained from a single perspective. Even the personal trait and specific competency domains, which do not contribute to venture growth when studied in isolation, affect venture growth through their effects upon more direct performance links.

By studying multiple domains across three levels of analysis and by including both direct and indirect effects, we were able to gain a more complete understanding of the venture growth process than has been gained in previous efforts. Moreover, from the indirect model, we learned that such internal explanations of performance as the strategic choice, leadership, and entrepreneurship viewpoints were more relevant for explaining venture growth in this study than environment or external explanations, such as the structure/performance/economics paradigm (Mason, 1939; Scherer & Ross, 1990), population ecology theory (Hannan & Freeman, 1977), or resource dependency theory (Pfeffer & Salancik, 1978).

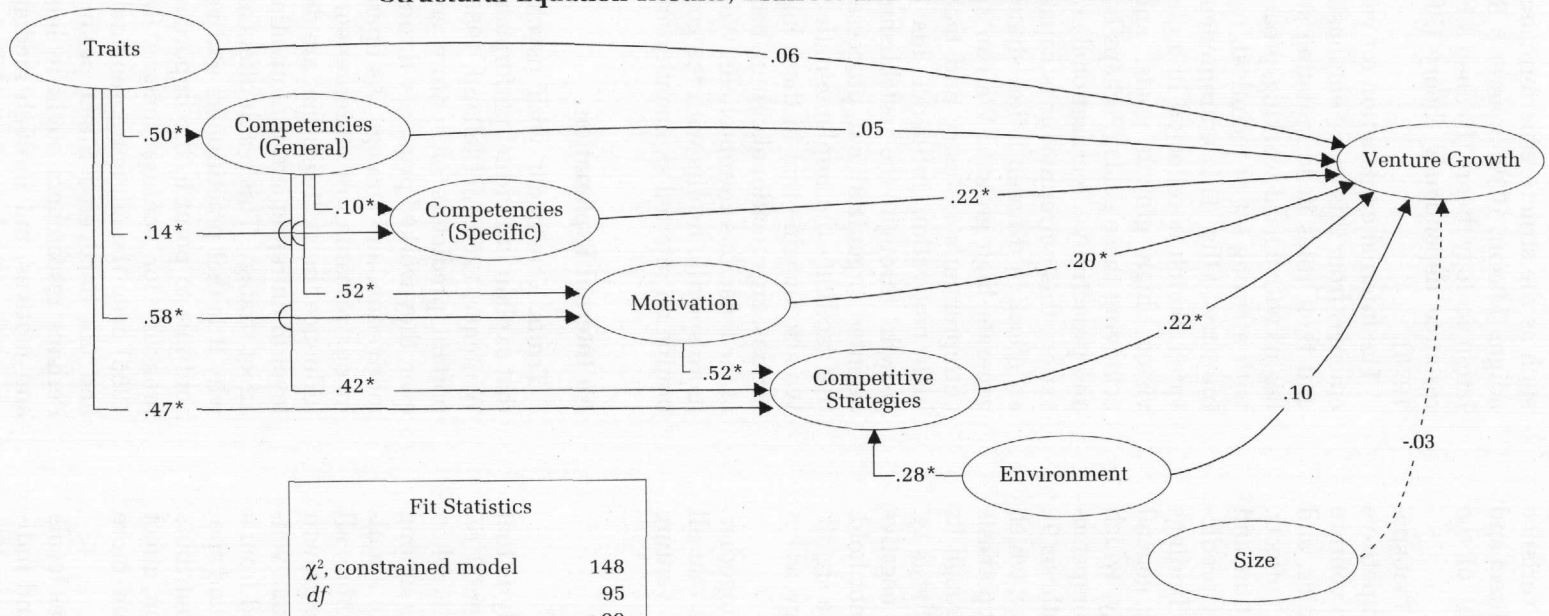
The internal explanation for venture growth that emerges from this study emphasizes entrepreneurs and their roles in formulating strategy. The story begins with a hard-working, proactive entrepreneur with a strong set of technical, organizational, and industry skills. This entrepreneur is highly motivated, which is reflected in a clear organizational vision, high growth goals, and confidence in achieving these goals. Perhaps because of tenacity and proactivity, organizational skills, or high motivation, this entrepreneur is capable of delineating an effective differentiation strategy that works to generate high growth. We can speculate that the entrepreneur's industry and technical skills and high motivation influence his or her venture's growth through the establishment of growth-oriented organizational processes and structures that facilitate the implementation of this strategy. We also imagine that in these high-growth organizations, organizational culture becomes a reflection of the tenacious entrepreneur. We now examine the more specific results with the goal of further elaborating an internal explanation of venture growth.

An Internal Explanation

Traits. Consistent with psychological theories that explain individual performance (Hollenbeck & Whitener, 1988; McClelland, 1965), traits were important predictors of venture growth here; however, they worked primarily through competencies, motivation, and strategy. As operationally defined in our research, an entrepreneur's traits serve to influence the skill sets that are developed and the level of entrepreneurial motivation, which in turn affect strategy. This result offers an explanation for why it is that practitioners and venture capitalists continue to point to the importance of "the entrepreneur" for venture success (MacMillan et al., 1985) even though entrepreneurship trait research had not uncovered direct performance relations. Perhaps researchers ought to look again at traits and motives, but through mediation models that test more complex causal chains.

Competencies. Technical and industry-specific competencies should receive more research attention in entrepreneurship settings because the domain they reflect, specific competencies, had highly significant direct effects here with venture growth. We speculate that an entrepreneur's technical and industry competencies are an important

FIGURE 2
Structural Equation Results, Indirect and Direct Effects Model[a]



Fit Statistics	
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AGFI	.92
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RMSR	.06
RMSEA	.07

[a] Phi (ϕ) is symmetric with a standard diagonal. Psi (Ψ) and θ_ε and θ_δ are diagonal.
$^*p < .05$

form of expert power that facilitates the implementation of the entrepreneur's vision and strategy. We can further hypothesize that these entrepreneurial skills may serve as sources of competitive advantage that rivals find difficult to identify and imitate.

Situationally specific motivation. Our results for vision and goals and performance are fully consistent with applied psychology and social psychology research (Bandura, 1997; Locke & Latham, 1990). For example, goal researchers have found that goal difficulty is directly related to performance, and social cognitive theory points to the strong relation between self-efficacy and performance. We hypothesized that higher levels of entrepreneurial motivation and confidence would shape organization structure and processes and even work in the selection of goal-oriented employees. As a result—and consistent with Hambrick and Mason (1984)—organizations led by highly motivated entrepreneurs may begin to reflect the character of these entrepreneurs, which may further enhance performance.

Competitive strategies. Although differentiation strategies related positively to venture growth, we were surprised to find that the focus and low-cost strategies related negatively. This finding may be a function of the industry context, in that the sample firms were geographically constrained craft manufacturers. Thus, at least for this sample, Porter's theory does not hold, in that low cost and focus are not effective strategic options.

Perhaps more interesting is our finding that individual differences affect competitive strategies. Some strategy research has focused on top management team demography (Hambrick & Mason, 1984), but our findings suggest that entrepreneur-CEO traits, competencies, and motivation may offer equally important explanations of strategic decision making. Indeed, established social cognitive and goal theories point to personal characteristics as determinants of personal strategies that are likely determinants of organization strategies (Bandura, 1997; Locke & Latham, 1990). It would be interesting to examine the relationship between entrepreneurs' personal motivations and strategies and those of their organizations. We speculate that in small organizations, the two sets may be the same.

Environment. The direct effects of the environment domain were of borderline significance ($p < .10$). However, the significance of the indirect effects on strategy enhance the generalizability of our model because they are entirely consistent with the structure → conduct (strategy) → performance paradigm in industrial organization economics (Mason, 1939). The relatively low impact of the environmental domain on venture growth, with the other, more micro dimensions controlled, is surprising; at least in our study, this finding suggests that the CEOs of small firms may have more control of their ventures' growth than some macro theories suggest (Hannan & Freeman, 1977; Pfeffer & Salancik, 1978), which could be an interesting avenue for future research.

This study did not deal with two definitional issues that confound entrepreneurship research, namely, "Who is an entrepreneur?" and "Which firms are entrepreneurial?" We simply used a sample of young, small businesses that were run by active owner-managers, regardless of their mode of entry, to identify predictors of venture growth. Nor did we study other indicators of performance (such as successful founding, survival, innovation, intangible assets, and personal goals). It would be important to, for example, find out if the competencies that contribute to venture growth also cause successful founding. Furthermore, we modeled direct and indirect effects with linear equations rather than with multiple-order equations because structural equation modeling is not well suited to testing nonlinear models. Additionally, although our analysis of a single industry provided control of industry effects, a few entrepreneurship researchers have found that industry effects are significant determinants of performance. Only a few concepts were used as reflections of the five research domains studied because of sampling limitations; however, our finding that all domains figure in venture growth suggests that use of relatively few measures was not a failing.

The integrated entrepreneurship performance model that was confirmed in this study offers a platform and a guiding framework for those who fund and manage ventures. We found that an entrepreneur's personality matters, but indirectly, and that industry-specific skill and relevant technical skill directly affect performance, as do vision, goals, and self-efficacy. Thus, there is evidence that personality testing may help identify those who can create and grow high-potential ventures; however, skills and motivation assessment may be even more effective because these personal dimensions are more directly related with performance. The study also confirms the soundness of financiers' interest in business plans that include clearly defined strategies.

The study suggests that entrepreneurs should recognize that multiple personal dimensions affect success. Thus, they must add, through partnering or hiring, those personal dimensions they lack. Finally, it is apparent that entrepreneurship education programs ought to teach organization skills

(including vision and goal setting), opportunity skills, and analytic skills (enabling business environment analysis for formulation of strategies).

CONCLUSION

We began by arguing for the need for a more comprehensive explanation of venture performance. Overall, we found that explaining venture growth is a complex process, influenced by a variety of interrelated micro and macro domains. Our results are important because they begin to untangle the multifaceted process by which entrepreneurs affect competitive strategy and performance. Perhaps other researchers can extend our proposed internal explanation of venture growth. For example, they might utilize strategic decision making (Schwenk, 1988) and strategic choice theories (Child, 1972) to integrate cross-level effects by studying the process by which entrepreneurs formulate and implement their strategies.

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