Doing Well and Happy About It? Explaining Variance in Entrepreneurs' Stated Satisfaction with Performance

Gregory B. Murphy
Stephen K. Callaway

The importance of performance measurement is largely undisputed. There is debate, however, regarding the equivalency of objective and subjective performance measures. This debate has not considered a frequently used subjective measure, satisfaction with performance, to be an important measure independent of its equivalency with objective measures. Using a sample of 368 manufacturing firms, this study found that objective measures explained only a modest amount of variance in satisfaction with performance and that other variables added significantly to the explained variance. These factors included perceived environmental hostility, vulnerability, perceived competitive advantage, and commitment.

An abundance of research has addressed the importance of entrepreneurial performance. The consequences of entrepreneurial performance are important to society at large (Kirchoff and Phillips 1988) and to individual entrepreneurs and their associates (Cooper 1993). Therefore, understanding entrepreneurial performance and its measurement are critical issues (Chandler and Hanks 1993; Murphy et al. 1996). Kanter and Brinkerhoff (1981) argue that performance measurement issues are fundamental to understanding organizations and that what is measured is as important as how it is measured.

This article seeks to contribute to the literature by focusing on satisfaction with performance, a seldom studied, yet important aspect of entrepreneurial performance (Cooper and Artz 1995). This research contributes to the existing literature in two important ways. First, considerable debate exists in the entrepreneurship literature regarding the equivalency of objective and subjective measures of performance. Satisfaction with aspects of entrepreneurial performance in particular have been proposed and used as objective measure surrogates (Covin and Covin 1990; Covin and Slevin, 1990; Covin et al. 1990; Gupta and Govindarajan 1984; Naman and Slevin 1993). Therefore, one objective of this study is to offer insight as to the equivalency of satisfaction with performance with relatively more objective, parallel measures of entrepreneurial performance. Second, satisfaction with performance is an important measure of entrepreneurial performance in its own right (Cooper and Artz 1995), independent of its equivalency, or lack of equivalency, with more objective measures. Satisfaction with performance, or the lack thereof, likely impacts important investment and continuance decisions by the entrepreneur (Cooper and Artz 1995). In this sense, satisfaction with performance in the short term may likely lead to the more objective measures of performance in the long term. The second objective of this article then, is to investigate factors that likely explain variance in satisfaction with performance.

Objective and Subjective Measures

Obtaining objective performance data for entrepreneurial firms is a difficult task because private firms are typically not required to disclose their financial position and have little incentive to do so (Dess and Robinson 1984; Sapienza et al. 1988). As a result, secondary data sources rarely include in-depth performance information on entrepreneurial firms. The issue is further complicated by the fact that asking for sensitive or difficult information on surveys may reduce response rates (Dillman et al. 1993), making primary data gathering more difficult. To overcome these liabilities, many researchers have suggested the use of subjective performance measures as an acceptable alternative to using objective performance measures (Dess and Robinson 1984; Gupta and Govindarajan 1984). The equivalency and appropriateness of using subjective measures, as opposed to objective measures, has been debated in the academic literature in general and in the entrepreneurship literature in particular.

Two particular articles have strongly encouraged the use of subjective measures as surrogates for objective measures of performance. Dess and Robinson (1984) argued that in the absence of objective data, an accurate assessment of firm performance could be obtained by asking respondents to subjectively compare the performance of their firm to the performance of immediate competitors. Gupta and Govindarajan (1984) provided an alternative approach, arguing that firm performance could be subjectively inferred by considering respondents' stated importance of and satisfaction with a variety of performance measures. Support for the relevance of subjective measures is usually based on correlation analysis. For example, Dess and Robinson (1984), found self-reported sales levels and average return on assets to be positively

correlated with subjective assessments of sales and average return on assets respectively for their sample of 26 firms in the paint and allied products industry. In researching joint ventures, Geringer and Hebert (1991) and Glaister and Buckley (1998) found objective and subjective performance measures to be positively correlated.

However, other studies have not supported the proposed equivalency of subjective and objective measures (Chandler and Hanks 1993; Deeds et al. 1998; Sapienza et al. 1988). Sapienza et al. (1988) attempted to replicate Dess and Robinson's results, but were unable to do so. Although Sapienza et al.'s study also had a small sample size (34), they found no significant correlations between objective measures of performance (sales growth and return on sales) and their proposed subjective equivalents. Arguably the most in-depth study on the equivalency of objective and subjective measures was conducted by Chandler and Hanks (1993). Based on a sample of 120 firms from varied manufacturing industries, the authors assessed the relevance, availability, reliability, and validity of performance measures (growth and business volume) gained by asking respondents to: (1) indicate their performance in broad categories; (2) complete a weighted satisfaction with a performance index similar to that introduced by Gupta and Govindarajan; and (3) indicate, using a Likert-type scale, their perceived performance relative to competitors (similar to Dess and Robinson 1984; Sapienza et al. 1988). Their study found strong positive correlations between self-reported growth and volume in broad categories and two subjective measures, performance relative to competitors and the satisfaction with performance index. Chandler and Hanks concluded, however, that satisfaction with performance is particularly suspect as an equivalent performance measure since its relevance is unknown and external validity was found to be inadequate. External validity was listed as a concern because independent variables previously found to impact new venture performance had little effect on the satisfaction with performance measure.

Investigations into the equivalency of subjective measures in both the organizational behavior and marketing literatures have produced similar results. In the organizational behavior literature, Bommer et al. (1995) conducted a meta-analysis and found a .389 correlation between objective (direct measures of countable behaviors) and subjective measures (supervisor ratings of performance). The authors concluded that while significantly correlated, the measures are not enough so to be used interchangeably. Likewise, in the marketing literature, Dawes (1999) found that while objective measures (ROI and ROA) were strongly correlated with subjective measures (measured by "Please rate the performance of your company as . . . 1=terrible to 11=absolutely outstanding"), the correlation (.48) was far from perfect. Combined, the literature seems to suggest that while objective and subjective measures are correlated, they clearly are not the same thing.

Therefore, the current study consistent with Bommer et al. (1995) and Dawes (1999), takes the position that objective and subjective performance measures, while positively correlated, should still be considered separate constructs.

H1: Objective and subjective measures of performance will be positively correlated.

H2: When factor analyzed, objective and subjective measures of performance will load on separate factors.

Satisfaction with Performance

Studying objective performance measures has the important advantage of facilitating performance comparisons across firms. This desire for comparability, combined with the previously mentioned difficulties in obtaining objective performance data on entrepreneurial firms, may have contributed to the search for objective performance equivalents. Of particular interest to this study, however, is to explain and understand the concept of satisfaction with performance itself.

Although frequently used as a potential surrogate for objective performance, satisfaction with performance is an important variable of interest in its own right (Cooper and Artz 1995). The stakeholder approach to performance measurement contends that organizations are successful to the extent that important stakeholders' interests are satisfied. Arguably the most important stakeholder of an entrepreneurial firm is the company owner. Cooper and Artz (1995: 440) call entrepreneurial satisfaction[1] a "fundamental measure of success for the individual entrepreneur" and note that it may impact critical investment and continuance decisions. Satisfaction has been linked to voluntary job turnover in the organizational behavior literature (DeConinck and Bachmann 1994; Griffin and Batemann 1986; Mathieu and Zajac 1990; Parnell and Crandall 2003; among others). Although seldom studied in the entrepreneurship literature (Cooper and Artz 1995), the consequences of satisfaction are likely much greater for a business owner than for employees in large organizations. As a result, understanding what drives this satisfaction is critical.

Therefore, the current study takes the position that factors other than actual growth and profitability (objective performance) will explain satisfaction with performance. These factors include perceived environmental hostility, vulnerability, perceived competitive advantage, and commitment. The model is shown in Figure 1.

Environmental Hostility

Satisfaction with performance may vary with the entrepreneur's perceived environmental hostility. Hostile environments are those that are risky as a result of intense competi-

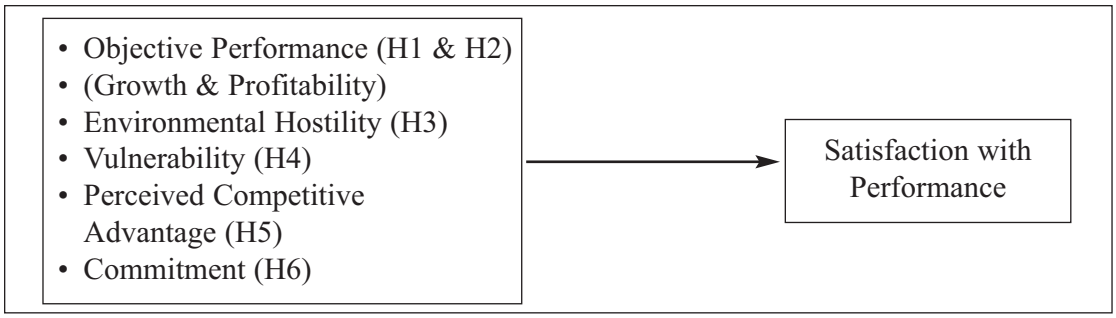

Figure 1. Model of Factors Predicted to Affect Satisfaction with Performance

tion that is largely, if not entirely, beyond the control of the firm (McGee and Rubach 1996). Entrepreneurs perceiving a very hostile environment may be satisfied with lower performance levels, believing that firm performance could be much worse given the environment. Others may feel that higher performance levels are needed to compensate the entrepreneur for the increased risk of operating in a hostile environment. In either case, satisfaction with performance would be affected by perceived environmental hostility.

H3: Controlling for objective performance, environmental hostility will explain additional variance in satisfaction with performance.

Vulnerability

While perceived risk is largely a function of perceived mar0ket characteristics, internal firm factors—such as financial leverage and liquidity—may greatly affect the entrepreneur's vulnerability to external market characteristics. Greater debt levels and lower liquidity significantly increase the likelihood of bankruptcy and financial ruin for the entrepreneur. Such vulnerability should cause entrepreneurs to expect greater, compensating performance levels to maintain an appropriate risk-reward balance. Entrepreneurs expecting greater performance levels should be less satisfied with a given level of performance than entrepreneurs with lower expectations.

Apart from the increased vulnerability to bankruptcy, high debt levels and low liquidity place considerable pressure on firm operations and cash flow. As organizational slack is reduced, organizational stress is likely increased. Relatively small mistakes and inefficiencies have the potential to cause considerable harm to the venture and subsequently to the entrepreneur when organizational slack is minimal. This stress, combined with the greater likelihood of bankruptcy, may significantly impact the entrepreneur's stated satisfaction with performance. Given such a circumstance, good performance may not be good enough.

H4: Controlling for objective performance, vulnerability will explain additional variance in satisfaction with performance.

Perceived Competitive Advantage

Entrepreneurs may be more satisfied with the performance of their firms if they believe they enjoy a strong competitive position in the marketplace. In this study we consider three perspectives likely to impact perceived competitive advantage: perceived resource advantage, perceived advantage of generic strategies, and self-assessed competencies.

The resource-based view of the firm argues that firms are more likely to earn and sustain long-term profitability if they own or control resources that are valuable, rare, difficult to imitate, and efficiently used (Barney 1991). Entrepreneurs who believe that their resource base fits these characteristics should, as a result, also believe that their long-term potential in the marketplace is strong; thereby enhancing their satisfaction with performance.

In the entrepreneurship literature, research on new venture performance has found that generic firm-level strategies significantly affect firm performance (McDougall 1987; Sandberg and Hofer 1987). Entrepreneurs believing their firms enjoy a relative competitive advantage, such as lower costs, loyal customers, superior product quality, etc., should also believe that the potential for sustained long-term success is enhanced, thereby enhancing their satisfaction with performance.

Entrepreneurs who believe they possess personal competencies shown to enhance the probability of long-term success should also believe their likelihood of long-term success is greater and thereby express greater satisfaction with performance. Chandler and Jansen (1992) found self-assessed competencies to be significantly related to performance. Entrepreneurs, for example, who believe that they possess strong abilities to identify emerging market opportunities, to efficiently organize business operations, and to gather needed support for the venture should also believe that their long-

term potential for success is significant. If nothing else, the optimism and positive orientation often associated with higher self-evaluations should also be associated with higher stated satisfaction with performance.

H5: Controlling for objective performance, perceived competitive advantage will explain additional variance in satisfaction with performance.

Commitment

Commitment to the venture may impact satisfaction with performance. Dyer (1992) noted that entrepreneurs vary greatly in their level of commitment to their businesses. Differences in commitment levels may cause entrepreneurs to require different levels of profitability for entrepreneurs to be satisfied with the same. Although there are many facets and measures of commitment, we will examine emotional commitment, education level, and committed resources as indicators of commitment in this study.

Entrepreneurs expressing strong emotional ties to a business may be more satisfied with a given level of performance. Emotionally committed entrepreneurs may be less likely to sell or close their businesses regardless of firm performance. In the organizational behavior literature, organizational commitment, defined as an individual's identification with and involvement in an organization (Steers 1977), has been found to significantly and negatively affect voluntary job turnover (Mathieu and Zajac 1990). This persistence, sometimes referred to as continuance commitment, is a recognized part of emotional or attitudinal commitment (Mathieu and Zajac 1990). Entrepreneurs with less commitment to a specific business may focus more on opportunity costs, causing them to consider more critically the performance of their present venture(s). Such opportunity costs, however, are likely much less of a focus for highly committed entrepreneurs as they invest less time and energy in the identification and assessment of possible alternatives to the existing venture(s). Another, more direct reason why emotional or affective commitment may impact satisfaction with performance is that such commitment has been found to be positively correlated with job performance in the organizational behavior literature (Riketta 2002). If affective commitment leads to improved job performance by entrepreneurs, and if that, in turn, leads to better firm performance, one would expect affective commitment to affect satisfaction with performance.

Cooper et al. (1994) predicted and found that education level contributed to both marginal survival and high growth. The authors concluded that educational attainment may "reflect certain qualities of 'stick-to-it-ness' through a combination of commitment, motivation, and discipline" (p. 389). Since high performance and satisfaction with performance are likely related, one would predict that education level should be positively related to satisfaction with performance. The relationship between education level and satisfaction with performance is not likely so clear however. As Cooper et al. (1994: 376) also noted, "It may be that more educated entrepreneurs perceive a higher opportunity cost in staying with a marginal business. This could lead to a higher level of performance in order to stay with a venture…" While the preponderance of evidence indicates that education level contributes positively to firm performance, better educated entrepreneurs may expect better performance and not be as satisfied with a given level of performance as a result.

Total resources committed to a business may also be an indication of entrepreneurial commitment. Arguably, entrepreneurs who commit more resources are likely to be more committed to their businesses. Cooper et al. (1994) found the amount of initial financial capital raised to be positively associated with the probabilities of marginal survival and growth. McCarthy (1992) also found initial capital to be positively related to new venture performance. While the preponderance of the literature has shown a positive relationship between initial capital and performance (Cooper et al. 1994), the relationship between committed resources and satisfaction with performance may be analogous to the relationship between education level and satisfaction with performance. Having committed more resources, an entrepreneur would require greater profits to earn the same rate of return on his or her investment. As a result, entrepreneurs who commit more resources may be less satisfied with the same level of profitability than entrepreneurs who commit fewer resources.

H6: Controlling for objective performance, commitment will explain additional variance in satisfaction with performance.

Sample and Measures

Sample

Data were gathered from a sample of new and/or small manufacturing businesses located in Harris County, Texas. The industries selected were: SIC code 27, printing and allied industries; SIC code 28, chemicals and allied products; SIC code 30, rubber and plastic manufactured products; SIC code 34, metal fabricating; SIC code 35, machinery manufacturing; SIC code 36, electrical and electronic products manufacturing; and SIC code 38, measuring, analyzing, and controlling instruments. Sampling only manufacturing firms reduced interindustry effects. All of the firms were listed in the *Dun & Bradstreet Regional Directory-Houston, the Directory of Texas Manufacturers,* or the State of Texas Sales Tax Files. Firms were eligible for sample inclusion if (1) they were located in Harris County, (2) they were privately and inde-

pendently owned, and (3) they were less than five years old, or they had fewer than 500 employees. Approximately an equal number of firms from each industry group were selected from each of the three sample sources.

Data Gathering

The Dillman (1978) approach to survey design and mail-out procedures was used as a guide in this study. Two full mail-outs and a post card reminder were conducted. Of the 1,889 firms that were mailed a survey, 109 were returned as undeliverable and could not be contacted by telephone, 34 of the businesses indicated an established policy of not participating in studies, 23 of the businesses were found to be actually located outside Harris County, 16 of the businesses were no longer in operation, 10 businesses were discovered to be subsidiaries of larger corporations, and 1 firm failed to meet the preestablished criterion of having less than 500 employees or being less than five years old. Of the 1,696 firms eligible to respond, usable responses were returned by 368 of the businesses, yielding a 21.7 percent response rate.

Tests for Possible Response Bias

Two tests for possible response bias were conducted. First, using only the data provided in the sample source (i.e., *Dun & Bradstreet, Directory of Texas Manufacturing,* and the Texas State Sales Tax Files), tests for significant mean differences on key characteristic variables between responding and nonresponding firms were conducted. The only significant differences found revealed that respondents from the *Dun & Bradstreet* sample had less employees and lower sales levels than nonrespondents from the same source and that respondents from the *Directory of Texas Manufacturing* sample had less employees than nonrespondents from the same source. The differences suggest that care should be taken when generalizing from the results of this study to firms in the *Dun & Bradstreet and Directory of Texas Manufacturers* directories in general.

The second test compared the responses provided on the survey to the same data published by the three sample sources. To do this, the difference between the value in the published source and the value in the survey was calculated for each observation in the sample. The only found significant difference was that the Sales Tax Files listed firms as being an average of 5.42 years younger than reported by the owners on the survey. Date of first sale was used to mark the age of the business in the survey while the Sales Tax Files provide data on the date of sales tax number issue. The difference in firm age may result from the fact that some firms are issued new sales tax numbers after experiencing an event such as a change in the name of the business or a change in ownership. Busenitz and Murphy (1996) found that the Sales Tax Files accurately reported the age of the business 71.7 percent of the time. It is possible, therefore, that the remaining 28.3 percent is capable of biasing the reported age of the business. Also, Busenitz and Murphy (1996) considered a recently purchased business as being new while this study considered the date of the original sale independent of changes in ownership. The result of this second test suggests that respondents have been consistent and accurate in reporting data about their firms.

Construct Exploration—Measures

Satisfaction with Performance. Data were gathered to measure respondent's stated satisfaction with growth and satisfaction with profitability. Respondents were asked to indicate on a five-point Likert scale their satisfaction with the growth of the business. A parallel question asked respondents to indicate their satisfaction with the profitability of the business. This approach parallels Cooper and Artz (1995) who asked respondents to assess their satisfaction with their venture's sales and profits.

Objective Performance. Four measures of firm growth were used: (1) absolute change in employees over the preceding two years, (2) percentage change in employees over the same time period, (3) absolute change in sales, and (4) percentage change in sales over the same time period were used. Respondents were asked in the survey to provide information on total full-time equivalent employees and revenues for the corresponding years.

Five measures of profitability were used in the study: (1) return on assets, (2) return on equity, (3) return on sales, (4) net income, and (5) owner's draw. The survey asked respondents to provide information on components required to calculate return on assets, equity, and sales. Net income was one of those components. Owner's draw was measured in categories. Respondents were asked to indicate their total compensation from the business in the previous year. Eight categories were provided ranging from less than $10,000 to more than $1 million. All of the growth and profitability measures used in this study have been used by prior researchers studying entrepreneurial performance (Murphy et al. 1996).

Environmental Hostility. Two variables were used to measure perceived environmental hostility: (1) perceived frequency of price wars and (2) perceived intensity of price wars. Survey respondents were asked to assess the level of competitiveness in their industry, using a five-point Likert scale, on the frequency of price wars and the intensity of price wars. Strong price competition is a classic measure of competitiveness in an industry (Porter 1980). The correlation between price war frequency and price war intensity was .91 (coefficient alpha was .97). Frequency of price wars and intensity of price wars were combined and averaged to form a composite measure of environmental hostility.

Vulnerability. Three measures of vulnerability were used in the study. Debt to assets and debt to equity were measured as the firm's total debt to total assets and total debt to total equity respectively. The third measure was firm liquidity. The current ratio (current assets divided by total current liabilities) was used to measure liquidity. Data for these measures were gained by asking respondents to provide basic balance sheet financial information. Firms high in debt to assets and equity and low in liquidity are more vulnerable to bankruptcy. The three measures were normalized, combined and averaged to form a single measure of vulnerability. The coefficient alpha for the three-item scale was .87.

Perceived Competitive Advantage. Resource advantage was operationalized as the extent that firms possess resources that are valuable, rare or unique, difficult or costly to imitate, and efficiently used (Barney 1991). Respondents were asked to identify from a list the two resources that are most important for their business. Two spaces were provided for respondents to identify resources not on the list. Four subsequent questions asked respondents to rate the previously identified resources as to their value, uniqueness, difficulty or ease to imitate, and efficiency of use, through the use of Likert-type scales. The ratings of the identified resources were then combined to form a single measure of resource advantage (coefficient alpha was .73).

Generic business level strategic advantage was measured using five items. Respondents were asked to assess, compared to their competitors, the extent that their business charges a low price, emphasizes product quality, offers a full range of products, emphasizes customer service, and has a lot of customer loyalty.

Perceived *competencies* of the entrepreneur were measured by using items from the scale developed by Chandler and Jansen (1992). In particular, items were taken to measure the entrepreneurial, political or resource acquisition, and managerial competencies of the respondents. The scales developed by Chandler and Jansen have been empirically shown to have adequate reliability (Chandler and Jansen 1992) as judged by the standards established by Nunnally (1978). For this study, the subscales were found to have coefficient alphas of between .75 and .76.

To make the study more parsimonious, an attempt was made to further reduce the perceived competitive advantage data. Specifically, factor analysis using varimax rotation found three strong factors. The first factor included customer service, product quality, and customer loyalty (loadings between .78 and .89) and was retained and labeled differentiation. The second strong factor included the three self-assessed competency variables (loadings between .67 and .80) and was retained and labeled competencies. Only the variable low price loaded strongly on the third factor (.97) and was retained and labeled the same (low price). Resource advantage was retained as a separate variable since it did not load well on any of the factors.

Commitment. Four measures of commitment were used in this study. Six items from Porter and Smith's (1970) Organizational Commitment Questionnaire were modified to reflect an entrepreneur's organizational commitment to a specific business as a measure of emotional commitment. The coefficient alpha for the scale was found to be .75. Education level was measured as the highest degree earned. Initial size of the firm and total investment in the firm were used as measures of total resources committed. Initial size was measured as the number of employees and sales level one year after the firm made its initial sale. Respondents were asked to provide this information on the questionnaire. Initial (or very early) employees and initial sales were standardized and then combined to form a measure of initial size (correlation was .57, coefficient alpha was .73). Total investment in the firm was measured by asking respondents to indicate how much money they and others had invested in the business, excluding reinvested profits. An attempt was made to further reduce the commitment variables, however, none of the variables loaded well together and the four commitment measures were unchanged as a result.

Methodology and Results

First, simple zero-order (Pearson's) correlations were calculated. The correlations between the objective measures of growth and profitability and the subjective measures of performance (satisfaction with growth and satisfaction with profits) are presented in Table 1. Overall, the positive correlations between the objective and subjective measures of performance show that H1 is largely supported. All of the objective measures except return on equity were found to be significantly positively related to satisfaction with profitability. Interestingly, all four of the objective growth measures were found to be significantly related to satisfaction with profits. The same four growth measures were found to be significantly positively related to satisfaction with growth. Net income and owner's draw were also found to be significantly positively related to satisfaction with growth. The three return measures of profitability return on sales, return on assets, and return on equity, however, were not significantly related to satisfaction with growth.

Next, these eleven variables were then factor analyzed to see how they loaded onto the constructs. This factor analysis is presented in Table 2. The results show that the variables loaded onto four constructs (growth, profit efficiency, raw profits, and satisfaction with performance), and that all the variables, except absolute growth in sales, loaded specifically onto one construct. Overall, the first three constructs related to objective performance while the fourth construct related to subjective performance.

Table 1. Correlations Between Measures of Growth, Measures of Profitability, Satisfaction with Growth, and Satisfaction with Profitability

	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
1. Absolute Growth in Sales										
2. Percentage Growth in Sales	**.50									
3. Absolute Growth in Employees	**.38	**.41								
4. Percentage Growth in Employees	**.34	**.53	**.68							
5. Net Income	**.48	**.16	**.21	.09						
6. Return on Sales	-.10	.07	.01	.04	**.29					
7. Return on Assets	-.05	.02	-.09	-.01	**.31	**.72				
8. Return on Equity	-.04	-.05	-.06	-.09	.08	**.33	**.37			
9. Owner's Draw	**.38	.06	**.19	*.13	**.55	**-.16	-.09	-.08		
10. Satisfaction with Growth	**.29	**.24	**.28	**.32	**.15	.03	.05	-.04	**.24	
11. Satisfaction with Profitability	**.19	**.19	**.19	**.17	**.22	*.11	*.14	-.03	**.33	**.50

* p<.05 ** p<.01

As indicated, percentage and absolute growth in employees and percentage growth in sales loaded onto the growth construct, explaining 27 percent of the total variance. Return on sales, assets, and equity loaded onto a single construct that we term profit efficiency, explaining more than 19 percent of the variance. Net income and owner's draw loaded onto the construct raw profits, explaining greater than 13 percent of the variance, while absolute growth in sales loaded about equally onto growth and raw profits. Finally, satisfaction with profitability and growth loaded onto a separate construct, satisfaction with performance, explaining more than 10 percent of the variance. Clearly, H2 is supported, with all but one measure of performance loading onto separate factors and satisfaction with performance measures loading separately.

The growth, profit efficiency and raw profits factors were retained and used throughout the remainder of the study. Satisfaction with growth and satisfaction with profitability were combined and averaged to form the composite measure, satisfaction with performance. The correlation between the two measures was .50 and the coefficient alpha for the two-item scale was .67.

Table 2. Factor Analysis of Measures of Growth, Measures of Profitability, Satisfaction with Growth, and Satisfaction with Profitability

	Objective Performance			***Subjective Performance***
	Growth	Profit Efficiency	Raw Profits	Satisfaction with Performance
Percentage Growth in Employees	**.85**	-.02	-.03	.17
Absolute Growth in Employees	**.81**	-.06	.11	.04
Percentage Growth in Sales	**.76**	.05	.11	.11
Return on Assets	-.04	**.88**	.05	.11
Return on Sales	.05	**.88**	-.03	.08
Return on Equity	-.05	**.61**	.04	.11
Net Income	.10	.32	**.85**	.05
Owner's Draw	-.02	-.19	**.81**	.26
Absolute Growth in Sales	**.51**	-.08	**.59**	.02
Satisfaction with Profitability	.02	.06	.18	**.87**
Satisfaction with Growth	.27	-.02	.07	**.80**
Eigenvalue	2.97	2.12	1.45	1.15
Percentage of Variance Explained	27.02%	19.27%	13.35%	10.43%

Next, hierarchical linear regression was used to test hypotheses 3 through 6. Specifically, F tests for significant changes in R-squared were used to test the hypotheses. The results of the analysis are presented in Table 3.

Equation 1 assessed the extent that the objective measures of performance affected satisfaction with performance and established the baseline for testing the remaining hypotheses. Equation 1 was significant at the .01 level of statistical significance, providing further, partial support for hypothesis 1. Growth and raw profits were found to be significantly related to satisfaction with performance. Profit efficiency, however, was not significantly related to satisfaction with performance. Interestingly, the objective measures explained only 13 percent of the variance in satisfaction with performance.

Equation 2 then tested hypothesis 3, that perceived environmental hostility,

Table 3. Hypotheses Tests Using Two-Stage Hierarchical Regression
Dependent Variable: Satisfaction with Performance

Variables	*Equation 1*	*Equation 2*	*Equation 3*	*Equation 4*	*Equation 5*
Stage 1					
Objective Performance					
Growth Factor	***.25	***.25	***.25	***.25	***.25
Profit Efficiency Factor	.05	.05	.05	.05	.05
Raw Profits Factor	***.27	***.27	***.27	***.27	***.27
Stage 2					
Environmental Hostility		*-.11			
Vulnerability			***-.16		
Perceived Competitive Advantage					
Differentiation				*.12	
Low Price				*.10	
Competencies				***.25	
Resources				*.11	
Commitment					
Education					*-.12
Emotional Commitment					***.32
Initial Size of the Firm					*-.10
Total Investment in Firm					*-.12
F	***19.30				
Adjusted R2	.13	.14	.15	.24	.27
Significant Change in R-Square (F)		*5.37	***11.03	***17.78	***20.52

* p<.05 ** p<.01 *** p<.001

Equation 1 (H1): $SP = ß_0 + ß_1$(Objective Performance) + error
Equation 2 (H3): $SP = ß_0 + ß_1$(Objective Performance) + $ß_2$(Environmental Hostility) + error
Equation 3 (H4): $SP = ß_0 + ß_1$(Objective Performance) + $ß_3$(Vulnerability) + error
Equation 4 (H5): $SP = ß_0 + ß_1$(Objective Performance) + $ß_4$(Perceived Competitive Advantage) + error
Equation 5 (H6): $SP = ß_0 + ß_1$(Objective Performance) + $ß_5$(Commitment) + error

SP = Satisfaction with Performance

controlling for objective performance, would predict additional variance in satisfaction with performance. The adjusted R-square was .14 and the change in R-square was statistically significant at .05, providing support for hypothesis 3. The results of this study indicate that environmental hostility is negatively related to satisfaction with performance, when controlling for objective performance.

Next, equation 3 tested whether, controlling for objective performance, vulnerability would explain additional variance in satisfaction with performance. Vulnerability was found to be strongly negatively related to satisfaction with performance. The change in R-square was significant at .001 and the adjusted R-square was found to be .15. Therefore, hypothesis 4 receives strong support.

Equation 4 tested whether perceived competitive advantage would explain additional variance in satisfaction with

performance, controlling for objective performance. Table 3 shows that the change in R-square was significant at .001, providing support for hypothesis 5. Combined, these variables nearly doubled the percentage of variance explained in satisfaction with performance (adjusted R-square of .24). Competencies, resources, differentiation, and low price were all found to be significantly positively related to satisfaction with performance.

Equation 5 tested whether controlling for growth, if commitment (measured by commitment, education, initial size of the firm, and total investment in firm) would explain additional variance in satisfaction with performance. Table 3 shows that the change in R-square was very significant (F=20.52), offering strong support for hypothesis 6. For this equation, the adjusted R-square was more than double that of the model considering only objective measures of performance. Emotional commitment, education level, initial size of the firm, and total investment were all found to explain additional variance in satisfaction with performance. Of the four significant relationships, only emotional commitment was positively related to satisfaction with performance.

Although not a hypothesis test, it is interesting to note that when the objective performance, environmental hostility, vulnerability, perceived competitive advantage, and commitment variables are entered into an equation together, they explain more than 34 percent (adjusted R-square) of the variance in satisfaction with performance. This stands in contrast to the 13 percent of variance in satisfaction explained by objective measures of growth and profitability. Clearly, satisfaction with performance is affected by much more than objective performance measures.

Discussion

Ultimately, the results of this study reaffirm the conclusions of Bommer et al. (1995) and Dawes (1999) that objective and subjective performance measures are positively correlated, yet should still be considered separate constructs. The correlation analysis shows many significant positive correlations between the subjective measures satisfaction with growth and profitability with the objective measures of performance. The factor analysis, though, shows that these eleven variables loaded separately onto our constructs: growth, profit efficiency, raw profits, and satisfaction with performance. As such, it is important to note that the various objective and subjective measures of performance should not be considered interchangeably.

Next, this study proposed and tested a model of factors predicted to affect satisfaction with performance. Variables pertaining to environmental hostility, vulnerability, perceived competitive advantage, and commitment were shown to explain additional variance in satisfaction with performance, after controlling for actual performance (growth and profitability). Therefore, consistent with Cooper and Artz (1995), this study confirms the notion that satisfaction with performance seems to be an important variable of interest in its own right. Satisfaction with performance derives from more than actual profitability and growth.

Clearly, the satisfaction of entrepreneurial owners is a much more complicated process than simply being the result of actual profitability and growth. Given the importance of owners as key stakeholders, and the resulting impact on commitment that is so important for future growth and profitability (Cooper and Artz 1995), satisfaction is clearly of critical importance for the study of entrepreneurship and performance. As such, this study has established the importance of satisfaction, as well as its being a deep and subjective concept. For these reasons, studies such as this about entrepreneurs' satisfaction provide a worthy research topic.

However, care must be taken in drawing conclusions or generalizing from the results of this study. First, the study applies to manufacturing industries and to small and young firms. As such, the results may not be generalizable to other industries or more established firms.

Second, while this study addresses variables explaining additional variance in satisfaction, it is quite likely that satisfaction with performance, will in turn, affect other variables, particularly commitment. The organizational behavior literature includes numerous studies that consider both organizational commitment and job satisfaction (DeConinck and Bachmann 1994; Parnell and Crandall 2003), with each variable repeatedly used as a predictor of the other. Nevertheless, substantial literature has focused on job satisfaction because it is considered such a critical outcome variable in organizations (Griffin and Bateman 1986; Parnell and Crandall 2003), with organizational commitment predicting job satisfaction. Similarly, this study considers satisfaction as an outcome of entrepreneurial commitment. Our approach is also consistent with Cooper et al. (1994), who viewed educational and capital commitment as predictor variables.

However, Cooper and Artz (1995) did argue that satisfaction may impact investment and continuance decisions. Therefore, future studies may need to consider the corresponding effect of satisfaction on commitment, as well as other variables. Perhaps future research should take a longitudinal approach to measuring the mutually reinforcing effect of satisfaction and objective measures of performance. For example, an increase in satisfaction in the short term, resulting from perhaps perceptions of competitive advantage or risk, may then lead to increased commitment over the long term, also resulting in increased satisfaction, and so on. The current study and the model proposed here is just the beginning. Much more research on entrepreneur's satisfaction and performance needs to be done.

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Endnote

[1]Cooper and Artz (1995) measured entrepreneurial satisfaction with four items: satisfaction with venture sales, satisfaction with venture profits, overall satisfaction with the business, and willingness to start the same business again.

References

Barney, J. 1991. Firm resources and sustained competitive advantage. *Journal of Management* 17: 99–120.

Bommer, W.H., J.L. Johnson, G.A. Rich, P.M. Podsakoff, and S.B. MacKenzie. 1995. On the interchangeability of objective and subjective measures of employee performance: A meta-analysis. *Personnel Psychology* 48: 587–606.

Busenitz, L., and G.B. Murphy, G.B. 1996. New evidence in the pursuit of locating new businesses. *Journal of Business Venturing* 11: 221–231.

Chandler, G.N., and S.H. Hanks. 1993. Measuring the performance of emerging businesses: A validation study. *Journal of Business Venturing* 8: 391–408.

Chandler, G.N., and E. Jansen. 1992. The founder's self-assessed competence and venture performance. *Journal of Business Venturing* 7: 223–236.

Cooper, A.C. 1993. Challenges in predicting new firm performance. *Journal of Business Venturing* 8: 241–253.

Cooper, A.C., and K.W. Artz. 1995. Determinants of satisfaction for entrepreneurs. Journal of Business Venturing 10: 439–457.

Cooper, A.C., F.J. Gimeno-Gascon, and C.Y. Woo. 1994. Initial human and financial capital as predictors of new venture performance. *Journal of Business Venturing* 9: 371–395.

Covin, J.G., and T.J. Covin. 1990. Competitive aggressiveness, environmental context, and small firm performance. *Entrepreneurship, Theory and Practice* 14: 35–50.

Covin, J.G., and D.P. Slevin. 1990. New venture strategic posture, structure, and performance: An industry life cycle analysis. *Journal of Business Venturing* 5: 123–135.

Covin, J.G., D.P. Slevin, and T.J. Covin. 1990. Content and performance of growth-seeking strategies: A comparison of small firms in high and low technology industries. *Journal of Business Venturing* 5: 391–412.

Dawes, J. 1999. The relationship between subjective and objective company performance measures in market orientation research: Further empirical evidence. *Marketing Bulletin* 10: 65–75.

DeConinck, J.B., and D.P. Bachmann. 1994. Organizational commitment and turnover implications of marketing managers. *Journal of Applied Business Research* 10: 87–95.

Deeds, D.L., D. DeCarolis, and J.E. Coombs, J.E. 1998. Firm specific resources and wealth creation in high-technology ventures: Evidence from newly public biotechnology firms. *Entrepreneurship, Theory & Practice* 22: 55–73.

Dess, G.G., and R.B. Robinson, Jr. 1984. Measuring organizational performance in the absence of objective measures. *Strategic Management Journal* 5: 274–286.

Dillman, D.A. 1978. *Mail and telephone surveys: The total design method.* New York: Wiley-Interscience.

Dillman, D.A., M.D. Sinclair, and J.R. Clark. 1993. Effects of questionnaire length, respondent-friendly design, and a difficult question on response rates for occupant-addressed census mail surveys. *Public Opinion Quarterly* 57: 289–304.

Dyer, W.G. 1992. *The entrepreneurial experience.* San Francisco: Josey-Bass.

Geringer, J.M., and L. Hebert. 1991. Measuring performance of international joint ventures. *Journal of International Business Studies* 22: 249–263.

Glaister, K.W., and P.J. Buckley. 1998. Measures of performance in UK international alliances. *Organization Studies* 19: 89–118.

Griffin, R.W., and R.S. Bateman. 1986. Job satisfaction and organizational commitment. In C.L. Cooper and I. Robertson, eds., *International review of industrial and organization psychology.* New York: Wiley.

Gupta, A.K., and V. Govindarajan. 1984. Business unit strategy, managerial characteristics, and business unit effectiveness at strategy implementation. *Academy of Management Journal* 27: 25–41.

Kanter, R.M., and D. Brinkerhoff. 1981. Organizational performance: Recent developments in measurement. *Annual Review of Sociology* 7: 321–349.

Kirchoff, B., and B. Phillips. 1988. The effect of firm formation and growth on job creation in the United States. *Journal of Business Venturing* 3: 261–272.

Mathieu, J.E. , and D.M. Zajac. 1990. A review and meta-analysis of the antecedents, correlates, and consequences of organizational commitment. *Psychological Bulletin* 108: 171–194.

McCarthy, A.M. 1992. The role of strategy, environment, resources, and strategic change in new venture performance. Unpublished Doctoral Dissertation, Purdue University.

McDougall, P.P. 1987. An analysis of strategy, entry barriers, and origin as factors explaining new venture performance. Unpublished Doctoral Dissertation, University of South Carolina.

McGee, J.E., and M.J. Rubach. 1996. Responding to increased environmental hostility: A study of the competitive behavior of small retailers. *Journal of Applied Business Research* 13: 83–94.

Murphy, G.B., J.W. Trailer, and R.C. Hill. 1996. Measuring performance in entrepreneurship research. *Journal of Business Research* 36: 15–23.

Naman, D.P., and D.P. Slevin. 1993. Entrepreneurship and the concept of fit: A model and empirical tests. *Strategic Management Journal* 13: 137–153.

Nunnally, J.C. 1978. *Psychometric theory.* New York: McGraw-Hill.

Parnell, J.A., and R. Crandall. 2003. Propensity for participative decision-making, job satisfaction, organizational commitment, organizational citizenship behavior, and intentions to leave among Egyptian managers. *Multinational Business Review* 11: 45.

Porter, M.E. 1980. *Competitive strategy: Techniques for analyzing industries and competitors.* New York: Free Press.

Porter, L.W., and F.J. Smith. (1970). The etiology of organizational commitment. Unpublished paper, University of California at Irvine.

Riketta, M. 2002. Attitudinal organizational commitment and job performance: A meta-analysis. *Journal of Organizational Behavior* 23: 257–266.

Sandberg, W.R., and C.W. Hofer. 1987. Improving new venture performance: The role of strategy, industry structure, and the entrepreneur. *Journal of Business Venturing* 2: 5–28.

Sapienza, H.J., K.G. Smith, and M.J. Gannon. 1988. Using subjective evaluations of organizational performance in small business research. *American Journal of Small Business* 12: 45–53.

Steers, R.M. 1977. *Organizational effectiveness: A behavioral view.* Santa Monica, CA: Goodyear.

About the Authors

GREGORY B. MURPHY (gbmurphy@usi.edu) is an assistant professor of management at the University of Southern Indiana. He received his Ph.D. in business administration from the University of Houston. His research interests are in the areas of entrepreneurship and electronic commerce. He has previously published in the *Journal of Business Venturing, Journal of Business Research, Journal of High Technology Management Research, Journal of Business Economics Research,* and *New England Journal of Entrepreneurship.*

STEPHEN K. CALLAWAY (scallaway@usi.edu) is an assistant professor at the University of Southern Indiana in Evansville, Indiana. He received his Ph.D. in business administration from Temple University in May 2003. He teaches courses in strategic management and international business. His research interests include international entrepreneurship and management of technology. He has published in the *New England Journal of Entrepreneurship,* and has presented papers at various conferences, including winning the Best Graduate Student Paper award at the Midwest Academy of Management meeting in Toledo, Ohio, in 2001.