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Measuring Entrepreneurial Performance: Is There Consistency Between Scholars?

ABSTRACT

Accurate performance measurement is critical to investigate the new venture outcomes. The current research investigates performance measures utilized in 50 studies between 2002 and 2013 in the Journal of Entrepreneurship Theory and Practice. Little consistency was found across studies. More than 60% of these studies, growth has been considered and measured as one of the dimensions of performance and almost 50% of the studies in this research have used only one dimension of performance rather than multi dimensions. In this piece of work pros and cons of using different dimensions of performance are discussed and evaluated. Methodological recommendations are provided.

KEYWORDS: Organizational Performance, Entrepreneurial Performance, Measurement Issues, ET&P

INTRODUCTION

While the empirical literature reports a high diversity of performance indicators (i.e. Reviews by Combs, Crook & Shook, 2005; Venkatraman & Ramanujam, 1986), there is a lack of information and guidance for choosing performance measurement in the field of entrepreneurship. Moreover lack of consensus on the type of measure that should be considered in entrepreneurship research between scholars makes comparison of different studies difficult in this field. Moreover having accurate and appropriate measurement of performance is critical in strategy and entrepreneurship research in order to be able to define a successful venture.

Some scholars make a distinction between financial and nonfinancial measures of performance and indicate that performance can be measured based on factors such as sales growth or the satisfaction of a shareholder (Rauch et al., 2009); however some argues that regarding financial performance, there is often a low convergence between different indicators. For instance on a conceptual level, one can distinguish between growth measures and measures of profitability (Murphy, Trailer, & Hill, 1996). Further Rauch et al. (2009)' study indicates that measures of performance can be categorized based on three types of measures: archival financial, perceived financial, and perceived nonfinancial.

These studies and similar works indicate that there is a lack of convergence between scholars for measuring performance. So, it can be noted that without having an adequate measurement for performance or a universal measure of performance, it is not possible to evaluate entrepreneurship processes, new venture's success and its failure in a context and make comparisons between contexts, even theory development may become blocked and developing useful recommendations for entrepreneurs may be impeded. In fact many reviews in the field of entrepreneurship research have come up with the conclusion that the development of body of knowledge is confronted by some issues in the field of entrepreneurship and scholars even do not have the same idea about what constitutes entrepreneurship (Shane and Venkatraman, 2000). A reason could be related to failing to build on each other's results or lack of having a defined measurement for key components (Davidsson and Wiklund, 2001). So it can be stated that one of these key components is performance that suffers from lack of having a defined measurement.

Entrepreneurship scholars have faced considerable difficulty in assessing performance. Part of the difficulty relies on the fact that there is lack of agreement about entrepreneurs' objectives for running a new venture (Brush and Vanderwerf, 1992; Chandler and Jansen, 1992). Generally

studies have just focused on most common measures of performance (i.e. Brush and Vanderwerf, 1992) and one study has investigated the frequency of use of different measures and analyzed the use of those measures in entrepreneurship (Murphy et al., 1996). However, there still exists lack of consensus between researchers about the measures of performance and its variations from study to study.
In this piece of work, 51 published entrepreneurship studies measuring performance are investigated. Each of which has used entrepreneurship performance as one of the following variables: dependent, independent, control, moderator or mediator. So this paper firstly review the literature on measurement issues in the field of entrepreneurship performance, secondly presents an examination of performance measurement in the 51 studies by providing summary tables for each study. Following that a frequency table is provided to show how frequently each measure has been used by scholars and finally some recommendations are provided that will simplify the integration of future studies in the field of entrepreneurship. In fact this study will help the future research to make stronger conclusions while examining performance.

LITERATURE REVIEW

Organizational Performance Measurement

Performance is a multidimensional scale and to date the empirical literature shows highly diversified set of indicators for measuring performance (Venkatraman and Ramanujam, 1986; Murphy et al., 1996). Much of the research on performance measurement has come from organization theory and strategic management (Murphy et al., 1996). Organization theory indicated three different approaches regarding measuring performance and those are goal based approach, systems approach and constituency approach. The first approach discusses that organizations can be assessed based on the goals they set (Etzioni, 1964). This approach is not appropriate for cross-firm comparisons hence goals vary from organization to organization. The second approach titled as systems approach noted that for measuring performance, the simultaneous achievement of multiple, and generic performance aspects must also be considered (Steers, 1975). None of these approaches account for stakeholders' perspectives on performance. In fact stakeholders were likely to consider the performance as poor based on their perspectives while performance was considered to be good by the first two approaches. So constituency approach came to examine the extent to which the schedule of various shareholder groups is satisfied (Thompson, 1967; Pfeffer and Salancik, 1978).

There are different classifications for measurements. Strategy research integrates the three organization theoretic approaches and indicates that performance measurement has various hierarchical constructs (Venkatraman and Ramanujam, 1986). In this categorization, financial performance construct is located at the core of organizational effectiveness domain. Although it is considered as essential, it is not yet sufficient (i.e. Chakravarthy, 1986). Operational performance construct is also considered as a "beyond the core" measure of performance which considers indicators such as market share that ultimately lead to financial performance (Kaplan, 1983; Murphy et al., 1996). Another approach is related to the classification of Venkatraman and Ramanujam (1986) by introducing two dimensions, one based on financial versus operational measures and the second one based on primary versus secondary data sources used for gaining data of each indicator. Both groups of scholars- Venkatraman and Ramanujam (1986) and Brush and Vanderwerf (1992) - have also distinguished between objective and subjective measures of performance. Hair et al. (2010) explained that, when characterizing an object, it can be considered as objective dimension which has a quantifiable (physical or observable) attributes or may be considered as a subjective dimension or perceived dimension and individuals evaluate the objects based on perception and the perceived dimension is the

individuals interpretation that may or may not be based on objective dimension as well Dess and Robinson (1984) indicated that subjective measures are typically described as perceptual that provide a relative assessment of performance (i.e. as compared with competitors) rather than exact numerical values. The other distinction between performance measurements is defined by Rauch et al. (2009) as financial versus nonfinancial measures in which nonfinancial indicators differ from that of the previous category named as operational measures. Here financial measures include items such as sales growth, return on asset and non-financial indicators could be described as satisfaction and global success ratings made by owners or business managers (Rauch et al., 2009). In terms of satisfaction which is considered to be a basic measure of entrepreneurial performance examining the relationship between cognitive misfit and entrepreneurs' satisfaction would appear to be extremely relevant (Rauch et al., 2009). In terms of financial indicators of performance, research suffers from lack of consensus on choosing indicators. Low level of convergence between different dimensions essentially needs to be addressed in entrepreneurship research, so that scholars could find a generic criterion for comparing performance of different entrepreneurial organizations from different regions. Some scholars suggested that multiple dimensions and measures should be considered in assessing performance; for instance both operational dimensions and financial dimensions should be investigated while studying the performance of the organization (i.e. Venkatraman and Ramanujam, 1986).

In this piece of work, according to the reviewed literature, we categorized performance measures in terms of a measure which could be simultaneously chosen from the following sets; a measure can be categorized as being objective or subjective; gained by primary data sources (data collected directly from organizations) or secondary data sources (data from publicly available records); and obtained based on financial performance, operational performance or stakeholder satisfaction's rating. As an example performance measure could be an objective measure which is gained from secondary data sources based on operational indicators of performance. Financial indicators are assumed to reflect the fulfillment of economic goals of the organization (Hofer, 1983). Examples of financial indicators could be sales growth, profitability (reflected by ratios such as return on investment, return on sale, and return on equity), and earnings per share and so on. Hax and Majluf (1984) have emphasized that market or value-based measurements are more appropriate than accounting-based measures for assessing performance such as stock-market returns. Further, conceptualization of business performance includes operational performance indicators such as market-share, market share position, new product introduction, product quality, marketing effectiveness, manufacturing value-added, and other measures of technological efficiency (Venkatraman and Ramanujam, 1986).

THEORETICAL DEVELOPMENT

Review of Entrepreneurial Performance Measurements

In this study, the empirical entrepreneurship literature was examined for the years 2002-2013 of the journal of Entrepreneurship Theory and Practice. Three criteria were used in article selection: (1) the study had to be empirical, (2) the study had to include firm performance which was measured and (3) the sample had to be composed of small businesses and/or new entrepreneurial ventures. So we considered all entrepreneurial firms, new ventures, startup, SMEs (small and medium size enterprises), family firms (start-ups or first-generation family firms) and IPOs. We conducted the research for studies on entrepreneurial performance in two stages.

For the first search, we entered the keyword: performance in the online data base of the journal of Entrepreneurship Theory and Practice (ET&P) (1976-present, the online journal of ET&P contains article from 2002). We chose this journal since it is rated as the second most cited journals in the field of entrepreneurship and is dedicated specifically to entrepreneurship research (Busenitz et al., 2003). During our search we noticed that in some articles, performance has also been referred as entrepreneurial success/failure or entrepreneurial outcome as well in the study conducted by Chakravarthy (1986) the phrases “organizational success and failure” and “organizational performance” are used interchangeably in addition, Brush and Vanderwerf (1992) stated that the use of the term “performance” by researchers also include other constructs measuring some aspect of performance, such as success, survival and growth. Noticing to such samples and points, we found out that we may fail to find all articles that had measured performance during 2002 and 2013, just by searching the term performance. In second stage we started over to check all the articles of ET&P available online by checking all the issues and volumes starting from 2002, Volume 27, Issue 1, without considering teaching cases and introduction articles of each issue. This process resulted in having 480 articles for review. By reading the abstracts and methodology part of each of these articles we investigated whether the empirical articles have measured the performance of entrepreneurship or not. In fact we reviewed the articles for the dimensions of performance studied and how the dimensions were measured. In most cases, dimensions were explicitly mentioned in the article but not in all. This screening process left us with 53 publications relevant to the scope our study. In these studies performance has been considered if it is one of the following variables: dependent variable, independent variable, control variable, moderator or mediator. Each of these articles are presented and summarized in Table 1 which includes the name of the author, title of the paper, the measurements’ indicators and the type of the performance variable, also this table contains information about the three main categories of performance measurements discussed earlier. In fact we investigated whether the performance dimensions of each study are collected from a primary source or a secondary source, whether the measure is an objective one including quantitative information about the performance or it is a subjective measure of performance based on the perceptions of one or more individuals and finally we investigated whether performance is financially studied or operationally or based on the stakeholders’ satisfaction.

In order to have a more detailed set of information in each study, we developed the second table (Table 2) with an emphasis on the following items: dimensionality of the measure utilized in each study. In fact some studies have just focused on one dimension of performance such as growth while others focused on more than one dimension (i.e. growth and profitability); methodology of research is also provided in the second table in order to find out whether method is a reason for choosing specific dimensions in a study. As well as reading these studies we also noticed that the relationship under investigation is effective in choosing specific dimensions, as a result we briefly explained the purpose of the study in case that we need to do further investigations.

Murphy et al. (1996) in their study classified different dimensions of performance and in the current study their classification helped to make the basic categorization of dimensions in the second table. In their study a number of items are posed and classified as different dimensions. For instance, return on investment, return on equity, return on assets and return on net worth are categorized as efficiency dimension. Interestingly we found some contradictions in other studies. Although share market growth is classified under the dimension of growth in Murphy et al. (1996) some other scholars considered it as an operational dimension categorized as Market Share rather than Growth. However in this study we chose Murphy et al.’s (1996) categories as

our basic classification. In order to find out the frequency of usage of each of these items and dimensions we inserted them in the Table 2.

Table 1

Review of the Measurements for Entrepreneurial Performance – Phase I

Author & Year	Title	Type	Indicators of performance	Primary data (P) OR Secondary data (S)	Objective (O) OR Subjective (S)	Financial (F) /Operational (O) /Stakeholder Satisfaction (S)
Zahra et al. (2002)	Competitive Analysis and New Venture Performance: Understanding the impact of Strategic Uncertainty and Venture Origin	Dependent Variable	Objective indicators (Financial performance): Market share growth Return on equity Subjective indicators: Profit satisfaction (return on investment, return on equity, return on assets, net profit margin) Growth Satisfaction (Sales growth, growth in number of employees, market share growth)	P & S	O & S	F & S
Markman and Gartner (2002)	Is Extraordinary Growth Profitable? A Study of Inc. 500 High-Growth Companies	Independent variable	Firm growth considered as performance Absolute growth in sales Absolute growth in employment	S	O	F
Reuber and fischer (2002)	Foreign Sales and Small Firm Growth: The Moderating Role of the Management Team	Dependent Variable	Firm growth considered as performance Total sales growth	P	O	F
Julien and Ramangalahy (2003)	Competitive Strategy and Performance of Exporting SMEs: An Empirical Investigation of the Impact of Their Export Information Search and Competencies	Dependent Variable	Export performance The percentage of export sales The growth rate of export sales The business's international reputation The profitability of export sales as compared with local sales	P & S	O	F & O

Author & Year	Title	Type	Indicators of performance	Primary data (P) OR Secondary data (S)	Objective (O) OR Subjective (S)	Financial (F) /Operational (O) /Stakeholder Satisfaction (S)
Chrisman et al. (2004)	Comparing the Agency Costs of Family and Non-Family Firms: Conceptual Issues and Exploratory Evidence	Dependent Variable	Short-term sales growth	P	O	F
Zahra et al. (2004)	Entrepreneurship in Family vs. Non-Family Firms: A Resource-Based Analysis of the Effect of Organizational Culture	Control Variable	Past Performance is measured. Financial controls: Cash flow; Return on investment; Objective criteria, such as return on assets; Formal performance appraisal Strategic controls: Formal face to face meetings; Informal face to face meetings; Evaluation of company performance against subjective criteria such as customer	P & S	O & S	F & O
Busenitz et al. (2005)	Signaling in Venture Capitalist—New Venture Team Funding Decisions: Does It Indicate Long-Term Venture Outcomes?	Dependent Variable	Performance is measured whether the venture is: Out of business still-private Merged or acquired IPOs	X	X	X
Clercq and Sapienza (2005)	When Do Venture Capital Firms Learn from Their Portfolio Companies?	Independent Variable	Portfolio companies current performance is measured by A multicriterian satisfaction scale A rating of performance	P	S	S
Forbes (2005)	The Effects of Strategic Decision Making on Entrepreneurial Self-Efficacy	Control Variable	Subjective measure: revenue and overall performance Des, Lumpkin and Covin (1997) self-report rating	P	S	S

Author & Year	Title	Type	Indicators of performance	Primary data (P) OR Secondary data (S)	Objective (O) OR Subjective (S)	Financial (F) /Operational (O) /Stakeholder Satisfaction (S)
Rauch et al. (2005)	Effects of Human Capital and Long-Term Human Resources Development and Utilization on Employment Growth of Small-Scale Businesses: A Causal Analysis	Dependent Variable	Business Success is considered as performance Employee growth	S	O	F
Covin et al. (2006)	Strategic Process Effects on the Entrepreneurial Orientation–Sales Growth Rate Relationship	Dependent Variable	Firm performance is operationalized as a firm's sales growth rate relative to its industry. Firm sales growth is measured as the firm's average rate of growth in sales revenue.	P & S	O	F
Kellermanns and Eddleston (2006)	Corporate Entrepreneurship in Family Firms: A Family Perspective	Control Variable	growth in sales, growth in market share, growth in the number of employees, growth in profitability, return on equity, return on total assets, profit margin on sales, ability to fund growth from profits	P	O	F
Brigham et al. (2007)	A Person-Organization Fit Model of Owner-Managers' Cognitive Style and Organizational Demands	Dependent Variables	Subjective measure: entrepreneur's level of satisfaction Quinn and Staines (1979)'s measure of satisfaction	P	S	S
West (2007)	Collective Cognition: When Entrepreneurial Teams, Not Individuals, Make Decisions	Independent Variable	Firm performance is derived from an average rating of perceived performance by managers in each company	P	S	S

Author & Year	Title	Type	Indicators of performance	Primary data (P) OR Secondary data (S)	Objective (O) OR Subjective (S)	Financial (F) /Operational (O) /Stakeholder Satisfaction (S)
Wijbenga et al. (2007)	The Influence of the Venture Capitalist's Governance Activities on the entrepreneurial Firm's Control Systems and Performance	Dependent Variables	Financial performance is measured Sales growth; market share; gross margin; return on investment; market value company shares; and liquidity position Entrepreneur's satisfaction score	P	S	O & F & S
Bierly and Daly (2007)	Alternative Knowledge Strategies, Competitive Environment, and Organizational Performance in Small Manufacturing Firms	Dependent Variable	Subjective measure: financial performance and growth Powell (1995)'s measure: rating	P	S	F
Gabrielsson (2007)	Correlates of Board Empowerment in Small Companies	Independent Variable	Past Performance Sales growth and Return On Equity (ROE)	S	O	F
Shrader and Siegel (2007)	Assessing the Relationship between Human Capital and Firm Performance: Evidence from Technology-Based New Ventures	Independent Variable	Profitability and sales growth.	S	O	F
Yiu and Lau (2008)	Corporate Entrepreneurship as Resource Capital Configuration in Emerging Market Firms	Independent Variable	Subjective measure: respondent's rating of own firm's performance as compared to the industry's average sales growth, market share, return on investment, return on assets, and return on sales and market shares	P	S	F & O
Wright et al. (2008)	Returnee Entrepreneurs, Science Park Location Choice and Performance: An Analysis of High-Technology SMEs in China	Dependent Variable	Nonfinancial performance Employment growth and Entrepreneur's satisfaction ("Managers' perception of firm performance" (MPP))	S	S	F & S

Author & Year	Title	Type	Indicators of performance	Primary data (P) OR Secondary data (S)	Objective (O) OR Subjective (S)	Financial (F) /Operational (O) /Stakeholder Satisfaction (S)
Tang et al. (2008)	Exploring an Inverted U-Shape Relationship between Entrepreneurial Orientation and Performance in Chinese Ventures	Dependent Variable	Subjective measure: CEOs to evaluate their firms' performance Sales growth rate; market share; pretax profit growth rate; and overall performance (McDougall, Covin, Robinson, & Herron, 1994).	P	S	F & O
Delmar and Wiklund (2008)	The Effect of Small Business Managers' Growth Motivation on Firm Growth: A Longitudinal Study	Dependent Variable	Firm outcome Sales growth and number of employees	P	O	F
Moreno and Casillas (2008)	Entrepreneurial Orientation and Growth of SMEs: A Causal Model	Dependent variable	Firm's growth Subjective and objective measures are combined Subjective (the perceptions of the firm's director) Objective (information from the firms' annual accounts)	P	O & S	F
Wang (2008)	Entrepreneurial Orientation, Learning Orientation, and Firm Performance	Dependent variable	Three subjective indicators were used to measure firm performance: respondents were asked to compare the return on *capital employed, earnings per share, and sales growth* of their own firm with those of their main competitors in the past 5 years.	P	S	F
Jones et al. (2008)	Affiliate Directors and Perceived Risk Bearing in Publicly Traded, Family-Controlled Firms: The Case of Diversification	Control Variable	ROA (return on asset)	S	O	F
Zahra et al. (2008)	Culture of Family Commitment and Strategic Flexibility: The Moderating Effect of Stewardship	Control variable	Objective indicators: Firm total sales growth and after-tax return on sales	P	S	F

Author & Year	Title	Type	Indicators of performance	Primary data (P) OR Secondary data (S)	Objective (O) OR Subjective (S)	Financial (F) /Operational (O) /Stakeholder Satisfaction (S)
Rutherford (2008)	Examining the Link Between "Familiness" and Performance: Can the F-PEC Untangle the Family Business Theory Jungle?	Dependent Variable	Return on assets (ROA), profit, return on investment (ROI), return on equity (ROE), sales or revenue growth Tobin's Q	P	O	F
Steffens (2009)	Performance Configurations Over Time: Implications for Growth- and Profit-Oriented Strategies	Dependent Variable	Sales growth and pretax ROA	S	O	F
Wiklund and Shepherd (2009)	The Effectiveness of Alliances and Acquisitions: The Role of Resource Combination Activities	Dependent Variable	Sales growth (annual statements.)	S	O	F
Meuleman et al. (2009)	Agency, Strategic Entrepreneurship, and the Performance of Private Equity-Backed Buyouts	Dependent Variable	Financial profitability- sales and employment growth To measure profitability, "return on capital employed" (ROCE) is used Average sales revenue growth and the average growth in number of employees	S	O	F
Walske and Zacharakis (2009)	Genetically Engineered: Why Some Venture Capital Firms Are More Successful Than Others	Dependent Variable	Venture capital firm success as fir performance The VCF's relative IRR (the interim internal rate of return) is used as a measure of success	S	O	F
Tocher and Rutherford (2009)	Perceived Acute Human Resource Management Problems in Small and Medium Firms: An Empirical Examination	Independent Variable	Return on sale (log transform of return on sales)	S	O	F

Author & Year	Title	Type	Indicators of performance	Primary data (P) OR Secondary data (S)	Objective (O) OR Subjective (S)	Financial (F) /Operational (O) /Stakeholder Satisfaction (S)
Chandler and Lyon (2009)	Involvement in Knowledge-Acquisition Activities by Venture Team Members and Venture Performance	Dependent Variable	Sales growth	P	S	F
Chrisman et al. (2009)	Priorities, Resource Stocks, and Performance in Family and Nonfamily Firms	Dependent Variable	Sales Growth	P & S	S	F
Arthurs et al. (2009)	Firm-Specific Human Capital and Governance in IPO Firms: Addressing Agency and Resource Dependence Concerns	Control variable	Return on Asset	S	O	F
Fernhaber and Li (2010)	The Impact of Interorganizational Imitation on New Venture International Entry and Performance	Dependent Variable	Profitability (ROS) and Sales growth	S	O	F
Obloj et al. (2010)	Dominant Logic and Entrepreneurial Firms' Performance in a Transition Economy	Dependent Variable	Subjective evaluations of firms' revenues, profits, quality of offering, and market share (during the last 2 years) versus major competitors on the 5-point Likert-type scale from "smaller than competitors" to "higher than competitors" evaluations.	P	S	F & O
Moore et al. (2010)	Institutions and Foreign IPO Firms: The Effects of "Home" and "Host" Country Institutions on Performance	Dependent Variable	Underpricing for IPO	X	X	X
Davis et al. (2010)	Is Blood Thicker Than Water? A Study of Stewardship Perceptions in Family Business	Control Variable	Company sale	P	S	F

Author & Year	Title	Type	Indicators of performance	Primary data (P) OR Secondary data (S)	Objective (O) OR Subjective (S)	Financial (F) /Operational (O) /Stakeholder Satisfaction (S)
Zhao et al. (2011)	Entrepreneurial Orientation, Organizational Learning, and Performance: Evidence From China	Dependent Variable	Five dimensions of performance relative to competitors in terms of market share, sales volume, market reputation, operating profits, and asset size over a 5-year period in accordance with these past measures is considered	P	S	F & O
Chahine et al. (2011)	Building Perceived Quality of Founder- Involved IPO Firms: Founders' Effects on Board Selection and Stock Market Performance	Independent Variable	Short-term performance measured in terms of IPO "underpricing	X	X	X
Brettel et al. (2011)	Distribution Channel Choice of New Entrepreneurial Ventures	Dependent variable	Financial Performance (market performance (satisfaction of the respondent with the company's situation relative to major competitors during the last 3 years) and profitability (measured by a single item related to average return on sales during the last 3 years (Homburg & Pflesser)))	P & S	O & S	F & S
Carr et al. (2011)	A Measure of Variations in Internal Social Capital Among Family Firms	Independent Variable	Subjective measures: McDougall, Covin, Robinson, and Herron (1994) 5-item performance measure which identifies firm performance as it relates to a firm's competitors	P	S	S

Author & Year	Title	Type	Indicators of performance	Primary data (P) OR Secondary data (S)	Objective (O) OR Subjective (S)	Financial (F) /Operational (O) /Stakeholder Satisfaction (S)
Hahn et al. (2012)	Happy and Proactive? The Role of Hedonic and Eudaimonic Well-Being in Business Owners' Personal Initiative	Dependent Variable	Subjective business success considered as performance 10-item scale by Wiklund and Shepherd (2003) assessing business development ("How did your company develop during the last three years relatively to your two most important competitors?") in various fields	P	S	S
Breugst et al. (2012)	Perceptions of Entrepreneurial Passion and Employees' Commitment to Entrepreneurial Ventures	Control Variable	Venture development: number of employees	P	O	F
Patel and Conklin (2012)	Perceived Labor Productivity in Small Firms—The Effects of High-Performance Work Systems and Group Culture Through Employee Retention	Control Variable	Financial performance is measured using a self-report item that measures financial performance over the last 3 years from 1 to 5, a lot better than average to a lot below average; reverse coded).	P	S	F
Jong et al. (2012)	Which Entrepreneurs Bribe and What Do They Get From It? Exploratory Evidence From Vietnam	Dependent Variable	Entrepreneurship performance using the natural logarithm of the firm's total revenues	P	S	F
Eddleston et al. (2012)	Exploring the Entrepreneurial Behavior of Family Firms: Does the Stewardship Perspective Explain Differences?	Control Variable	Past performance Lastly, we controlled for past performance as prior performance can either trigger inertial processes or organizational change (e.g., Kellermanns & Eddleston, 2006).	P	S	F

Author & Year	Title	Type	Indicators of performance	Primary data (P) OR Secondary data (S)	Objective (O) OR Subjective (S)	Financial (F) /Operational (O) /Stakeholder Satisfaction (S)
Collewaert (2012)	Angel Investors' and Entrepreneurs' Intentions to Exit Their Ventures: A Conflict Perspective	Control Variable	Perceived firm performance (range 1–5) was also controlled for by asking respondents to rate the current performance of the venture relative to its competitors (Sapienza & Gupta, 1994).	P	S	F & O
Arregle et al. (2012)	Internationalization of Family-Controlled Firms: A Study of the Effects of External Involvement in Governance	Moderator Variable	Past performance is measured using return on equity (ROE)	P & S	O	F
Lichtenthaler and Muethel (2012)	The Impact of Family Involvement on Dynamic Innovation Capabilities: Evidence From German Manufacturing Firms	Control Variable	Return On Sales	P	S	F
Sciascia et al. (2013)	Generational Involvement in the Top Management Team of Family Firms: Exploring Nonlinear Effects on Entrepreneurial Orientation	Control Variable	Financial items regarding net profit, sales growth, cash flow, and growth of net worth were considered Respondents were asked to compare their level of performance relative to their main competitors in the last 3 years.	P	S	F

Author & Year	Title	Type	Indicators of performance	Primary data (P) OR Secondary data (S)	Objective (O) OR Subjective (S)	Financial (F) /Operational (O) /Stakeholder Satisfaction (S)
Zhao et al. (2013)	Founding Team Capabilities and New Venture Performance: The Mediating Role of Strategic Positional Advantages	Dependent Variable	New venture performance was measured by the average gross profit, which is calculated by the first 3-year average sales times the first 3-year average profit margin. These data were collected directly from the firms participating in this research project, over a 3-year period after the survey was administered.	P	S	F

Table 2

Review of the Measurements for Entrepreneurial Performance – Phase II

Author & Year	Type of variable perfor-mance represents	Uni-dimensional(U)/ Multidimensional (M)	Performance indicator(s)	Dimen-sion(s)	Measure	Topic of investigation	Method
Zahra et al. (2002)	Dependent Variable	M	Perceived financial performance & nonfinancial performance & Archival financial performance	Efficiency Growth Profitability	Return on equity Market share growth Profit satisfaction (return on investment, return on equity, return on assets, net profit margin) Growth Satisfaction (Sales growth, growth in number of employees, market share growth)	The relationship between CA and new venture performance	Mail survey to the chief executive officers (CEOs) or highest-ranking managers and a second senior manager to test for the presence of same source bias and correlating the performance data collected from the respondents with secondary data sources Comparing primary and secondary data is widely used in the literature to establish the validity of survey-based measures, also common method variance is checked by it.
Markman and Gartner (2002)	Independent variable	U	Archival financial performance	Growth	Absolute growth in sales Absolute growth in employment	The relationship between extraordinary high growth and profitability	Field study. Secondary data is used.
Reuber and fischer (2002)	Dependent Variable	U	Perceived financial performance	Growth	Total sales growth	The investigation of the moderating role of management team on the relationship between foreign sales growth and overall firm growth	Survey research. Respondents were asked by what percentage their total annual sales had changed over the past two fiscal years.

Author & Year	Type of variable perfor-mance represents	Uni-dimensional(U)/ Multidimensional (M)	Performance indicator(s)	Dimen-sion(s)	Measure	Topic of investigation	Method
Julien and Ramangalahy (2003)	Dependent Variable	M	Perceived financial performance & nonfinancial performance & Archival financial performance	Growth Profit Reputation	The percentage of export sales The growth rate of export sales The business's international reputation The profitability of export sales as compared with local sales	The relationship between general competitive strategy and performance	Secondary data Questionnaire Interview
Chrisman et al. (2004)	Dependent Variable	U	Archival financial performance	Growth	Short-term sales growth	The impacts of agency cost control mechanisms on performance of family firms	Mail survey
Zahra et al. (2004)	Control Variable	M	Archival financial performance & nonfinancial performance	Liquidity Efficiency	Cash flow; Return on investment; Objective criteria, such as return on assets; Formal performance appraisal # of Formal face to face meetings; # of Informal face to face meetings; Evaluation of company performance against subjective criteria such as customer	To examine the association between four dimensions of organizational culture in family vs. non-family businesses and entrepreneurship.	Survey research
Clercq and Sapienza (2005)	Indepen-dent Variable	U	Nonfinancial performance	Shareholder satisfaction	A multicriterian satisfaction scale A rating of performance	To examine when venture capital firms (VCFs) learn from their portfolio companies (PFCs).	Survey research

Author & Year	Type of variable perfor-mance represents	Uni-dimensional(U)/ Multidimensional (M)	Performance indicator(s)	Dimen-sion(s)	Measure	Topic of investigation	Method
Forbes (2005)	Control Variable	U	Perceived financial performance	Liquidity	Revenue and overall performance	To examine whether entrepreneurs' levels of ESE (Entrepreneurial self-efficacy) are influenced by the ways in which their ventures make strategic decisions	Self-report rating The performance measure was adapted from a self-report technique developed by Dess, Lumpkin, and Covin (1997)
Rauch et al. (2005)	Dependent Variable	U	Nonfinancial performance	Growth	Employee growth	To explore how three different human resource variables affect employment growth of small-scale enterprises: human capital of business owners, human capital of employees, and human resource development and utilization.	Companies' databases in two different points in time are used
Covin et al. (2006)	Dependent Variable	U	Perceived financial performance and archival financial performance	Growth	Firm's sales growth rate relative to its industry	To examine the effects of three strategic process variables— strategic decision making participativeness, strategy formation mode, and strategic learning from failure—on the entrepreneurial orientation (EO)–firm sales growth rate relationship	Self-reported sales revenue figures secondary data

Author & Year	Type of variable perfor-mance represents	Uni-dimensional(U)/ Multidimensional (M)	Performance indicator(s)	Dimen-sion(s)	Measure	Topic of investigation	Method
Kellermanns and Eddleston (2006)	Control Variable	M	Perceived financial performance	Growth Efficiency	growth in sales, growth in the number of employees, growth in profitability, return on equity, return on total assets, profit margin on sales, ability to fund growth from profits growth in market share	To investigate how generational involvement, willingness to change, and the ability to recognize technological opportunities impact corporate entrepreneurship in family firms	Eight performance-related questions were asked. Respondents were asked to indicate if their past performance was much worse, about the same, or higher than their competitors in terms of each of the indicators of performance in the last 3 years.
Brigham et al. (2007)	Dependent Variable	U	Nonfinancial performance	Satisfaction	Entrepreneur's level of satisfaction	To examine the association among specific individual characteristics, firm characteristics, and the individual outcomes of satisfaction and intentions to exit	Survey research, satisfaction measure developed by Quinn and Staines (1979)
West (2007)	Independent Variable	M	Nonfinancial performance & Perceived financial performance	Satisfaction Growth	Average rating of perceived performance by managers in each company	To investigate whether structural characteristics of collective cognition (differentiation and integration) are related to firm performance	Survey research, Firm performance is derived from an average rating of perceived performance by managers in each company. A composite 3-item scale serves as the basis for the perceived performance measure.

Author & Year	Type of variable perfor-mance represents	Uni-dimensional(U)/ Multidimensional (M)	Performance indicator(s)	Dimen-sion(s)	Measure	Topic of investigation	Method
Wijbenga et al. (2007)	Dependent Variable	M	Perceived financial performance	Growth Efficiency Liquidity Market share Satisfaction	Sales growth; market share; gross margin; return on investment; market value company shares; and liquidity position; Entrepreneur's satisfaction score	To examine the role and influence of the VC's governance activities on 93 Dutch entrepreneurial firms.	Survey; scales developed by Manigart, Sapienza, and Vermeir (1995) and Sapienza et al. (1996).
Bierly and Daly (2007)	Dependent Variable	M	Perceived financial performance	financial performance and Growth	financial performance and growth	To examine the relationship between knowledge strategy (exploration or exploitation) and performance and the possible moderating role of external environment variables	Survey research, Powell (1995)'s measure: rating
Gabrielsson (2007)	Indepen-dent Variable	M	Archival Financial performance	Efficiency Growth	Sales growth and Return On Equity (ROE)	To advance the understanding of board empowerment in small companies	Secondary data
Shrader and Siegel (2007)	Indepen-dent Variable	M	Archival Financial performance	Profitability Growth Efficiency	average return on investment (ROI), return on sales (ROS), and return on assets (ROA), average annual growth rate	To assess the role of human capital in the growth and development of new technology-based ventures	Secondary data COMPUSTAT database
Yiu and Lau (2008)	Indepen-dent Variable	M	Perceived financial performance	Growth Market share Profit	sales growth, market share, return on investment, return on assets, and return on sales and market shares	To investigate the effects of network-based resource capital on firm performance	Survey research A five-item perceptual measure is used

Author & Year	Type of variable perfor-mance represents	Uni-dimensional(U)/ Multidimensional (M)	Performance indicator(s)	Dimen-sion(s)	Measure	Topic of investigation	Method
Wright et al. (2008)	Dependent Variable	M	Perceived financial performance & Nonfinancial performance	Growth and profitability	sales growth Pretax profitability Satisfaction	Human capital and social capital measures are used to examine the science park location decisions of returnee entrepreneurs and the performance of their ventures.	Survey research Managers' perception of firm performance
Tang et al. (2008)	Dependent Variable	M	Perceived financial performance	Growth Market share	Sales growth rate; market share; pretax profit growth rate; and overall performance	To explore Relationship between Entrepreneurial Orientation and Performance in Chinese Ventures	CEOs to evaluate their firms' performance, (McDougall, Covin, Robinson, & Herron, 1994).
Delmar and Wiklund (2008)	Dependent Variable	U	Archival financial performance	Growth	Sales growth and number of employees	To investigate the relationship between the small business managers' growth motivation on firm outcome	Interview
Moreno and Casillas (2008)	Dependent Variable	U	Perceived financial performance	Growth	the perceptions of the firm's director and information from the firms' annual accounts about growth	To study the relationships between EO, strategy, environment, resources and growth.	Survey research
Wang (2008)	Dependent Variable	M	Perceived financial performance	Growth Profit	Return on capital employed, earnings per share, and sales growth	To investigate how learning orientation effects the EO-performance relationship	Survey research, Respondents were asked to compare the return on capital employed, earnings per share, and sales growth of their own firm with those of their main competitors in the past 5 years.

Author & Year	Type of variable perfor-mance represents	Uni-dimensional(U)/ Multidimensional (M)	Performance indicator(s)	Dimen-sion(s)	Measure	Topic of investigation	Method
Jones et al. (2008)	Control Variable	U	Archival financial performance	Efficiency	ROA (return on asset)	To examine the influence exerted by affiliate directors in the diversification decisions of family-controlled, publicly traded firms	Secondary data
Zahra et al. (2008)	Control variable	M	Perceived financial performance	Liquidity Profit	Firm total sales growth After-tax return on sales	To study the ability of family firms to identify and respond to changes in their external environments	Mail survey For prior firm financial performance metrics (Davis, Dibrell, & Janz, 2002; Dess & Robinson,1984), respondents were asked to gauge their firm's total sales growth and after-tax return on sales over the most recent year compared to their industry competitors
Rutherford (2008)	Dependent Variable	M	Archival financial performance	Growth Profit Efficiency	Return on assets (ROA), profit, return on investment (ROI), return on equity (ROE), sales or revenue growth	To assess the relationship between familiness and performance	Survey research, Tobin's Q
Steffens (2009)	Dependent Variable	M	Archival financial performance	Efficiency and Growth	Sales growth and pretax ROA	To integrate several theoretical arguments concerning profit–growth relationships to develop a dynamic model of firm development, which suggests different development pathways for young firms	Secondary data

Author & Year	Type of variable perfor-mance represents	Uni-dimensional(U)/ Multidimensional (M)	Performance indicator(s)	Dimen-sion(s)	Measure	Topic of investigation	Method
Wiklund and Shepherd (2009)	Dependent Variable	U	Archival financial performance	Growth	Sales growth (annual statements.)	To study the alliances and acquisitions' benefit for the firm	Secondary data
Meuleman et al. (2009)	Dependent Variable	M	Archival financial performance	Growth Profitability	Sales and employment growth return on capital employed (ROCE) Average sales revenue growth Average growth in number of employees	To develop the complementarity between agency theory and strategic entrepreneurship perspectives to examine the performance implications for different types of buyouts	Secondary data
Walske and Zacharakis (2009)	Dependent Variable	U	Archival financial performance	Efficiency	The interim internal rate of return	To study what type of founding team experience best predicts VCF success, controlling for firm strategy, firm size, and the environment upon which the firm was born	Secondary data The VCF's relative IRR (the interim internal rate of return) is used as a measure of success
Tocher and Rutherford (2009)	Independent Variable	U	Archival financial performance	Profit	Return on sale (log transform of return on sales)	To study human resource management (HRM) problems in small- and medium-sized enterprises (SMEs).	Secondary data, The Survey of Small Business Finances (SSBF)
Chandler and Lyon (2009)	Dependent Variable	U	Perceived financial performance	Growth	Sales growth	to analyze knowledge acquisition by management teams in emerging firms by using concepts of organizational learning	Survey research

Author & Year	Type of variable perfor-mance represents	Uni-dimensional(U)/ Multidimensional (M)	Performance indicator(s)	Dimen-sion(s)	Measure	Topic of investigation	Method
Chrisman et al. (2009)	Dependent Variable	U	Perceived financial performance	Growth	Sales Growth	To study how the performance of family firms and nonfamily firms might differ as a result of the different priorities flowing from family influence	Survey research
Arthurs et al. (2009)	Control variable	U	Archival financial performance	Efficiency	Return on Asset	To examine the types of governance mechanisms that are implemented in firms going through an initial public offering comparing those ventures which indicate a dependence on these critical entrepreneurs versus those that do not	Secondary data
Fernhaber and Li (2010)	Dependent Variable	M	Archival financial performance	Profit Growth	Profitability (ROS) Sales growth	To examine the impact of interorganizational imitation on new venture international entry and subsequent performance	Secondary data
Obloj et al. (2010)	Dependent Variable	M	Perceived financial performance	Profit Market share	Revenues, profits, quality of offering, and market share	To compare and contrast the dominant logic of Polish entrepreneurial firms	Field-based survey Subjective evaluations of firms' revenues, profits, quality of offering, and market share (during the last 2 years) versus major competitors on the 5-point Likert-type scale from "smaller than competitors" to "higher than competitors" evaluations.

Author & Year	Type of variable perfor-mance represents	Uni-dimensional(U)/ Multidimensional (M)	Performance indicator(s)	Dimen-sion(s)	Measure	Topic of investigation	Method
Davis et al. (2010)	Control Variable	U	Perceived financial performance	Growth	Sale	Stewardship theory has been used to explain the culture and relationships within family businesses	Field survey
Zhao et al. (2011)	Dependent Variable	M	Perceived financial performance & Nonfinancial operation	Market share Liquidity Profit	market share, sales volume, market reputation, operating profits, and asset size	To examine the relationships among entrepreneurial orientation (EO), experimental learning (EL) and acquisitive learning (AL), and firm performance (FP).	Survey research Questionnaire and interview
Brettel et al. (2011)	Dependent Variable	M	Perceived financial performance & Nonfinancial operation	Satisfaction Profit	Market performance average return on sales	To examine the factors that influence NEVs' choice of distribution channels and performance consequences of those choices.	Survey and secondary data satisfaction of the respondent with the company's situation relative to major competitors during the last 3 years and profitability (measured by a single item related to average return on sales during the last 3 years (Homburg & Pflesser))
Carr et al. (2011)	Independent Variable	U	Perceived financial performance	Satisfaction	Satisfaction of shareholder	To Develop a new measure to assess the internal social capital using a sample of family firms and its effect on economic and noneconomic performance	Survey McDougall, Covin, Robinson, and Herron (1994) 5-item performance measure which identifies firm performance as it relates to a firm's competitors

Author & Year	Type of variable perfor-mance represents	Uni-dimensional(U)/ Multidimensional (M)	Performance indicator(s)	Dimen-sion(s)	Measure	Topic of investigation	Method
Hahn et al. (2012)	Dependent Variable	U	Nonfinancial operation	Growth	Business development	To examine the link between affective wellbeing and task-oriented as well as relationship-oriented personal initiative (PI).	Survey research 10-item scale by Wiklund and Shepherd (2003) assessing business development ("How did your company develop during the last three years relatively to your two most important competitors?") in various fields
Breugst et al. (2012)	Control variable	U	Archival financial performance	Growth	number of employees	How employees' perceptions of entrepreneurial passion influence their commitment to entrepreneurial ventures	Survey research Venture development: number of employees
Patel and Conklin (2012)	Control variable	U	Perceived financial performance	Profit	Profitability	To examine how small firms may realize mutually reinforcing effects of group culture on high-performance work systems to increase employee retention and improve perceived labor productivity	Financial performance is measured using a self-report item that measures financial performance over the last 3 years from 1 to 5, a lot better than average to a lot below average; reverse coded).
Jong et al. (2012)	Dependent variable	U	Perceived financial performance	Liquidity	Total revenues	To investigate whether bribery in emerging economies matters and whether such bribery has a diminishing return to performance	Survey research

Author & Year	Type of variable perfor-mance represents	Uni-dimensional(U)/ Multidimensional (M)	Performance indicator(s)	Dimen-sion(s)	Measure	Topic of investigation	Method
Eddleston et al. (2012)	Control Variable	M	Perceived financial performance	Profit Growth Efficiency	Profit Return Growth ROI	To investigate corporate entrepreneurship in family firms	Survey research
Collewaert (2012)	Control Variable	M	Perceived financial performance & perceived nonfinancial performance	Growth Market share Efficiency Liquidity	sales growth rate, market share, cash flow, gross margin, return on investment, and market valuation & new product development, process development, basic research, market development, operating efficiency, personnel development, company stability, establishment of an entrepreneurial culture, and readiness for public sale	To investigate the relationships among angel investor and their intentions to exit on the other	Perceived firm performance (range 1–5) is controlled for by asking respondents to rate the current performance of the venture relative to its competitors (Sapienza & Gupta, 1994).
Arregle et al. (2012)	Moderator Variable	U	Archival financial performance	Efficiency	Return on equity (ROE)	To investigate how external parties in the governance (ownership and board of directors) can serve as a catalyst for their internationalization	Survey research and secondary data.
Lichtenthaler and Muethel (2012)	Control Variable	U	Perceived financial performance	Profit	Return On Sales	To investigate the relationship between family involvement and dynamic innovation capabilities	Survey research

Author & Year	Type of variable perfor-mance represents	Uni-dimensional(U)/ Multidimensional (M)	Performance indicator(s)	Dimen-sion(s)	Measure	Topic of investigation	Method
Sciascia et al. (2013)	Control Variable	M	Perceived financial performance	Profit Growth Liquidity	Net profit, sales growth, cash flow, and growth of net worth	Relationship between generational involvement and EO	Survey research. Respondents were asked to compare their level of performance relative to their main competitors in the last 3 years.
Zhao et al. (2013)	Dependent Variable	U	Perceived financial performance	Profit	average gross profit	To study founding teams' impact on new venture performance	Survey research

Rauch et al. (2009) in their review of the relationship between entrepreneurial orientation and performance also emphasized that there is a common distinction between nonfinancial and financial measures of performance. While the former include goals such as satisfaction and global success ratings made by owners or business managers the latter includes assessments of factors such as sales growth and return on investments. So according the Rauch and his colleagues (2009) performance indicators can be divided into 4 main categories of: archival financial performance, perceived financial performance, nonfinancial performance and perceived nonfinancial performance.
During classifying the information of 53 studies, we omitted three which were focused on IPO companies because of their specific type of performance measure. In fact in these studies performance was measured based on underpricing of the IPO. In our study these could be considered as outliers and special cases. So we continued investigation by 50 out of 53 studies. Having the first two tables, we developed the third table based on the frequency of different variables, data sources, objective and subjective measures, type of performance studied, dimensions and dimensionality (See Table 3).

Frequency Table Interpretation

As it can be seen in Table 3, among 50 studies that have measured performance, 28 have considered performance as a dependent variable, 13 as control variable and 8 as independent variables. Only one study has used performance as moderator variable. These studies are likely to use different dimensions for measuring performance based on the type of the variable that represents performance.

Table 3
Summary of Performance Indicators Used in the Articles

Items	Number of studies
Performance as a	
Dependent variable	28
Control variable	13
Independent variable	8
Moderator variable	1
Data sources used	
Primary sources	30
Secondary sources	13
Primary and secondary sources	7
Objectivity vs. Subjectivity	
Objective measures of performance	21
Subjective measures of performance	25
Objective & Subjective measures of performance	4
Type of performance studied	
Financial performance	34
Performance in terms of stakeholder satisfaction	6
Financial performance & satisfaction of stakeholders	3
Financial performance & operational performance	7
Financial & Operational & satisfaction	1
Dimensions used	
Growth	32
Profit	15
Efficiency	13
Liquidity	8
Market share	6
Satisfaction of shareholder with overall performance	5
Reputation	1
Dimensionality	
Uni-dimensionality	26
Multidimensionality	24

RESULTS

Performance Variable

Primary vs. Secondary Data Sources

Of all studies, interestingly, 30 have measured performance by obtaining primary data and 7 have used both primary and secondary data sources. Further investigation shows that 23 studies of those conducted based on primary data have measured performance subjectively and based on an individuals' perception. Regarding this evidence, Wiklund & Shepherd (2005) argue that studies can rely on self-report or archival data collected from secondary sources. While self-reported data may offer greater opportunities for testing multiple dimensions of performance, such as comparisons with competitors, such measures may be subject to bias because of social desirability, memory decay, and/or common method variance. However other studies have shown that it is not always applicable. In fact in some relationships such as the relation between entrepreneurial orientation (EO) and entrepreneurial performance, research has shown that the correlation between EO and both perceived and archival financial performance is strongly positive. So this suggests that the EO-performance relationship is robust not only to different measures of EO as previously reported, but also to differences in the measurement of performance. It appears that the potential problem of common method variance, memory decay, or social desirability associated with self-reporting of performance does not generally pose a serious threat to the validity of the relationship between a construct and performance (Rauch et al., 2009). So it can be concluded that the use of different data sources for measuring performance can produce similar results based on the relationship under study. In fact the correlation under study can be a reason for choosing a specific type of performance indicator. In addition, regarding what sources to use for obtaining data on new venture performance, Brush and Vanderwerf (1992) stated that archival source is useful when objective sales information is required. If this source is easily available and fairly accurate, it will be a good source to be used. In terms of sales information there are two contradictory views toward reliability of the data. Brush and Vanderwerf (1992) propose that compared with sales figures obtained from owner/managers, archival information is more reliable while Chandler and Hanks (1993) and Chandler and Lyon (2009) emphasize that previous research shows sales and venture performance figures to be more reliable when self-reported. Brush and Vanderwerf (1992) also discussed the limitations of archival sources and indicate that in general, shortages may be the limited number of measures or dimensions included and the categorical presentation of information, so in some cases they may be less useful.

According to these scholars competitors also proved to be a potentially useful source. Recently considerable research has used this particular measure of firm performance, and research has indicated that the use of subjective measures can be considered appropriate within certain contexts (Richard et al. 2010). However competitors are not always accessible. In fact these groups are often less cooperative and more difficult to reach than the new ventures, especially by mail method. However in cases in which competitors cooperate, their estimates of performance are shown to be highly correlated with those obtained from the new ventures themselves. So, this fact suggests that

competitors distinguish correctly between high-performing and low-performing ventures. In terms of competitors' perceptions and estimations of the new ventures Richard (2010) has also noted that competitors are somewhat inaccurate in their perceptions of other firms. They may also disguise or misperceive their own performance. Of high importance is to consider that competitors may be less willing to estimate sales for past years and possibly tend to overestimate sales of larger firms or hold other estimation biases.

Subjectivity vs. Objectivity

On the other hand data of performance may be obtained subjectively or objectively. The case of competitors is also considered as subjective hence it asks about the perception of individuals about performance. Murphy et al. (1996) emphasized that classifying data sources as either subjective or objective is problematic as all sources (including archival) have some degree of subjectivity (Murphy et al., 1996). Although it can be considered as relevant, objective data sources in terms of financial performance are more reliable than subjective ones. In fact quantities for items such as return on asset (ROA) are not based on perceptions; rather most secondary data sources use financial statements to give ROA.

Despite the noted limitations, the use of subjective and objective performance measures are useful in achieving triangulation because both objective and subjective performance measures have their own limitations (Smith, Gannon, & Sapienza, 1989). On the other hand there is also evidence that subjective measures of firm performance have been shown to correlate highly with objective performance data (Dess & Robinson, 1984; Venkatraman & Ramanujam, 1987; Kellermanns and Eddleston, 2006).

Frequency of Dimensions

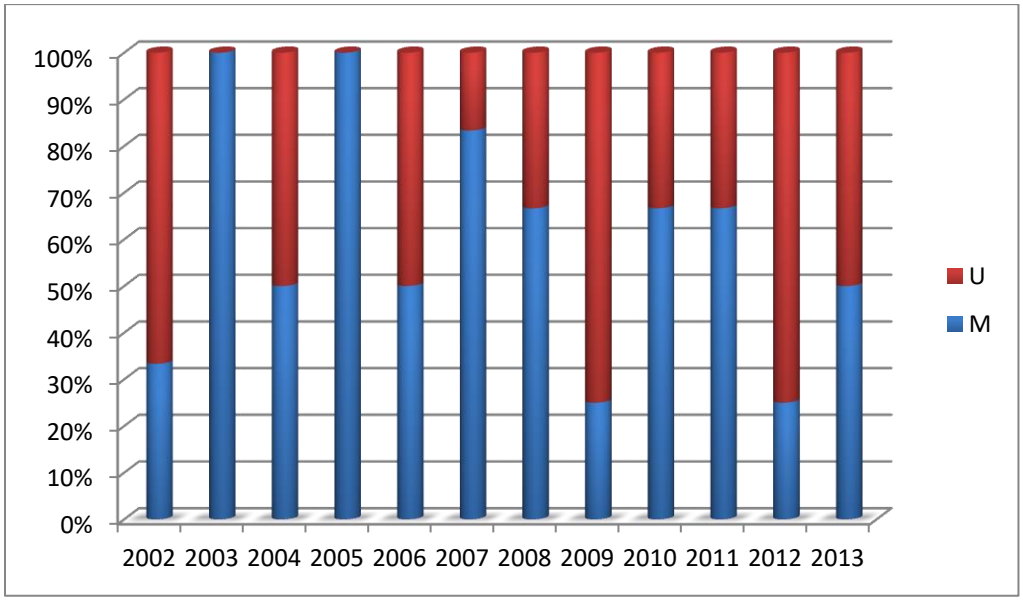
In terms of the frequency of dimensions used in this study, we found out that growth has been used 32 times in measuring performance and after that profit (15 times) and efficiency (13 times) are the most frequently used dimensions. There is lack of convergence between scholars in terms of the dimensions they choose for measuring performance. Steffens et al. (2009) in their study chose sales growth and pretax return on assets and indicated that company's sale is a better indicator of growth than employment growth. Slater and Olson (2000) as well as Brettel et al. (2011) focused on market performance and profitability since they assume that these constructs are two of the most important aspects of financial performance. Jong et al. (2012) pointed out that total revenue is the best dimension for measuring performance because individuals are accurately acknowledged about the yearly revenue of their firms. On the other hand, some researchers emphasizes that specific items should not be considered for measuring entrepreneurial performance. For instance market share of emerging companies (Forbes, 2005). In fact it is noted that the emergent nature of many new industries does not let organizations to measure or clearly define their market spaces. Although based on the articles checked through this paper, financial performance is measured in 34 out of 50 studies, some scholars also stated that when the research

context is related to organizations which are privately hold objective measures of performance are not always available and may cause researchers to look for subjective measures of performance. Basically new ventures are usually privately held and they are not obliged to disclose their performance information (Robinson et al., 1986). It causes researchers not to have access to financial measures of performance.

Dimensionality

Further frequency table shows that 24 studies have used multiple dimensions and 26 have used one dimension in order to measure performance and interestingly these numbers are almost equal. This report shows that there are two different attitudes towards dimensionality of performance measure. Figure 1 shows the percentage of studies measured performance in ET&P based on their type of dimensionality between 2002 and 2013.

Figure 1
The Percentage of Articles Using One versus Many Indicators of Performance (U versus M)



U = Uni-dimensional

M = Multidimensional

Financial, Operational or Stakeholders' Satisfaction

Further investigations show that surprisingly 34 studies out of 50 have measured financial performance which is almost a lot compared to the number of studies including operational performance (8 studies). With regard to this contradiction, Venkatraman and

Ramanujam's (1986) suggest that the operational as well as the financial aspects of performance should be considered while measuring this construct. Moreover several authors have noted the importance of using multiple measures of the dimensions of performance (i.e. Steers, 1975; Venkatraman and Ramanujam, 1986; Murphy et al., 1996). In fact these authors believe that performance measurement could be improved by examining multiple dimensions of performance rather than just focusing on one dimension. Murphy et al. (1996) even emphasizes that if multiple dimensions of performance exist, it would seem important to measure as many dimensions as possible in a study where overall performance is the issue.

DISCUSSION AND CONCLUSION

The review of the studies published between 2002 and 2013 in the journal of Entrepreneurship Theory and Practice shows that 30 studies are conducted based on self-report data and 7 of the studies have used both self-report method and secondary data. Moreover, the most utilized dimension of performance is shown in this study to be related to growth. This result is highly compatible with the result obtained by Chandler and Hanks (1993). In Chandler and Hanks' (1993) study the pattern of the results favors the use of two dimensions of venture performance: growth and business volume. According to these scholars these measures are most commonly referred by founders. In fact it has been noted that these measures had good availability and internal consistency and were supposed to be superior to the satisfaction with performance from stakeholder's perspective (Chandler and Hanks, 1993). As discussed earlier in this paper, dimensions selected for measuring performance may vary from study to study based on the relationship under investigation. Scholars arrived at consensus that different fields of studies should use different measures of business performance that is modified based on their research questions (Venkatraman and Ramanujam, 1986). More over there should be difference between publicly held firms and small emerging firms (Brush and Vanderwerf, 1992).

In addition in most cases the only available resource for collecting performance measurements for organizations is self-report data rather than secondary data. In such situations scholars can mainly collect data subjectively based on the perceptions of individuals or by asking individuals to provide them with relevant data on performance. The subjective approach about the perception of individuals is shown to be both related to competitors' attitudes toward performance of other organizations and the individual' attitude toward his or her own organization (Chandler and Hanks, 1993).

Murphy et al., (1996) discuss that there is a lack of construct validity for what is called performance and research should stop using the term of performance in research. It would be more precise and much more informative to discuss the relationship between a given independent variable and a given performance dimension (i.e. the relationship between entry strategy and growth or profitability). It is only under such conditions that the number of studies with conflicting results would be reduced and theory development that might be impeded due to the high level of contradictions would evolve again. Eventually it can be noted that, future studies must be specific about the performance measures and research questions under consideration. Further the reason for choosing a specific measure should be clarified, explained and justified in much more detail and

by so doing, categorization of the types of performance measures will be simplified and future research can rely on previous works and be built on available research.

Most of the research reviewed in this study did not justify the performance dimension included and those which explained did not go through enough details. In terms of control variables most studies have just considered one dimension. It can be considered as a threat of internal validity. To be more detailed, when studies just consider for instance employee growth as a dimension of performance, they may fail to provide valid results or to build a causal relationship and as a result the association may well be spurious. The number of employees may remain stable over time while performance changes. Typically authors would simply use multiple measures (not necessarily covering multiple dimensions) to avoid counterarguments regarding which criteria are appropriate in assessing venture performance. Since organizational and entrepreneurial performance is a complex construct it is not possible to decide about superiority of certain aspects among dimensions. Daily and Dalton (1992) note that it is unlikely that any one corporate performance measure could sufficiently capture the performance dimension. Therefore, future studies should, where possible examine multiple dimensions and uses multiple measures of dimensions. The frequency analysis shows that an overwhelming proportion of studies are measuring only one dimension of performance-predominantly growth measures. As discussed by Venkatraman and Ramanujam (1986) organizational performance is composed of multiple dimensions. Financial measures are necessary but not sufficient to capture total organizational performance. Thus, future studies should continue to include financial measures, but nonfinancial measures need to be emphasized as well specifically operational measures which have been broadly ignored in the reviewed studies. It would also be useful to include multiple measures of the performance dimensions under consideration. Although, it may not always be possible or necessary to include multiple dimensions of performance, researchers should be explicit about the type of performance involved. Such an improvement would aid the proper interpretation, replication, and integration of previous research with future studies. Furthermore future studies must address some of the critical control variables such as the type of industry in which organizations are being investigated. According to Chandler and Hanks (1993) due to different leverage or profit variability levels associated with the different industries the type of measurement dimension needed to be considered may vary.

In conclusion continuing to treat performance as a uni-dimensional construct is not recommended. Moreover, failure to address the critical control variables will likely lead us to misinterpret the issues accompanied by entrepreneurial performance. Closer attention to these performance measurement issues will allow empirical studies to be more precise and their results to be more meaningful. As a result, a more reliable and consistent basis will be provided for theory building.

For future research, it would be helpful to design a questionnaire consisted of different dimensions on different performance types and ask entrepreneurs to rate each dimension based on their perception about performance. In fact it is important to find out which dimensions are more likely to describe performance by founders. Moreover, future studies should collect data on different types of performance and investigate whether different types of performance can be used interchangeably in different studies or not.

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