



## A meta-analytic review of effectuation and venture performance

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### ABSTRACT

Though much research in entrepreneurship makes the fundamental assumption that opportunities are found, new work is emerging which questions this core tenet. Effectuation, for example, positions the entrepreneur as co-creator of opportunities, together with committed stakeholders. In this study, we conduct a meta-analysis of the articles published in the Journal of Business Venturing, summarizing data on 9897 new ventures to connect three of the principles of effectuation positively with new venture performance. In so doing, we offer both specific insight into precisely measuring effectuation and a general method for extracting variables from prior work to measure new constructs.

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### 1. Executive Summary

It is useful, when interpreting the findings from entrepreneurship research, to understand the underpinnings of the work. One of the core assumptions common to much published research on entrepreneurship is that the task of the entrepreneur is to discover opportunities and exploit them. When new venture creation is viewed from that perspective, it is easy to see the importance of ideas such as entrepreneurial alertness and entrepreneurial orientation. However, there is new thinking that approaches the challenge of venture creation from a different perspective. Effectuation, for example, assumes not that opportunities are waiting to be discovered, but that opportunities emerge when created by an entrepreneur and her partners. In this context, a series of different ideas become important in understanding new venture creation. Ideas such as what each player brings to the opportunity creation process, how each player manages risk, and how flexible all players are when faced with the surprises that challenge a start-up, offer insight to the aspiring entrepreneur.

In this study, we seek to measure the relationship between effectual principles and new venture performance. We do this by examining every study presented in every issue of this journal and carefully selecting variables that measure one of the effectual principles presented in Table 1 of this article. Our effort yields two useful practical results. The first is a precise measurement of effectuation. Starting with the core theoretical principles from Table 1, we have refined the operationalization of effectuation to a level where independent researchers can systematically identify specific venture features as effectual. In addition to offering clear constructs to researchers conducting future study of effectuation, this precision can also aid the practical entrepreneur in implementing an effectual strategy. From our investigation, we highlight the following refinements to the core definition of effectuation in Table 1:

- *Means*: while each individual is endowed with a wide range of means, only those that are relevant to the venture constitute effectual means and should be considered when measuring new venture performance against effectual strategy.

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- *Partnerships*: an entrepreneur or a venture may build many relationships, but only those in which both parties share the risk of the venture and benefit from the success of the venture constitute effectual partnerships.
- *Affordable Loss*: what matters in affordable loss is not the risk inherent in the industry or the individual venture, but whether the entrepreneur manages that risk by attempting to measure upside opportunity potential, or effectually considering the worst-case scenario.
- *Leverage Contingency*: having a business plan does not imply a lack of ability to leverage contingency – the important issue is the entrepreneur's willingness to change when confronted with new information, means or surprises.

The second useful practical result of this study is a quantitative analysis of the relationship between effectual principles and new venture performance. Our findings from a sample of 9897 new ventures spanning industries, geographies, time and individual founders indicate that all the heuristics which describe effectuation except *Design*, which we were not able to measure, and *Affordable Loss*, which returned insignificant results, are positively and significantly related to new venture performance.

## 2. Introduction

While much study in the area of entrepreneurship seems focused on “finding” and exploiting existing opportunities, [Sarasvathy \(2001a\)](#) offers the alternative view that opportunities come to be when they are “co-created” by the entrepreneur and her committed stakeholders. The notion of effectuation opens intriguing potential to rethink how we teach and research entrepreneurship, but there is currently no information on whether it actually generates positive outcomes for startups. The consequent research question for our study is a deceptively simple one: is there a general connection between effectuation and new venture performance? Though easily stated, the complexity around our question emerges from two sources. The first is that effectuation, although well developed theoretically, has yet to be measured empirically. To complete our investigation, we would have to learn how to operationalize effectuation precisely. The second is that we seek to measure effectuation against new venture performance generally – across time, individuals, industries and geographies – to offer a generalizable result. In order to assemble a data set of the scale that matches our aspirations, we would have to create a way to benefit from prior work of our colleagues in the entrepreneurship domain.

The presentation of our investigation includes three basic elements. We begin by reviewing the entrepreneurship literature through the “found versus made” lens to determine whether effectuation offers a genuinely novel basis for entrepreneurial study. Consistent with [Alvarez and Barney \(2005\)](#), we find the historical focus of the entrepreneurship literature centered on the process of discovery ([Kirzner, 1979](#)). This effort enables our first contribution, a clear picture of the foundations of entrepreneurship research along the dimensions of positioning (where opportunities are found) and construction (where opportunities are made).

The second element articulates our research method. Our desire to use the work of our colleagues suggested meta-analysis. A meta-analytic approach enables researchers to summarize the results of numerous studies investigating the same phenomena. However, effectuation had not been investigated before we set off on our quest. Solving this problem led us to our second contribution, the articulation of a systematic methodology for selecting variables from prior studies to measure new constructs. Combining meta-analysis with the idea of inter-rater reliability ([James et al., 1984](#)) and learning and holdout samples, we developed and documented an approach that yielded 94 variables from 48 studies. The results of our analyses of these data suggest positive relationships between new venture performance and all the effectual constructs we were able to measure, except *Affordable Loss*. These findings contribute to the entrepreneurship discussion, offering insight into the utility of effectuation in particular, and offering the first meta-analysis of new venture performance factors we believe the field has seen.

Perhaps more important than the quantitative results is the third element of our investigation, a description of what we learned in the process of measuring effectuation. Effectuation touches ideas that have been part of the entrepreneurship discussion for years, demanding that operationalization of effectuation be thoughtful and precise in order to distinguish it clearly from prior work. Our contribution in this area is a specific set of guidelines for what empirically represents each of the theoretical heuristics associated with effectuation. It is our intention that these guidelines will benefit anyone investigating effectuation, regardless of method, enabling the field to advance quickly in the study of effectuation in specific and of the “made” view of entrepreneurship in general.

## 3. Literature review

It is broadly acknowledged that the search for a distinctive theory of entrepreneurship ([Shane and Venkataraman, 2000](#); [Phan, 2004](#)) continues. One of the explanations for why scholars have been able to gain little ground on a theory of entrepreneurship may rest in the underlying “found or made” question ([Alvarez and Barney, 2005, 2007](#); [Miller, 2007](#)). While research efforts that assume opportunities are found and exploited by alert entrepreneurs ([McMullen and Shepherd, 2006](#)) can be traced back to [Kirzner \(1973\)](#), Alvarez and Barney contend that, in reality, most entrepreneurship effort is undertaken in an uncertain environment ([Knight, 1921](#)), where entrepreneurial strategies of creation are at work. They further argue that entrepreneurship research has concentrated on discovery, and that an insufficient body of knowledge exists about the potentially more relevant issue of how entrepreneurs create opportunities.

In an effort to examine the veracity of Alvarez and Barney's claim, we seek to project the major themes within the entrepreneurship literature against a backdrop that will let us evaluate an emphasis on a discovery or creation-oriented foundation in relation to existing work. Fortunately, the effort of empirically determining seven major areas of convergence within

the entrepreneurship literature (Gregoire et al., 2006) has already been done, so we build upon that effort, focusing on the theoretical foundations of each convergence area. Below, we trace in more detail the theoretical roots specific to each major convergence area so that we may determine assumptions that pervade the entire area.

To construct a backdrop, we identified a recent framework used by Wiltbank et al. (2006) to review the strategic management literature along the dimensions of control and prediction. This approach enables a clear distinction between positioning strategies, intended to orient a firm within an exogenous environment (opportunities found), and construction strategies, intended to shape an endogenous environment (opportunities made). This framework is relevant not only because it enables us to orient existing work along the dimensions of discovery and creation, but also because Wiltbank et al. (2006) explicitly draw a positive theoretical connection between construction strategies and uncertain environments such as those faced by entrepreneurs. The result offers a descriptive summary of the foundations of the major convergence areas in entrepreneurship research today, organized according to theoretical foundation across the dimensions of control and prediction.

We proceed with a brief discussion of the seven major convergence areas in entrepreneurship research (Gregoire et al., 2006), positioning each within the Wiltbank framework, and directing the reader interested in more detail to Gregoire et al.'s (2006) thorough treatment of the topic (areas ordered alphabetically).

*Dynamics of new venture emergence:* starting with the foundation of Penrose (1959), this stream of entrepreneurship research has combined her work with that of Schumpeter (1942) to develop two areas of entrepreneurship theory, connected by a common foundation. These are the resource base view (Barney, 1991) and the population ecology view (Aldrich and Auster, 1986). Despite their differences, these views share common assumptions in that neither is reliant on prediction or control to account for advantage. Whether a firm possesses superior resources or not, advantage is derived largely from the adaptability of the organization in this formulation.

*Factors and dynamics of new venture performance:* on the strength of Porter's (1980) corporate strategy work, the theme common to this convergence area is the role industry plays in venture success (Hobson and Morrison, 1983). Upon that belief, strategies for best exploiting current and future industry structure are proposed and prediction offers a key lever for the entrepreneur.

*Firm-level behaviors:* Schumpeter's (1934) treatise can be traced forward to current discussions regarding the construct of Entrepreneurial Orientation (Lumpkin and Dess, 1996). The foundation of this view casts the entrepreneur as uniquely able to "carry out new combinations" (Schumpeter, 1934), though those new combinations are created to fulfill existing needs. Therefore, while the entrepreneur is good at predicting what will be successful, she is also good at constructing a solution. As such, we place this convergence area near the middle of our framework.

*Identification and exploitation of opportunities:* starting with Kirzner (1973, 1979), a body of scholars has developed the notion of Entrepreneurial Alertness (Kaish and Gilad, 1991). The similarity in name to Entrepreneurial Orientation is deceptive, as Entrepreneurial Alertness views the entrepreneur as a gifted and perceptive identifier of opportunity that exists within the environment, and a determined pursuer of that existing opportunity.

*Individual characteristics:* early study in the field was based on McClelland's (1961) expectation that there must be some significant psychological difference between entrepreneurs and the general population, but current entrepreneurship researchers have largely abandoned this view. The lack of empirical evidence for such a notion has shifted focus elsewhere. For the purposes of our review, however, if such evidence were found, it would rely on neither prediction nor control to explain the entrepreneurial process.

*Social networks, social capital:* Aldrich and Zimmer (1986) highlight the importance of social networks to management in general, and Birley (1985) has applied the concept to entrepreneurship in particular. And while interest in social networks has waxed and waned over the years, the foundation, rooted in the sociology literature, has remained. This foundation suggests that what entrepreneurs learn from social networks provides them with an advantage in positioning for an existing opportunity.

*Venture capital:* the final area of convergence in the entrepreneurship literature, initiated by MacMillan et al. (1985), seeks to understand the role of venture capital in the entrepreneurial process. Like the social networks area, this stream suggests that entrepreneurs gain innovation and network advantages from association with venture capitalists, which enable entrepreneurs to effectively position for an existing opportunity.

### 3.1. Existing literature focused on positioning

Our findings in the literature review are consistent with scholars who have noted a research bias toward opportunity discovery in entrepreneurship research (Alvarez and Barney, 2005). Clearly, there is existing work that would fall into the construction half of Wiltbank et al.'s (2006) framework. But that work is more likely to represent individual novel ideas as opposed to significant bodies of research where numerous scholars have converged around a core foundation (Gregoire et al., 2006). Our next question revolves around whether convergence on positioning is appropriate. Is the positioning half of the framework where significant aspects of entrepreneurial advantage can be explained? Is there any advantage at all to be considered in the construction half of the framework?

### 3.2. Effectuation

In an effort to pursue that question, we introduce effectuation. Effectuation was induced from empirical studies of entrepreneurship as a form of expertise (Sarasvathy, 2001a) under uncertainty (Knight, 1921). Drawn from Simon's (1981) work in *The Sciences of the Artificial*, the effectual process of non-predictive design positions the manager of a new venture as discounting prediction, as it does not account for the future impact of her actions on her new venture. She seeks to shape the future of her

**Table 1**  
Basic principles of effectual thought (Sarasvathy and Dew 2005).

Issue	Effectual principle
View of the future	<i>Design</i> . The future is contingent on actions by willful agents.
Givens	<i>Means</i> provide the basis for decisions and new opportunities. 3 subconstructs: – <i>What I know</i> – <i>Who I am</i> – <i>Whom I know</i> .
Attitude toward others	<i>Partnership</i> . Build your market together with customers, suppliers and even prospective competitors.
Predisposition toward risk	<i>Affordable Loss</i> . Calculate downside potential and risk no more than you can afford to lose.
Predisposition toward contingencies	<i>Leverage Contingency</i> . Surprises can be positive. Leverage them into new opportunities.
Underlying logic	To the extent that we can control the future, we don't need to predict it.

product, firm and market in conjunction with her partners and through her own actions. Described as a set of heuristics for decision making in uncertain environments, effectual reasoning consists of strategies that combine available means with unanticipated contingencies to construct a series of stakeholder commitments. Effectuation has seen gathering interest in theoretical discussions relating to management (Augier and Sarasvathy, 2004; Sarasvathy, 2001a) as well as economics (Dew et al., 2004) and psychology (Sarasvathy, 2003). And although effectuation was developed around the new venture creation setting, it has more recently been extended to address finance (Sarasvathy and Wiltbank, 2002) and innovation questions (Dew and Sarasvathy, 2001).

### 3.3. Principles of effectuation

The principles of effectuation are presented in Table 1. Each of the five principles represents an approach to decision making that does not rely on prediction, instead assuming the impact of willful individual creation.

From a practical standpoint, effectuation is an appealing lens in the new venture setting as it provides normative approaches to problem solving designed to be functional in uncertainty. In contrast, strategies rooted on the positioning side of Fig. 1 require the decision maker to a) have access to historical information or analogous situations that allow her to anticipate a likely future, and b) bet that the future will be sufficiently like the past so predictions based on historical data will be well informed. The effectual principle of *Design* guides the entrepreneur to incorporate the impact of her actions on the ultimate outcome of the environment. *Means* provide the decision-maker with a basis for direction, suggesting that opportunities emerge from the knowledge, contacts and resources at hand. *Partnership* suggests that new opportunities may be created as a result of the additional means provided by new stakeholders. *Affordable Loss* encourages entrepreneurs to incorporate the possible downside in evaluating alternatives so that opportunity failure will not result in greater venture or personal failure. And where the future is not predictable, the entrepreneur should seek to *Leverage Contingency*, finding new possibilities from surprises – even negative surprises. Several useful thought experiment examples of how firms are effectually created are available in Sarasvathy's (2001a) theory exposition.

### 3.4. Effectual model

As effectuation provides heuristics specifically intended for uncertainty, an environment in which many entrepreneurs operate (Alvarez and Barney, 2005; Sarasvathy, 2001b), we start with the expectation that effectual strategies should benefit new venture performance. Further, effectuation was derived from a model of expert entrepreneurial action. The psychology literature suggests that experts – individuals who have acquired unique pattern matching and pattern recognition skills (Chase and Simon, 1973) through years of deliberate practice (Ericsson et al., 2006) – outperform the general population within their domain (Ericsson and Lehmann, 1996). Given that effectuation reflects the heuristics of expert entrepreneurs within their domain, our central hypothesis posits a positive link between effectual approaches and new venture performance. Our model is presented in Fig. 2.

## 4. Method

It was our objective to assemble a data set of relationships between effectual constructs and new venture performance measures across time, geographies, industries and individual founders. Wanting to benefit from and summarize the extensive empirical effort in the entrepreneurship area, we were attracted to meta-analysis (Lipsey and Wilson, 2001). Meta-analysis offers a heuristic for estimating effect size relationships between effectual constructs and new venture performance using previous study results. As effectuation had not been explicitly measured, we devised an approach for selecting existing studies from the literature, a method that had to be a) effective: the criteria for study selection had to identify the data necessary to analyze the relationship between the individual principles behind effectuation and their relationship with new venture performance; b) transparent: both process and criteria had to be clear enough so that the reader interested in measuring the construct of effectuation could reliably repeat what we did, and so that a researcher interested in using the approach to measure some other new construct could also use the generalized process; and c) measurable: there had to be some quantitative way to know whether we had “gotten it right,” a measure which would stand the scrutiny of scientific rigor.<sup>3</sup> Our approach, diagrammed in Fig. 3, integrates the idea of inter-rater

<sup>3</sup> We would like to express our appreciation to two anonymous reviewers and the editor who encouraged us to develop and document a rigorous and measurable approach to study selection, and we hope it will be of value to future researchers interested in measuring and testing new constructs using existing variables from the literature.

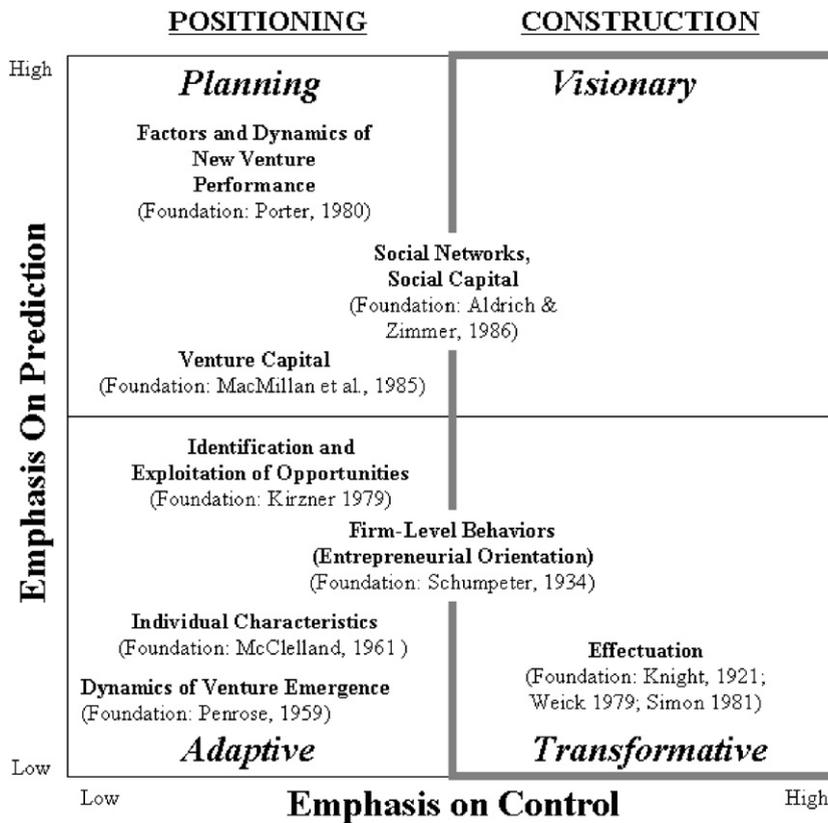


Fig. 1. Theoretical convergence areas in entrepreneurship research, across dimensions of prediction and control.

reliability (James et al., 1984) with the idea of learning and holdout samples in order to establish a systematic way of building a meta-analysis using variables from prior studies to measure new constructs.

As illustrated in Fig. 3, our approach was to consider the entire body of work included in every issue of the Journal of Business Venturing. We split the volumes into two groups: 2007–1996, representing the learning sample against which we would refine our initial search criteria; and 1995–1985, representing the holdout sample against which we would test our final search criteria.

4.1. Initial search criteria

Before searching any articles, two of the authors agreed on the following initial search criteria:

Search the Journal of Business Venturing between 1996 and 2007 on all combinations of the following performance terms

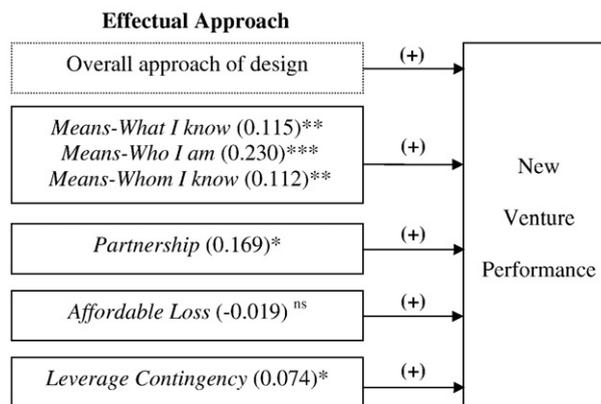


Fig. 2. Theoretical model of an effectual approach on new venture performance. Notes: 1. Hypothesized relationships are marked with a (+) 2. Meta-analytic effect sizes are presented in parentheses inside construct boxes 3. We were not able to measure constructs denoted in boxes with dashed lines 4. Significance annotated as: \* ( $p \leq .05$ ), \*\* ( $p \leq .01$ ), \*\*\* ( $p \leq .001$ ).

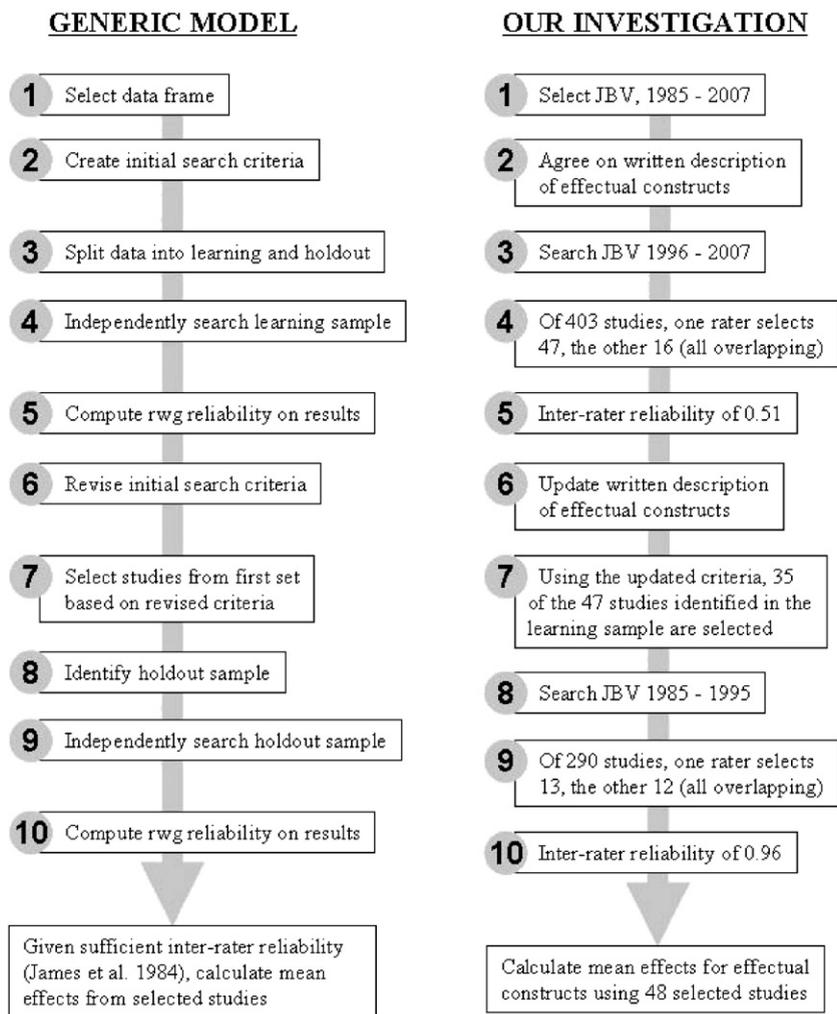


Fig. 3. Process model for extracting existing variables into analysis of a new construct.

(performance, ROI, return on investment, sales growth, revenue growth, ROA, survival, return on assets, return on equity, ROE, employee growth); firm description terms (new, small, early, early stage, fledgling, emerging); and terms for firms (venture, firm, startup, company, companies). Next, search the reference lists of all the articles identified during the first step as a means of both identifying other relevant work within the Journal of Business Venturing and validating the relevance of work chosen. This initial search must identify every article that meets two criteria:

- 1) the dependent variable in the piece operationalizes some aspect of venture performance; and
- 2) there is a correlation table (that includes both independent and dependent variables).

Then identify the studies from that set that operationalize an independent variable matched to one of the effectual constructs taken from Sarasvathy and Dew (2005) and described in Table 1.

Against these criteria, two of the authors independently reviewed the 403 articles in the Journal of Business Venturing between the years 1996 and 2007. One of the authors identified 47 studies, and the other identified 16, where every one of the 16 overlapped with the 47. As the results revealed weak inter-rater agreement (James et al., 1984) of 0.51 on the overlap in articles selected, the authors identified numerous areas where the initial search criteria could be refined. These refinements are described in the results section. Based on the revised criteria, both authors agreed to select 35 of the studies from the learning sample and proceeded to review the holdout sample independently — 290 articles in the Journal of Business Venturing between the years 1995 and 1985. One of the authors identified 13 studies and the other identified 12, where every one of the 12 selected overlapped with the set of 13. The authors agreed to use all 13. The refined criteria, detailed in the results section, resulted in strong inter-rater agreement (James et al., 1984) of 0.96 in the holdout sample.

#### 4.2. Data staging

We then organized the 48 studies (35 studies from 1996–2007, plus 13 studies from the holdout sample, 1985–1995) into different groups around effectual constructs, and combined the results from different studies using meta-analysis (Hunter and Schmidt, 1990; Lipsey and Wilson, 2001). To measure the association between new venture performance and one of the principles, we used a standard meta-analysis statistic, the correlation coefficient. In indicated instances, to preserve statistical independence, we calculated an average correlation from a single citation that provided two or more correlations with performance and similar measures of a given effectual approach (Hunter and Schmidt, 1990: 476). We did the same for studies that provided correlations of an effectual approach with more than one performance measure meeting our criteria. Following data organization, the literature suggests a next step of making corrections to the individual observations to ensure consistency in measurement across studies (Hedges and Olkin, 1985; Hunter and Schmidt, 1990; Wolf, 1986). We applied corrections to all independent and dependent variables that were based on subjective measures.

#### 4.3. Reliability correction for subjective measures

As we were able to obtain reliability measures for every study in which subjective measures were used, we corrected directly for variable measurement error in correlation using Hunter and Schmidt's (1990) construct validity correction according to the following formula:

$$r = \frac{r_0}{a_1 a_2}$$

where:  $r$  denotes corrected correlation;  $r_0$  denotes the raw Pearson correlation between variable 1 and variable 2;  $a_1$  denotes the value of Cronbach's  $\alpha$  for reliability of variable 1;  $a_2$  denotes the value of Cronbach's  $\alpha$  for reliability of variable 2.

#### 4.4. Mean correlation: random-effects model

Continuing to follow Hunter and Schmidt (1990), we computed a mean correlation for each meta-analysis using the random-effects model, weighting each study according to sample size and using a random effects model as follows:

$$\bar{Y} = \frac{\sum W_c Y_c}{\sum W_c}$$

where:  $Y$  denotes population effect size across studies in the analysis;  $W_c$  denotes the reciprocal of individual study effect size variance;  $Y_c$  denotes individual study effect size.

The random-effects model is more conservative than the alternative fixed-effects model, and we report our numbers using a random-effects model. We ran the same analyses using the fixed-effects model and found all results unchanged.

#### 4.5. Dependent measure validation test

We were concerned that the wide range of dependent variable measures used across our set of studies might bias the results, so we conducted a test to validate our findings. We eliminated all studies with perceptual or subjective measures of financial firm performance, and with measures not specific to quantitative firm performance. We then ran our meta-analyses on just the subset. The results for meta-analyses of *Means—What I know* (relevant and irrelevant), *Means—Who I am* (relevant and irrelevant), and *Means—Whom I know* were unchanged. Our measure of *Partnership* was reduced to seven studies and became non-significant; our measure of *Leverage Contingency* was reduced to three studies, also returning non-significant results. In both cases, effect size was still positive, but the analyses lacked power. *Affordable Loss* remained non-significant. Overall, this test provides some assurance that our results were not biased by performance measures that reflect too broad a set of outcomes.

**Table 2**  
Summary of meta-analysis of new venture performance and each effectual principle.

Effectual principle	Basic statistics		Correlation and 95% confidence interval			Test of null (2 tail)	
	Number of studies	Total of samples from studies	Point estimate	Lower limit	Upper limit	Z-value	P-value
<i>Means—What I know</i> (relevant)	24	5145	0.115	0.040	0.190	2.994	0.003
<i>Means—What I know</i> (irrelevant)	8	1095	0.098	0.039	0.157	3.213	0.001
<i>Means—Who I am</i> (relevant)	10	1892	0.230	0.109	0.344	3.679	0.000
<i>Means—Who I am</i> (irrelevant)	12	1814	0.085	0.029	0.140	2.961	0.003
<i>Means—Whom I know</i>	14	2329	0.112	0.043	0.179	3.194	0.001
<i>Partnership</i>	14	3196	0.169	0.003	0.326	1.998	0.046
<i>Affordable Loss</i>	4	783	−0.019	−0.208	0.172	−0.193	0.847
<i>Leverage Contingency</i>	5	712	0.074	0.000	0.148	1.967	0.049

All models are random-effects, results are unchanged using fixed-effects models, and significance values are based on two-tailed tests.

## 4.6. Observed variable measurement error validation test

Scholars with significant experience in meta-analytic methods have suggested that observed variables (not latent constructs) might not be 100% reliable. In order to conduct a test that assumes there is measurement error in our observed variables, we recalculated all correlations between observed dependent and independent variables using an assumed average accuracy of 0.80

**Table 3**

Detailed inventory of new venture performance and effectual principle measures for meta-analysis.

Study	Performance measures	Effectual principle measures	R/ I*	n	Corrected effect
<i>Means (Who I am)</i>					
(Barney et al., 1996)	Firm performance (revenue/employee at first round financing)	Industry experience	R	205	−0.120
(Beckman et al., 2007)	Firm size	Startup and exec experience	R	161	0.060
(Begley, 1995)	Growth, ROA and debt	Industry experience	R	114	0.015
(Box et al., 1994)	Growth in employment	Startup experience	R	103	0.238
(Carter et al., 1997)	Venture termination	Startup and industry experience	R	203	0.185
(Chaganti and Schneer, 1994)	Return on assets and total sales	Number of years of industry experience	R	345	0.070
(Chandler and Jansen, 1992)	Profitability and growth	Startup experience	R	38	0.071
(Ciavarella et al., 2004)	Venture survival	Startup and industry experience	R	111	0.040
(Davidsson and Honig, 2003)	Sales, profitability and completion	Previous startup experience	R	380	0.165
(De Clerq and Sapienza, 2006)	Perceived performance (sales and market share)	CEO experience in new ventures	R	298	−0.050
(Dimov and Shepherd, 2005)	Homerun and strikeout percent	Law, finance, consulting and entrepreneur experience	R	112	−0.060
(Doutriaux, 1992)	Corporate sales in year 8	Functional area experience	R	30	0.080
(Florin, 2005)	Growth, wealth and tenure	Startup and industry experience	R	277	0.0967
(Haber and Reichel, 2007)	Employees, revenues and tourism	Previous entrepreneurial experience	R	305	−0.040
(Higashide and Birley, 2002)	Perceptual measure	Entrepreneurial team competencies (6 items)	R	57	0.680
(Jones et al., 2001)	Market, financial and product performance	Internally available resources	R	188	0.533
(Lerner and Haber, 2001)	Profitability (perceptual)	Domain-specific experience	R	53	0.290
(Lerner et al., 1997)	Gross revenues	Startup and industry experience	R	218	0.320
(Lichtenstein et al., 2007)	Positive cash flow	Early activity (specific to venture)	R	109	0
(Lu and Beamish, 2006)	Longevity and profitability	Partners' host country experience	R	522	−0.100
(McGee and Dowling, 1994)	Sales growth	Technical and industry experience	R	210	0.220
(Ohe et al., 1992)	Success index	Marketing, manufacturing and technology	R	38	0.129
(Shane and Delmar, 2004)	Venture failure (reverse coded)	Startup and industry experience	R	223	0.008
(Thornhill, 2006)	Revenue growth	Technical staff as percent of workforce	R	845	−0.020
(Anna et al., 2000)	Sales	Human and economic competences	I	103	0.165
(Beckman et al., 2007)	Firm size	Team functional diversity	I	161	0.083
(Begley, 1995)	Growth, ROA and debt	Education	I	114	0.070
(Chandler and Hanks, 1998)	Earnings and growth	Human capital	I	102	0.150
(Chandler and Jansen, 1992)	Profitability and growth	Experience, education and competence	I	38	0.110
(De Clerq and Sapienza, 2006)	Perceived performance (sales & market share)	CEO experience (trichotomous)	I	298	0.100
(Honig, 1998)	Profit and employees	Education	I	215	0.080
(Honig, 2001)	Log of annual profit	Work, education and college	I	64	0.058
<i>Means (Who I am)</i>					
(Bamford et al., 2006)	Net interest margin	Assets at founding	R	798	0
(Carter et al., 1997)	Venture termination (reverse coded)	Access to credit resources	R	203	−0.010
(Chandler and Hanks, 1998)	Growth and earnings	Initial capital	R	102	0.110
(Doutriaux, 1992)	Corporate sales in year 8	Initial capital	R	30	0.640
(Honig, 1998)	Profit and employees	Initial capital	R	215	0.265
(Honig, 2001)	Log of annual profit	Capital	R	64	0.490
(McGee and Dowling, 1994)	Sales growth	Assets	R	210	0.120
(Ohe et al., 1992)	Success index	Capital	R	38	0.250
(Zahra and Bogner, 2000)	Investors' return on equity	R&D investment	R	116	0.350
(Zahra and Bogner, 2000)	Sales, growth and profit	Internal R&D investments	R	116	0.290
(Chaganti and Schneer, 1994)	Sales and ROA	Firm age	I	345	0.040

Table 3 (continued)

Study	Performance measures	Effectual principle measures	R/ I*	n	Corrected effect
<i>Means (Who I am)</i>					
(Barney et al., 1996)	Firm performance (revenue/employee at first round financing)	Overall team tenure	I	205	0.010
(Begley, 1995)	Growth, debt and ROA	2 personality attributes and firm age	I	114	0.008
(Begley and Boyd, 1987)	Firm size and firm age	5 personality attributes	I	147	0.002
(Box et al., 1994)	Employment growth	Locus of control and achievement	I	103	0.039
(Carter et al., 1997)	Venture termination (reverse coded)	Firm age	I	203	0.088
(Chandler and Hanks, 1994)	Revenue and growth	Firm age and capabilities	I	155	0.288
(Ensley et al., 2002)	Sales, growth and profit	Firm age, size and TMT size	I	192	0.070
(Honig, 2001)	Log of annual profit	Business age	I	64	0.020
(Miner et al., 1995)	Sales, growth and profit	Patents (non-specific to venture)	I	72	0.170
(Zahra and Bogner, 2000)	Sales, growth and profit	Firm age and internal corporate entrepreneurship	I	116	0.065
(Zahra and Garvis, 2000)	ROA, sales and profit	Global scope, firm age and corp ent	I	98	0.280
<i>Means (Whom I know)</i>					
(Beckman et al., 2007)	Firm size	Team size at start		161	0.115
(Begley, 1995)	Growth, debt and ROA	Firm size		114	0.023
(Carter et al., 1997)	Going out of business (W)	Firm and startup team size		203	0.085
(Chaganti and Schneer, 1994)	Sales and ROA	Firm size		345	0.046
(Davidsson and Honig, 2003)	Sales, profitability and completion	Parents, friends and network		380	0.177
(Ensley et al., 2002)	Growth, sales and profit	Firm and startup team size		192	0.067
(Fombrun and Wally, 1989)	Profit and growth	Firm size		95	0.03
(George et al., 2002)	Net sales and products on the market	Number of university links		147	-0.15
(Honig, 2001)	Log of annual profit	Number of employees		64	0.53
(Lerner et al., 1997)	Size, profitability, revenues and income	Advisors and networks		218	0.07
(Walter et al., 2006)	Sales growth and sales per employee	Network capabilities		149	0.27
(Zahra, 1996b)	Profit and productivity	R&D spending and quality (external)		47	0.144
(Zahra and Bogner, 2000)	Profitability and sales growth	Number of employees		116	0.15
(Zahra and Garvis, 2000)	ROA, sales and profit	Company size		98	0.125
<i>Contingency</i>					
(Chaganti and Schneer, 1994)	ROA and sales	Customization		345	0.08
(Ciavarella et al., 2004)	Venture survival	Openness and agreeableness		111	-0.05
(Covin and Slevin, 1990)	Performance	Organicity		143	0.08
(Ensley et al., 2006)	Sales, growth and employees	Transformational leadership style		66	0.184
(Zahra, 1996b)	Profitability and productivity	Willingness to modify products		47	0.158
<i>Partnership</i>					
(Bamford et al., 2004)	Deposit and loan growth	Outside members of the board		490	0.22
(Barney et al., 1996)	Firm performance (revenue/employee at first round financing)	Number of VC board seats		205	0.07
(Doutriaux, 1992)	Corporate sales in year 8	Level of founder ownership		30	0.04
(Folta et al., 2006)	Public and private equity offerings	Number of alliances		789	0.61
(Fombrun and Wally, 1989)	Growth and profit	Equity ownership		95	0.02
(George et al., 2002)	Net sales and products on the market	Number of links (alliances)		147	0.32
(Hatfield and Pearce, 1994)	Partner goals and satisfaction	Overlap in partners' goals		60	0.232
(Higashide and Birley, 2002)	Perceptual measure	Policy and goal conflict with VC (reverse coded)		57	0.03
(Lu and Beamish, 2006)	Longevity and profitability	Partners' equity ownership		522	0.01
(McGee and Dowling, 1994)	Sales growth	Cooperative partnerships		210	-0.22
(Weaver and Dickson, 1998)	Firm size and financial strength	Number of alliances		252	0.12
(Zahra, 1996b)	Profitability and productivity	Commercialization with partners		47	0.13
(Zahra, 1996a)	Return on assets	Use of external technology sources		176	0.32
(Zahra and Bogner, 2000)	Investors' return on equity	Reliance on external sources of technology		116	0.3
<i>Affordable Loss</i>					
(Bamford et al., 2004)	Deposit and loan growth	Liquidity and leverage risk position		490	-0.061
(Fombrun and Wally, 1989)	Profit and growth	Risk taking (reverse scored)		95	-0.090
(Ohe et al., 1992)	Success index	Risk distribution		38	0.460
(Tan, 2007)	Performance and profitability	Defensiveness and (reverse coded) risk taking		160	-0.220

\*R = relevant to effectuation, I = irrelevant to effectuation (applies only to Means-What I know and Means-Who I am).

(Dalton et al., 2003) and ran all our meta-analyses again. While several outcomes shifted in significance from ( $p < 0.001$ ) to ( $p < 0.01$ ), our results were not significantly changed, excepting *Contingency*, which lost significance, moving from ( $p = 0.049$ ) to ( $p = 0.067$ ) giving us some assurance that the accuracy of observed variable measurement did not generate bias in our meta-analyses.

## 5. Results

For each effectual construct, we discuss both the quantitative results of the meta-analysis as well as the qualitative elements learned about measuring effectuation. Table 2 presents a summary of the meta-analyses, organized by effectual principle. As we were unable to identify existing measures of the effectual principle of *Design*, we present meta-analyses of the effectual principles of *Means* (all three aspects), *Partnership*, *Affordable Loss* and *Leverage Contingency*. In Table 3, we report performance measures, specific measures of the effectual construct and number of observations in a study, and the corrected correlation between the construct and performance.

### 5.1. Means

Following effectuation, we measure and analyze the three aspects of means, articulated as what I know, who I am and whom I know, starting with the first.

*Measuring Means—What I know:* our review revealed two potential categories of *Means—What I know* – those that might be relevant to the focal venture and those that are not. Our interpretation of effectuation is that only the means in the former category, the type of knowledge that can be classified as domain-specific expertise (Ericsson et al., 2006), is relevant to an effectual approach. For the purposes of our study selection and meta-analysis, we included both categories of means, coding those related to the focal venture as “relevant” and the rest as “irrelevant.” The means we coded as “relevant” included: a) entrepreneurial experience, b) experience in the industry where the startup is operating, c) experience in the functional area where the individual is operating in the startup, d) partner expertise (Lu and Beamish, 2006), and e) human capital if it was related to entrepreneurship, the industry in which the startup is operating or the individual's functional area. All other experience was coded as “irrelevant” to the focal venture. “Irrelevant” *Means—What I know* identified in our literature review included: a) gender, b) personality, c) early activity, d) consensus, e) monitoring, f), morale, g) strategic orientation (Durand and Coeurduroy, 2001), h) diversity, and i) management skills (Ensley et al., 2006).

*Results of Means—What I know:* from our literature search, we identified 24 studies – representing an overall sample size of 5145 firms – that measure the effect of “relevant” *Means—What I Know* on new venture performance. Meta-analysis of these data showed that “relevant” *Means—What I know* were significantly (effect size = 0.115,  $p = 0.003$ ) and positively related to new venture performance, supporting our central hypothesis. The “irrelevant” *Means—What I know* measures we identified in 8 studies, representing 1095 observations, were also significantly (effect size = 0.098,  $p = 0.001$ ) and positively related to new venture performance. While both results are highly significant, we note with interest that the effect size for “relevant” *Means—What I know* is stronger than the effect for “irrelevant.”

*Measuring Means—Who I am:* each individual possesses a certain assortment of resources, some of which enable opportunities and some of which constrain opportunities. In the case of founding teams, we assumed individual means accrue to the firm as a whole. For example, if one individual in a founding team holds a patent, that means is of use to the firm. *Means—Who I am* that we found “relevant” in the context of an effectual approach to starting a new venture included: a) capital, b) assets, c) technological capabilities in technology-related businesses, d) internal R&D investments, and e) patents related to the business. *Means—Who I am* that we coded as “irrelevant” in the context of effectuation included: a) firm age, b) global scope, c) international corporate entrepreneurship, d) locus of control, e) need for achievement, f) patents in general, g) resource-based capabilities, h) risk taking propensity, i) tolerance of ambiguity, j) type A personality, k) overall team tenure, and l) self-efficacy.

One of the questions we faced in coding *Means—Who I am* was whether means antithetical to effectuation should be reverse scored and included. For example, efficacy in planning (Anna et al. 2000) contradicts the effectual heuristic of starting with *Means*, and so efficacy in planning might represent weakness in using a means-based approach. It was our thinking, however, that because planning could just as easily work alongside effectual heuristics as be antithetical to them, it would be impossible to determine how and whether efficacy in planning related to effectuation, and consequently we excluded the measure from our study.

*Results of Means—Who I am:* from our literature search, we identified 10 studies – representing a sample size of 1892 firms – that measure the effect of “relevant” *Means—Who I am* on new venture performance. Our meta-analyses of these data revealed that “relevant” *Means—Who I am* were significantly (effect size = 0.230,  $p = 0.000$ ) and positively related to new venture performance, lending further support to our central hypothesis. A meta-analysis of measures of “irrelevant” *Means—Who I am* from 12 studies, representing 1814 firms, showed that the construct was also significantly (effect size = 0.085,  $p = 0.003$ ) and positively related to new venture performance. Again, we note with interest that while both results are significant, the “relevant” *Means—Who I am* demonstrate a stronger main effect than the “irrelevant” *Means—Who I am*.

*Measuring Means—Whom I know:* the third category of means articulated by effectuation is the founding team's network, individuals and entities which might offer opportunities and resources to the venture. As with the previous two categories of means, we focused on elements relevant to the focal venture. These included variables such as a) entrepreneurial parents, b) friends in the business, c) business network, d) number of university links, e) social capital, f) network capabilities, g) firm size, h) team size, and i) R&D partnerships for technology firms. We categorized all of these as “relevant,” regardless of whether the

venture started with these means or the stakeholders joined in the course of building the venture. In this category, the difficulty was not in identifying “relevant” and “irrelevant” means, but in distinguishing *Means—Whom I know* from the effectual construct of *Partnership*. Based on our interpretation of effectuation, we separated *Means—Whom I know* from *Partnership* based on whether success is dependent on the other party (usually identified as money, equity or products having changed hands). In our understanding of effectuation, the people a founder knows who provide access to other means and new opportunities defines a *Means*, but financial commitment with risk and reward shared defines a *Partnership*.

*Results of Means—Whom I know*: from our literature search, we identified 14 studies – representing an overall sample of 2329 firms – that measure the effect of *Means—Whom I know* on new venture performance. As all the studies we identified presented means relevant to the new venture, and consistent with the effectual definition of *Whom I know*, we conducted a meta-analysis of these data and found *Means—Whom I know* significantly (effect size = 0.112,  $p = 0.001$ ) and positively related to new venture performance. This finding is consistent with our central hypothesis and lends support to the overall effectual expectation of the importance of the effectual notion of *Means* to new venture performance.

## 5.2. Partnership

Effectuation departs somewhat from the mainstream literature on normative corporate strategy in its recommendation that entrepreneurs minimize competitive orientation and instead build firm and market in partnership with committed external and internal stakeholders. The end result of the creation effort is shaped and defined by the very addition of partners to the process. Each partner brings new means and new opportunities that the effectual founder continues to sculpt into a coherent product, firm or market.

*Measuring Partnership*: starting with the idea that in effectual *Partnership* both parties must share in the risk and the gain from venture success, we realized that the construct could be applied to the firm both exogenously (example: partnerships with other firms, customers, standards bodies, etc.) and endogenously (example: partnerships with employees), and we included both in our analyses. We identified strictly transactional relationships (example: licensing and/or purchase of technology (Jones et al., 2001)) as “irrelevant” because it was hard to evaluate whether these “arm’s-length” partners shared in both risk and reward.

Two elements from the literature we excluded from the construct of *Partnership* were balance between partners and competitive aggressiveness (as an inverse). The idea of balance between partners (Pearce and Hatfield, 2002) offers insight into the relationship in general, but does not address the effectual question of whether both parties share in risk and reward. Coming to this conclusion initiated an interesting question about the nature of relationships of effectual players with other effectual players, versus relationships between effectual players and causal players. This was not something we found in our literature search, but we felt it would offer strong potential for future research. We discussed competitive aggressiveness (Lumpkin and Dess, 2001) as a measure of the inverse of *Partnership* but excluded it because it might be possible to be competitively aggressive with some players while establishing collaborative partnerships with others.

*Results of Partnership*: from our literature search, we identified 14 studies – representing an overall sample size of 3196 firms – that measure the effect of *Partnership* on new venture performance. We conducted a meta-analysis of these data and found *Partnership* to be significantly (effect size = 0.169,  $p = 0.046$ ) and positively related to new venture performance, which supports our central hypothesis.

## 5.3. Affordable Loss

Effectuation suggests that instead of focusing on upside opportunity potential, expert entrepreneurs are more likely to limit downside risk, effectively setting a level of *Affordable Loss*.

*Measuring Affordable Loss*: the studies we identified relating to *Affordable Loss* fell into one of two categories. One category looked at how people proactively assume risk, generally described as risk taking propensity (Miller and Friesen, 1983). The second looked at how people mitigate or distribute risk. As the first category embodies a natural inverse of the heuristic described by effectuation, we analyzed both categories, evaluating them separately and together to understand both sides of managing risk. More difficult to categorize were studies investigating product-specific risk. For example, we were not able to include a study looking at product newness (Bruton and Rubanik, 2002) because it was unclear how the entrepreneur managed the new product risk. Likewise, we excluded studies investigating product radicality (Zahra and Bogner, 2000), as we were uncertain how the risk associated with product radicality had been managed. However, future research might well learn more about risk and affordable loss by looking at product decisions, provided the strategies underlying those decisions could be understood.

*Results of Affordable Loss*: our literature search identified 4 studies – representing an overall sample size of 783 firms – that measure the effect of *Affordable Loss* on new venture performance. We conducted a meta-analysis of these data and found the *Affordable Loss* construct not significantly (effect size =  $-0.019$ ,  $p = 0.847$ ) related to new venture performance.

## 5.4. Leverage Contingency

Effectuation suggests *Leverage Contingency* as an alternative to formal plans based on prediction. In contrast to a positioning strategy in which a founder pursues a specific goal, effectuation offers the possibility that the end result of the process may look nothing like the initial idea that caused the founder to form the new venture. Instead, the result is shaped through innovative applications of contingent alternatives that arise during the process of creation.

*Measuring Leverage Contingency*: constructs we coded as reflecting *Leverage Contingency* included: a) willingness to modify products, and b) customization, as well as traits and approaches likely to be associated with *Leverage Contingency*, including c)

openness, d) organicity, and e) transformational leadership style. Though *Leverage Contingency* implies the willingness to shift strategy, we did not consider business planning to constitute the inverse of contingency. A business plan might be used instrumentally to bring partners into the venture and subsequently be discarded, or it may actually be used to guide the venture. Unless the study gave us some insight into whether plans, once created, were changed, used or discarded, we had no way of knowing how to use the data. Though not analyzed here, future research may profitably investigate contingency in the context of business model change.

*Results of Leverage Contingency:* we identified 5 studies containing constructs of relevance to the effectual principle of *Leverage Contingency*, and these studies represented 712 firms. Our meta-analysis of these data indicated that the effectual construct of *Leverage Contingency* was positively (effect size = 0.074,  $p = 0.049$ ) and significantly related to new venture performance.

## 6. Discussion and future research

Based on our findings, there is initial empirical support for a positive relationship between an effectual approach to strategy making and new venture performance. As this intriguing result may stimulate further research, we focus our discussion on issues raised by our investigation, with the intention of guiding future efforts. We organize our discussion around specific theoretical and methodological issues we encountered in our investigation, matched with suggestions for how to overcome them in future research, and save more general comments for the conclusion.

### 6.1. The nature of prediction and control

We grounded this study in the theoretical question of whether opportunities are “made” or “found,” and the associated implication that a strategy of control may be useful where opportunities are made. Our exposition highlights the efficacy of control-oriented effectual strategies in the new venture context, but leaves open the connection between predictive strategy and finding opportunities, and the question of when control or prediction is more useful in new venture strategy. Effectuation starts with the position that the future is contingent upon actions by willful agents seeking to reshape the current environment and fabricate new ones. The essential characteristic of the future, in this view, is uncertainty. Environments can be made stable for periods of time in certain areas. But these periods of stability tend to be “artificial” exceptions designed by human action rather than the “natural” regularity of a predictive universe. Perhaps the ultimate normative recommendation is to use both regularities and contingencies with a combination of positioning and construction strategies, and with the application and level of each depending on the uncertainty of the particular decision. A sophisticated study involving the juxtaposition of these constructs in a particular setting, with control for context, is necessary to unravel this issue.

**Suggestion 1.** *Design an experiment involving a scenario-based instrument that manipulates the predictability of a situation. The objective would be to tease out differences that cause a subject to choose a positioning strategy over a construction one and vice versa.*

### 6.2. Measurement of design

We were only able to measure four of the five effectual constructs. This obvious gap presents a possible fruitful avenue for future research. In the new venture setting, the principle of *Design* assumes the future is not determined by the past, but by stakeholders in the venture shaping products, firms and entire markets. Subjective measures of *Design* should seek to tap into the degree to which individuals approach decisions with an orientation toward whether they are attempting to *Predict* the shape of the future environment or *Design* it.

**Suggestion 2.** *Design can be measured through an individual's intent to shape the environment, or her actions attempting to control an environmental outcome.*

### 6.3. Ambiguity of Affordable Loss

Our non-finding on the measure of *Affordable Loss* only offers more fuel to the ongoing debates in the literature regarding the issue of entrepreneurial risk propensity (Stewart and Roth, 2004). Risk is obviously a central entrepreneurial issue, and clearly we have not yet created a meaningful approach for understanding its subtleties. Effectuation guides us to consider *Affordable Loss* as an alternative to Expected Return and it may be interesting to explore that difference in an experimental setting where meaningful differences in perceptions of risk as well as strategies for dealing with risk might be explored. We expect the economics literature may offer experimental designs that control for individual differences in this category of investigation. And as the issue of *Affordable Loss* is inherently an economic calculus, we suggest searching that literature for designs to test *Affordable Loss*.

**Suggestion 3.** *Employ experimental economic designs to measure Affordable Loss.*

### 6.4. Decision making frame of effectual constructs

The results of our analyses demonstrate the significant role that, for example, an entrepreneur's means play in new venture performance. However, the formulation of means employed in the literature is not completely in line with that of effectuation.

While effectuation recognizes the importance of possessing specific means, it recommends entrepreneurs follow a means orientation in decision making, instead of committing to specific goals. Because we were unable to locate studies that investigate the subtlety of a means orientation to strategy making, we applied the nearest formulation available to us – the means available to the entrepreneur, assuming that the entrepreneur would put those means – particularly relevant ones – to work. This difference suggests another interesting avenue for future research. A significant contribution could be made by measuring and testing a means orientation to decision making, determining the impact of existing means on the propensity to employ a means-oriented approach, and linking the entire construct to new venture performance. More generally, this same issue applies to the effectual constructs of *Partnership* and *Leverage Contingency*. From a purely effectual perspective, each should be operationalized not as quantities of *Means* or *Partnerships* possessed by the individual, but the degree to which the individual bases decisions on available *Means* or existing *Partnerships*.

**Suggestion 4.** *Measure effectual constructs of Means, Partnership and Leverage Contingency as a function of how existing levels frame decisions, and measure the inputs to effectual constructs, such as means available, separately.*

#### 6.5. Performance construct consistency

As some results of our investigation lost significance when we excluded perceptual performance measures, we appreciate the issue of the inconsistency of assessing performance across studies. While all the studies we employed in our analysis introduce measurement of the construct of interest with respect to venture performance, virtually every one varies in the exact metric used and in the collection of data to operationalize that metric. The lack of agreement regarding performance measurement will hamper the development of literature in the field, constraining comparisons across predictor variables, industries and other constructs of interest. We appreciate it is unlikely that a single measure will be appropriate for all situations (Griffin and Page, 1996), but hope future research will compare different measures of venture performance, specifically to determine correlation between the various measures and recommend a subset of measures researchers should focus on in order to ensure results will be comparable across studies.

**Suggestion 5.** *Search for homogenous dependent variables around performance.*

#### 6.6. Rigorous reporting

In order to integrate research across studies, the necessary statistics must be reported in the publication so that they are accessible to future researchers. Our sample would have been significantly increased had researchers included correlation tables with both independent and dependent variables.

**Suggestion 6 (for editors).** *Set aside page space, if only in the appendix, for the necessary statistics (correlation tables), detailed descriptions of study design and perceptual item constructs, so results can be easily integrated into future research.*

### 7. Conclusion

Is the debate on whether new ventures are positioned or constructed complete? Hardly. However, we hope that with this study we encourage scholars to consider three important issues as they advance their research. The first is to be aware of the weight of the theoretical foundations on existing work. We were surprised at the emphasis on positioning at the core of entrepreneurship research. It made us wonder what other assumptions current scholars take for granted as a function of the historical foundations of their work. We are not suggesting that all these assumptions may be misplaced or incorrect – only that it may represent a useful devotion of time to catalog and appreciate those assumptions so we are aware of any biases that may accompany them. The second is to appreciate the rich data that lie in the dusty volumes of past work. We are confident that many new ideas can benefit from initial examination by extracting relevant constructs from the literature utilizing the process we created for this study. And the third is to incorporate the possibility that creation may be at the root of some startup processes. Doing so may be one of the keys to enabling our community to establish and communicate the distinctiveness of entrepreneurship.

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