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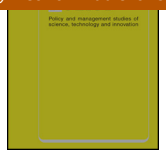

Entrepreneurial talent and venture performance: A meta-analytic investigation of SMEs

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ABSTRACT

As the broad link between small and medium-sized firm activity and key policy goals such as employment or economic growth has become generally accepted, the conversation has focused on a more nuanced understanding of the entrepreneurial engines of economic activity. A significant body of research looking at antecedents to venture performance has identified that entrepreneurial talent variables account for meaningful differences in venture performance and that significant heterogeneity exists across performance measures. These are important issues for institutions and policy makers seeking to achieve specific economic goals (e.g., survival or growth of ventures, employment or revenue). Using meta-analysis, we integrate this work to view connections between aspects of entrepreneurial talent and different performance outcomes. Our investigation includes 50,045 firms (K of 183 studies) and summarizes 1002 observations of small and medium-sized firms. Analysis of these data yields an unexpectedly weak connection between education and performance. Furthermore, growth, scale (number of employees) and sales outcomes are significantly related to planning skills, while profit and other financial and qualitative measures are strongly connected with the network surrounding the firm founders. Moreover, we observe that entrepreneurial talent is more relevant in developing economies.

1. Introduction

According to the Organisation for Economic Co-operation and Development (OECD) (2006), small and medium-sized enterprises (SMEs) represent over 95% of all businesses and account for 60–70% of all new jobs created in OECD member countries. Coming out of the recent recession, startups have historically provided a dominant engine of durable new job creation (see e.g., Stangler, 2009) and economic growth (see e.g., Foster, 2010). This emphasizes why SMEs are considered to be an economy's backbone in terms of employment as well as innovation (OECD, 2006). As institutions and policy makers have devoted effort and investment to the development of firms at the diminutive end of the spectrum (see e.g., Audretsch et al., 2009), so have academics devoted research attention to the connection with economic growth (e.g., Audretsch et al., 2007; Carree and Thurik, 2010; Naudé, 2011; Schumpeter, 1976).

Prior work motivates this paper, as scholars in the area clearly identify the supply and allocation of entrepreneurial talent in an economy as being central to its vitality (Baumol, 1990, 2010). Moreover, prior work suggests meaningful variance within the dependent level of firm performance outcomes (e.g., Chaganti and Schneer, 1994; Venkatraman and Ramanujam, 1985, 1986; Zou et al., 2010). We expand on this analysis of entrepreneurship by bringing together empirical data on variance in the nature of entrepreneurial talent with variance in outcomes of the enterprises entrepreneurs lead (SMEs). From a policy perspective, a better understanding of which element of entrepreneurial talent is associated with which venture performance dimension is of utmost importance in the efficient deployment of scarce resources. If the connections were well understood, funds could be targeted to foster entrepreneurial talent aspects that have the highest impact on desired venture performance outcomes, since different outcome constructs (such as survival, growth, employment and profit) might not evenly relate to each other (see e.g., investigation of entrepreneurship and different outcomes on a macro-economic level by Nyström, 2008). Moreover, prior work suggests that

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Table 1
Definitions of independent variable measures.

Experience and skills	Education	Planning	Team size	Network
Acquisition experience	Academic title	Business plan formalization	Board size	Alliances
Alliance experience	Accounting education	Business planning	Founding team size	Behavioral integration
Average number of prior positions for the team	Business class taken	Complete plan	Number of firm founders	Benevolence based trust
Broad experience	Business degree	Complete planning	Number of founders	Bridging ties
Business experience	CEO education	Developed models	Number of owners	Business network
Business knowledge	College education	Elaborative and proactive planning	Number of partners	Coefficient variation of team tenure
Business similarity experience	Degree	Export planning	One-man startup	Collaboration
Chief Executive Officer (CEO) tenure	Education	Formal plans at startup	Product development group size	Collaborative networks suppliers/customers/competitors/research organizations
China experience	Education abroad	Formal/written plan	Resources of the top management team (TMT)	Compatible goal
Collaborative experience	Education (masters)	Length of time planning has been employed	Team founding	Competence based trust
Creative intelligence	Education of CEO	Level of plan detail	Team size	Cooperation with customer or supplier/large firms/universities
Entrepreneurial experience	Engineering degree	Operational planning	TMT size	Downstream alliances
Entrepreneurial knowledge	Graduate education	Operations planning		Educational differences partners
Entrepreneurial skills	Higher education	Overall planning		Educational diversity
Executive experience	High school education	Planning		Encouragement
Experience	Human capital at IPO	Planning for the future		Extent of formal/informal interaction with TMT
Experience in cooperative R&D/in public companies team	Human capital (education)	Planning index		Extent of trusting relationships in TMT
Experience (not as founder)	Level of education	Planning sophistication		External sources/tech resources
Experience of CEO	Master of Business Administration (MBA) degree	Prepared plan		Family firm
Expertise	Marketing education	Resource planning		Firm network heterogeneity
Explicit knowledge	Non-formal education	Sophisticated planning		Firm trust
Finance experience	Other degree	Startup business plan		Foreign alliances
Financial skills	PhD degree	Strategic planning		Formal coupling (alliance behavior)
Founding team experience	PhD among Management	Target planning		Founding team functional heterogeneity
Founding team international experience	Primary education	Use of business plan		Friends/parents in business
Founding team startup experience	Technology degree	Written business plan before startup		Functional diversity
Human capital assets	TMT education			Generalized reciprocity
Industrial experience	TMT educational level			Goal congruence
Industry experience	TMT management education			Horizontal alliances
Innovation skills	Undergraduate education			Joint ventures
Insider tenure				Knew partner beforehand
International experience				Linkages to university
IT knowledge				Management functional diversity
Knowledge				Manufacturing/marketing cooperative arrangements
Leadership experience				Marketing alliance
Managerial experience/skills				Network capabilities
Management capabilities				Network family friends
Management experience/skills				Networking
Management industry experience				Network structure
Manager's tenure with firm				Number alliances
Manufacturing experience				Number of advisors
Market pioneering know-how				Number of alliance partners
Marketing experience/skills				Number of cooperators
New resource skill				Number of employed generations
Number of startups founded				Number of family employees
Operations skills				Number of partners with repeated ties
Opportunity recognition skills				New venture team tenure
Partner-specific experience				Overall team tenure
Portfolio entrepreneur				Prior relationship
Practical intelligence				Product innovation group process
Previous entrepreneurial experience				Prominent alliances
Prior entrepreneurial/ international/ management/ownership/ startup experience				R&D cooperative arrangements
Product innovation skills				Relational assets/capital
R&D capabilities/experience				Relationship quality
Serial entrepreneur				Shared goals
Similar industry experience				Shared organizational vision
Skills				Similar experience
Startup experience				Social capital
State owned enterprise experience				Strategic consensus
Strategic skills				Strong ties
Supervisory experience				Supplier involvement
Tacit knowledge				Support of family/friends
Task similarity				Team affinity
Technical experience				Team cohesion
				Team collaborative behavior
				Team completeness
				Team tenure

Table 1 (*Continued*)

Experience and skills	Education	Planning	Team size	Network
Technological experience				Tie intensity/strength
Technological know-how				TMT age heterogeneity
Tenure of CEO				TMT educational heterogeneity
TMT biotech experience				TMT functional heterogeneity
TMT experience				TMT group cohesiveness
TMT functional experience				TMT heterogeneity
TMT industry experience				TMT major heterogeneity
TMT international experience				TMT mean tenure
TMT management experience				TMT social integration
TMT pharma experience				TMT tenure
TMT prior executive experience				TMT tenure heterogeneity
TMT prior startup experience				Trust
TMT startup experience				Trust based governance
Western experience				Trust (customer/supplier)
Work experience				Trustworthiness
Years of full time work experience				Upstream alliances
Years of industry/internet related experience of Chief Marketing Officer (CMO)/CEO				Work experience differences of partners

cultural and economic context (Baumol, 1968) influence the availability and deployment of entrepreneurial talent (Zhang et al., 2010). Hence understanding the impact of these contextual factors on the entrepreneurial talent–SME performance relationship can also be beneficial for policy makers around the globe.

Significant academic effort has generated an enormous cache of data that investigates how a variety of antecedent variables relates to different venture performance outcomes. We aggregate these data using meta-analysis. This systematic, evidence-based approach (Hunter and Schmidt, 2004; Lipsey and Wilson, 2001; Rosenberg and Donald, 1995) seeks to identify elements of entrepreneurial talent that economic policy can influence to foster entrepreneurship and inform the macro-economic understanding of the entrepreneurship phenomenon (van Praag and Versloot, 2008). But while Baumol views the components of entrepreneurial talent as a black box of unaccounted variance (Baumol and Blinder, 2010), our meta-analysis aims to enhance understanding by piecing apart different aspects of entrepreneurial talent to determine their connection with different performance outcomes. Thus, our meta-analysis responds to the old saw about an economist being someone who worries about proving that "something that works in practice works in theory" (Baumol et al., 2007, p. 125) with an inductive approach to identifying policy implications around SME performance.

Systematic reviews of previous research are important (e.g., Macpherson and Holt, 2007) and meta-analysis is of specific relevance to policy makers as a basis for addressing a key issue highlighted by Frese et al. (2012, p. 42): "There are, of course, public policies for fostering entrepreneurship in most countries but there is up to this point, relatively little evidence-based public policy." While other science fields like medicine rely heavily on meta-analytic techniques to aggregate empirical results (Hunter and Schmidt, 2004), this powerful approach has only recently caught the attention of management researchers (Brinckmann et al., 2010; Dalton et al., 2003; Kirca et al., 2011; Read et al., 2009; Rosenbusch et al., 2011; Shea-Van Fossen et al., 2006; Song et al., 2008; Unger et al., 2011). A number of previous meta-analyses in the management and entrepreneurship literature analyze the effect size of one specific antecedent derived from theory against performance (e.g., Unger et al. (2011) investigate the relationship between human capital and firm performance). But to the best of our knowledge, there is no integrated work of relevance to policy makers that seeks to bring together a variety of independent variables associated with entrepreneurial talent while at the same time unpacking the broad construct of performance.

Our analysis organizes and summarizes these data so that different SME performance outcomes relevant to policy makers can be meaningfully examined against different entrepreneurial talent aspects that can be influenced by policy makers. Furthermore, we investigate the moderating effects of economic development and cultural attitude toward uncertainty on the entrepreneurial talent–SME performance relationship. This investigation reveals useful insights for policy makers seeking to influence the entrepreneurial landscape, as well as researchers seeking to understand the role of entrepreneurial talent in SME performance. Our unique view into the diverse dependent variables associated with SME performance begins to expose the various levers associated with firm scale (in number of employees) and sales versus financial performance (such as profit or aggregated financial measures) versus qualitative outcomes (such as survival or perceived success). While these categories reflect SME performance at a certain point in time, we also separate out performance specific to growth in order to contribute insights related to dynamic outcomes such as increase in employment or revenues.

One of the results especially pertinent to policy economists and policy makers is that we clearly show that investment in human capital in the form of education – a fundamental input for many models of economic growth (e.g., Becker and Wößmann, 2009) – has a weak connection with SME performance, particularly in advanced economies. Therefore, from a policy perspective, we find limited justification for investing in general education as a route to economic growth via entrepreneurship. In contrast to education, we find that human capital derived from the network that surrounds the firm's founders has the most robust connection with profit, other financial measures and non-financial venture outcomes ranging from venture survival to perceived success. Furthermore, we find that activities focused on planning have a strong connection with firm scale, sales and growth.

Our enquiry follows five main steps. First, we identify two categories of constructs (entrepreneurial talent and venture performance) from the academic literature. Second, we amass studies from 1990 to 2010 including correlates of different performance measures and entrepreneurial talent aspects, and third, we examine it using meta-analysis. Fourth, after analyzing the main effects, we investigate the moderating effects of economic context and cultural attitude toward uncertainty. We close with conclusions for policy makers looking to achieve certain goals and academics interested in the nature of performance and entrepreneurial talent.

2. Scope of our study

Our aim is to provide policy makers and institution builders with an overview of how various aspects of entrepreneurial talent, which they can influence, affect different SME performance outcomes. As such, we begin by specifying aspects of both independent and dependent variables for inclusion in our study.

2.1. Independent variables

Fundamentally, we seek to understand the relationship between entrepreneurial talent (Baumol, 1990) and various performance measures of SMEs. Baumol (1990) introduced the term entrepreneurial talent, but laments even 20 years later that although we can assume that the return on entrepreneurial talent is the profit above market interest rates, we can neither really define entrepreneurial talent nor can we teach it in schools (Baumol and Blinder, 2010). At the same time, other researchers have built on Baumol's salient work and define entrepreneurial talent as "the ability to discover, select, process, interpret and use the data necessary to take decisions in an uncertain world and, then, to exploit market opportunities" (Ferrante, 2005, p. 169). Following the resource-based view literature, we theoretically bound entrepreneurial talent according to the criteria of it being VRIN (valuable, rare, difficult to imitate and non-substitutable) (Barney, 1991). Thus our work encompasses an additional contribution to the resource stream of research as we specify entrepreneurial talent boundaries based on the resource-based view and empirically synthesize their connection with different performance outcomes. Guided by this theoretical perspective, we searched the literature and identified five entrepreneurial talent elements[5] that met the resource-based view criteria and have been the subject of sufficient prior empirical studies as to provide an input to a meta-analysis. See Table 1 for detailed information on entrepreneurial talent operationalizations as well as the following elaborations on each aspect.

2.1.1. Experience and skills

Following Ferrante (2005), a founder's experience offers an element contributing to entrepreneurial talent and has been identified in numerous empirical studies as a distinct correlate of performance (e.g., Song et al., 2008). As the variety of tasks involved in creating and operating a venture includes everything from generating sufficient funding for the business to hiring employees (Carter et al., 1996), we include any experience relevant to this variety of tasks, such as managerial experience, industry experience, previous entrepreneurial experience related to the founder or the founding team, etc., as well as knowledge and skills since these can be considered as an outcome of the human capital investment associated with experience (Becker, 1964; Unger et al., 2011). Understanding the construct of experience and its impact on venture performance is necessary to anyone considering policies that might directly encourage the creation of programs fostering relevant experience and skills or serial entrepreneurship. Further, these insights are also relevant to interventions that might indirectly influence experience by providing policy tools that improve environmental conditions for SMEs (e.g., Audretsch et al., 2009), leading to a continued accumulation of entrepreneurial experience and hence the development of relevant skills.

2.1.2. Education

Similar to experience, formal education is suggested as a factor influencing the ability to successfully discover and exploit an entrepreneurial opportunity (Ferrante, 2005; Unger et al., 2011). Education constitutes an aspect of the founder's talent, which policy makers might also influence both directly and indirectly. The provision of educational opportunities at reasonable cost can be within the reach of the policy maker, as can the targeted selection of inducements to uniquely educated individuals, if desired. A number of previous studies suggest a positive connection between the educational level of the entrepreneur and firm performance (e.g., Jo and Lee, 1996; Mengistae, 2006), but other findings are equivocal (e.g., Lange et al., 2007). Our operationalization of education is broadly based, including education measures related to the founder or the founding team.

2.1.3. Planning

The value of planning and its relation to performance has been long debated in strategic management (e.g., Ansoff, 1991; Mintzberg, 1994). Formal planning involves the determination of goals, the generation and evaluation of different scenarios and strategies as well as implementation control (Armstrong, 1982). Planning scholars argue that planners perform better because they are more efficient in decision-making (Ansoff et al., 1970; Ansoff, 1991) and because they are able to reduce the uncertainty of outcomes (Ansoff et al., 1970). In entrepreneurship the debate on the value of planning is active (Brews and Hunt, 1999; Brinckmann et al., 2010; Delmar and Shane, 2003; Wiltbank et al., 2006), at least somewhat due to the inherent uncertainty of the context (Knight, 1921). One of the primary vehicles of entrepreneurship education is teaching how to prepare a business plan (e.g., Honig and Karlsson, 2004) and a plan is considered by numerous external stakeholders, such as venture capitalists, to be a key venture requirement (Lange et al., 2007). Supporters argue that by simulating future situations, a business plan can enable faster decision-making and can help to overcome bottlenecks (Delmar and Shane, 2003). Hence, acquiring skills in preparing business plans can be considered an ability that facilitates new venture creation and enhances venture performance, which represents an aspect of entrepreneurial talent. Instructors running business planning courses and competitions, policy makers, educators and other actors in the new venture ecosystem have influenced thinking around the business planning process (e.g., Honig and Karlsson, 2004). A recent investigation summarized a positive, yet contextual connection between business planning and the performance of new and established small firms (Brinckmann et al., 2010). We use the existence of a business plan as well as planning activities and sophistication as proxies for basic skills in planning. This allows us to compare the specific skill of business planning with other entrepreneurial talent aspects like experience or education.

2.1.4. Team size

The management or founding team has been identified as another element connected to venture performance (e.g., Song et al., 2008). According to the Panel Study of Entrepreneurial Dynamics (PSED), only about half the ventures in the United States are created by sole founders (Reynolds and Curtin, 2008). We consider a management or founding team to be an accumulation of

[5] It may be worth offering a note at this point about why personality traits like intelligence, creativity, passion, tenacity or perseverance/persistence or situation specific motivation such as vision, future orientation or self-efficacy are not part of our operationalization of talent. We acknowledge that some of these personality traits are part of Ferrante's (2005) description of factors influencing entrepreneurial talent. However, as traits or psychological measures are expected to be more or less stable over time (e.g., Shane, 2003, p. 97) and cannot be influenced by policy makers, we operationalize entrepreneurial talent by focusing on human capital measures (consistent with Ferrante's (2005) argumentation), skills and close network (Ferrante (2005) also highlights the importance of knowledge embedded in the environment). This is consistent with Baumol's initial depiction of entrepreneurial talent. Hence, we acknowledge that human capital is one important aspect in the broader phenomenon of entrepreneurial talent, and we incorporate the close environment (team and close network partners) as elements that also contribute to entrepreneurial talent.

entrepreneurial talent. Hence, the team size measure offers an additional aspect to contribute to entrepreneurial talent (Penrose, 1959) and fiscal policy can influence it directly (e.g., by providing differential tax benefits to founding teams instead of individual founders). As team members with complementary competencies are added, the individual founder's cognitive and managerial capacity expands (e.g., Brinckmann and Högl, 2011). Although the positive effect of team size on performance has been indicated (Cooper and Bruno, 1977; Eisenhardt and Schoonhoven, 1990; Penrose, 1959), greater team size does not guarantee performance (Wheelan, 2009), as challenges of coordination and communication arise (Bales and Borgatta, 1962). Hence, it is important to understand whether empirical evidence can help resolve the discussions on team size and its impact on venture performance.

2.1.5. Network

An entire stream of literature in management research has been devoted to theory around networks and depicting insights generated in the field of sociology (e.g., Granovetter, 1973, 1985). This thinking has subsequently been projected onto new ventures to explain how entrepreneurs and founding teams reach outside the boundaries of the firm to gain access to information, advice, talent, capital, resources and partnerships, etc. (for reviews on network-based research in entrepreneurship, see e.g., Hoang and Antoncic, 2003; Slotte-Kock and Coviello, 2010). Entrepreneurial firms face many challenges upon startup, and researchers have investigated and identified the liability of newness (Stinchcombe, 1965) and the liability of smallness (Aldrich and Auster, 1986) as two reasons for the mortality of new and/or small ventures (Freeman et al., 1983). The liability of newness encompasses network-related aspects such as a lack of stable ties and fewer relations characterized by a high level of trust forcing new firms to rely more heavily on strangers (Stinchcombe, 1965). The liability of smallness describes many resource disadvantages small firms face in comparison with larger firms (Aldrich and Auster, 1986). Utilizing networks or certain relationships has been identified as one way to overcome resource constraints (e.g., Stuart et al., 1999 showed that young, private biotechnology ventures can overcome resource constraints by partnering with larger or more prominent firms). To address liabilities faced by entrepreneurial firms, the creation and maintenance of entrepreneurial networks are sometimes supported by political institutions (Audretsch et al., 2009). Founder and firm networks are an attempt to facilitate knowledge gains, provide additional resources and enhance venture performance (Davidsson and Honig, 2003). In terms of entrepreneurial talent, we focus on strong ties (Bian, 1997) to reflect those elements more directly related to extending a small firm's entrepreneurial talent beyond the boundaries of the founding team member(s). Also, from a resource-based view, we conclude that strong ties meet the VRIN criteria, whereas weak ties are neither rare nor difficult to imitate – especially in today's world with numerous social media networks available. Further, our literature review persuades us that network quality reflects an aspect of entrepreneurial talent, thus we include variables such as diversity or heterogeneity of team and network partners (e.g., Beckman et al., 2007).

2.2. Dependent variables

Our main ambition is to analyze relationships of different aspects of entrepreneurial talent against a range of venture performance measures of interest to policy makers. Researchers investigating venture performance recognized long ago that it is a multidimensional construct (Venkatraman and Ramanujam, 1986), that performance measurement is a difficult task (Brush and VanderWerf, 1992) and that choice of performance measures is a critical issue in research (Cooper, 1993). Commenting on the state of the art at the time, Cooper (1993, p. 241) lamented, "Previous research has also used a variety of performance measures, making comparisons across studies more difficult. Little has been done to determine whether the factors that enhance one measure of performance, such as survival, are the same as those that lead to others, such as growth or profitability." Cooper et al. (1994) subsequently provided one of the first studies to examine the impact of various aspects of human capital separately on failure, marginal survival and high growth among a sample of 1053 new ventures. Subsequent studies (e.g., Zahra, 1996) continued this trend of utilizing several different performance measures in their research.

It is now possible to improve this situation using the contemporary expansion in entrepreneurship research. Not only has the sophistication of studies increased, but also an avalanche of entrepreneurship research has appeared driven by: (a) interest in entrepreneurship by policy makers, as the topic re-emerged as a key item on the agenda among economic policy makers (van Praag and van Ophem, 1995; Wennekers et al., 2002); and (b) development of the field of entrepreneurship as a legitimate scholarly paradigm (Venkataraman, 1997). Our organization of performance variables builds on earlier analyses that segment performance items (e.g., Cooper et al., 1994) and distinguishes different performance effects.

We operationalize five static performance categories. The category of scale encompasses measures related to number of employees. The category of sales consists of variables that represent sales, revenues and turnover. Furthermore, we introduce a specific financial performance category called profit, which contains measures such as return on sales, net income and profit. A further category was created and named "other financials." This category is broader in order to determine how much variance goes unaccounted for or is differentially accounted for if a specific financial performance measure is not present. It describes all financial performance measures that do not fall into the categories profit or sales and includes measures such as liquidity or overall financial measures, which are a combination of different financial measures. We included a category for non-financial performance measures, which encompasses firm outcomes such as survival and perceived success as well as individual measures such as continuance intention or knowledge acquired, since individual-level dependent variables have been argued to contribute to venture performance measures (e.g., Tiwana and Bush, 2005). Finally, we also established a sixth category to capture the dynamic aspect of growth, reflecting outcomes such as increase in employment or revenues. See Table 2 for information on performance operationalizations.

2.3. Moderating variables

Contingency theory argues that the "optimal" way to organize or lead a company depends on the context or respectively the situation (Burns and Stalker, 1961; Lawrence and Lorsch, 1967). Guided by both prior literature (Baumol, 1968; Hayton et al., 2002) and identifying variables of interest to policy makers, we operationalized two moderating variables from the design of the underlying studies: economic context (advanced or developing economy), and owing to the uncertain nature of the entrepreneurial context (Knight, 1921), cultural attitude toward uncertainty (Hofstede and Hofstede, 2005).

3. Sample

As a first step in our literature search, we conducted an extensive database query of EBSCO to identify all relevant studies published between 1990 and the end of 2010 in multiple target journals (*Academy of Management Journal*, *Administrative Science Quarterly*, *Entrepreneurship Theory and Practice*, *IEEE Transactions*

Table 2
Definitions of dependent variable measures.

Growth	Scale (number of employees)	Sales	Profit	Other financials	Qualitative performance
Asset growth	Employees	Firm sales	After tax profits	Cash flow	Adhering to budget
Business growth last 3 years	Employment	Firm size (in terms of sales)	Income	Financial performance	Alliance performance
Employee growth	Firm size	Firm size (log of sales)	Log of annual profit	Financial performance (various measures)	Alliance performance/success
Employment growth	Firm size (number of employees)	Made a sale	Net income	IPO	Chief information officer (CIO) role effectiveness (educator, information, integrator, relational, strategy, utility)
Firm growth	International joint venture (IJV) size (number of employees/log of employees)	Moving average of revenue	Profit	Liquidity	Continuance intention
Firm growth (sales)	Number of employees at IPO	Revenues	Profitability	Percentage point spread between the closing price and IPO price	Financial management
Growth	Subsidiary size (number of employees)	Sales	Return on sales (ROS)	Pre-money valuation	Financial management knowledge acquired
Growth sales and employment		Sales per employee		Return on assets	Firm survival
Growth in employees		Revenues Year 1 (log)		ROA (3 years average)	Human resource management knowledge acquired
Growth in sales				Return on cash flow (RCF)	International performance (qualitative)
Growth (mix of measures)				Return on equity	Marketing knowledge acquired
Growth of employees				Return on investment (ROI)	Market performance
Internal organic growth				Shareholder return	Market share
Market share growth				Stability of profit	Outcomes of cooperative R&D contributed to sales growth
Net profit growth rate				Valuation	Out of business (reverse coded)
Past growth					Overall performance (mix of measures)
Performance (changes in gross revenues in 2 consecutive years)					Overall performance versus competitors
Performance (mix of growth measures)					Past performance
Profit growth					Past performance (combination of measures)
Rapid growth					Perceived chance of new venture success
Revenue growth					Perceived performance
Sales growth					Performance
					Performance (mix of measures)
					Performance versus competitor
					Performance versus stated objectives
					Profitability compared to competitor index
					Progress performance
					Revenue performance versus competitor
					R&D product development knowledge acquired
					Speed
					Speed to market
					Speed to product
					Securing long-term survival
					Success
					Survival

on Engineering Management, *Journal of Applied Psychology*, *Journal of Business Venturing*, *Journal of Management*, *Journal of Management Studies*, *Journal of Small Business Management*, *Long Range Planning*, *Management Science*, *Organization Science*, *Research Policy*, *Small Business Economics*, *Strategic Management Journal* and *Technovation*). In order to capture all relevant studies, we used a variety of keywords for performance: performance, "return on investment," ROI, "sales growth," survival, "return on assets," ROA, "return on equity," ROE, "employee growth," growth, profitability, profit, "net income," success, underpricing, "market capitalization," and valuation. For our five entrepreneurial talent aspects, we searched with the key words: experience, education, "human capital," planning, plan, "business plan," "business planning," team, partners, "partnership team," network, parents, friends, "social resources," "social capital," "personal network," underwriters, "number of university links," linkages, advisors, "network capabilities," "outside members of the board," "number of venture capital (VC) board seats," alliances, "partners' equity ownership," "cooperative partnerships," and cooperative. We then proceeded to review every abstract returned from our keyword search.

In a second step, we manually searched two entrepreneurship publications not included in the EBSCO database: *Frontiers of Entrepreneurship Research* and *Strategic Entrepreneurship Journal*. In a third step, we added cross-referenced studies identified from the reference lists in previous related meta-analytic and review papers. In a fourth step, we searched the Social Science Research Network (SSRN) and the Proquest dissertations database to identify unpublished dissertations, papers from conference proceedings or unpublished working papers, against our keyword criteria.

From these results, we selected studies based on two criteria. The first criterion was studies investigating SMEs. The definition of SMEs varies across countries and typically the upper limit for SMEs in terms of size ranges between 100 and 500 employees (Ayyagari et al., 2007). As a universal SME definition does not exist, we used 500 employees as the cut-off criteria. This categorizes small versus large firms in the majority of sectors in the United States (SBA, 2010) and has been used by other researchers in the past as the upper size limit for SMEs (e.g., Beck et al., 2005; Dickson et al., 2006; Rosenbusch et al., 2011). The second criterion was studies including a correlation matrix (Song et al., 2008) that contains at least one measure of venture performance and at least one of the described entrepreneurial talent elements.

After applying the selection criteria, our sample included 183 studies described in 175 papers or publications. In four cases (Delmar and Shane, 2003, 2004; Florin, 2001, 2005; Li, 1998; Li and Zhang, 2007; Matthews, 1990; Matthews and Scott, 1995), we recognized that the same sample or sub-sample was used in both studies. However, as each of the studies in these pairs contained different variable relationships of interest, we included both in the pair, paying careful attention not to include duplicate relationships, or combined studies where necessary in order not to unreasonably increase the weight of these studies in the overall meta-analysis (see Appendix 1 for details).

4. Method

Meta-analysis provides a systematic approach to reviewing an existing body of literature (Lipsey and Wilson, 2001) and follows an evidence-based research approach to synthesizing prior empirical studies (Hunter and Schmidt, 2004; Rosenberg and Donald, 1995). This methodology can provide unique insight in areas with conflicting findings and limited sample sizes (Geyskens et al., 2009; Lipsey and Wilson, 2001) and goes beyond a review of past research, as it allows testing of relationships which cannot be addressed by individual studies, estimating effect-strength and identifying moderating relationships (Hunter and Schmidt, 2004; Lipsey and Wilson, 2001). It can thus also provide direction for future research and theory building (Hunter and Schmidt, 2004). In view of the unique benefits of meta-analysis, the technique has become increasingly popular in management literature in recent years (Geyskens et al., 2009).

4.1. Variable coding

We coded independent and dependent variables according to the definitions in Tables 1 and 2. One advantage of meta-analysis is the correction of idiosyncratic study artifacts (Hunter and Schmidt, 2004). In order to perform these corrections, we recorded construct reliability measures (typically Cronbach's alpha) for perceptual variables (often measured through surveys using a Likert scale). Furthermore, to conduct moderator analyses, we recorded the geography of the study based on data availability and assigned countries to either advanced or developing economies following contemporary management research (e.g., Kirca et al., 2011) and drawing from the detailed country groupings of the International Monetary Fund (IMF) (2010). We also used the geography of the study to assign a value for the cultural uncertainty avoidance (Hofstede and Hofstede, 2005) to the respective study. In cases where studies included a population of firms that made assignment ambiguous, either because the study did not sufficiently describe the sample or because the sample included more than one geography, we excluded the study from the moderator analyses.

4.2. Variable correction

We applied the meta-analytic procedures from Hunter and Schmidt (2004) and corrected for reliability of perceptual measures before conducting the analyses. We used Hunter and Schmidt's (2004) correction for attenuation and corrected for variable measurement error in correlation by applying the following formula:

$$r = \frac{r_0}{(\sqrt{a_1} \times \sqrt{a_2})}$$

where: r represents the corrected correlation coefficient; r_0 represents the extracted raw Pearson correlation coefficient between the independent and the dependent variable; a_1 represents the observed Cronbach's α for reliability of the independent variable; a_2 represents the observed Cronbach's α for reliability of the dependent variable.

4.3. Analysis

After correcting for artifacts and obtaining the average effect size per study, we used the Comprehensive Meta-Analysis software (Borenstein et al., 2005) to compute a mean effect size (Hunter and Schmidt, 2004; Lipsey and Wilson, 2001). Starting by weighting each study with the inverse of its variance, which encompasses the within-study variance and between-studies variance, we employed a random effects model (Borenstein et al., 2007):

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

where: $\bar{Y}$ represents the weighted mean effect size across studies in the analysis; W_c represents the weight assigned to each study (which is the reciprocal of individual within-study and the between-studies variance); Y_c represents the individual study effect size.

Table 3
Main effect sizes of independent variables to performance categories.

Dependent variable	Independent variable	Number of firms	Number of studies	Point estimate (random effects)	95% confidence interval		Test of null (two-tail)	
					Lower limit	Upper limit	*z*-value	*p*-value
Growth	Experience and skills	11,808	36	0.054	0.014	0.093	2.642	0.008
	Education	9830	26	0.092	0.046	0.138	3.920	0.000
	Planning	2454	10	0.203	0.129	0.275	5.286	0.000
	Team size	2812	11	0.083	0.036	0.129	3.469	0.001
	Network	4720	21	0.095	0.035	0.154	3.094	0.002
Scale (number of employees)	Experience and skills	16,078	54	0.055	0.015	0.094	2.712	0.007
	Education	15,069	36	0.081	0.038	0.123	3.711	0.000
	Planning	3605	17	0.198	0.071	0.317	3.071	0.002
	Team size	3585	16	0.180	0.115	0.244	5.319	0.000
	Network	9768	35	0.097	0.046	0.147	3.734	0.000
Sales	Experience and skills	12,171	28	0.088	0.034	0.143	3.158	0.002
	Education	12,298	19	0.011	−0.045	0.068	0.384	0.694
	Planning	1450	7	0.173	0.053	0.288	2.814	0.005
	Team size	4639	9	0.157	0.063	0.248	3.268	0.001
	Network	7688	11	0.110	0.035	0.184	2.882	0.004
Profit	Experience and skills	8309	17	0.065	0.019	0.111	2.790	0.005
	Education	9557	13	−0.011	−0.078	0.056	−0.334	0.739
	Planning	999	6	0.090	0.000	0.179	1.958	0.050
	Team size	1590	6	0.054	−0.034	0.142	1.202	0.229
	Network	2250	10	0.090	0.014	0.164	2.310	0.021
Other financials	Experience and skills	8906	17	0.048	0.002	0.094	2.057	0.040
	Education	8749	8	0.039	−0.007	0.085	1.675	0.094
	Planning	789	3	−0.026	−0.199	0.148	−0.294	0.769
	Team size	1565	6	0.014	−0.036	0.064	0.554	0.580
	Network	1721	8	0.148	0.071	0.224	3.719	0.000
Qualitative	Experience and skills	4983	32	0.180	0.103	0.256	4.534	0.000
	Education	5866	18	0.038	0.003	0.073	2.147	0.032
	Planning	1517	8	0.204	0.036	0.361	2.366	0.018
	Team size	2948	17	0.004	−0.050	0.058	0.150	0.881
	Network	6936	25	0.243	0.153	0.329	5.190	0.000

5. Results

We computed 30 main effects, presented in Table 3, representing each of the six performance categories with respect to the five aspects of entrepreneurial talent. We present the results in the same order as we introduced the performance categories.

5.1. Main effect results

Starting with the category of performance variables related to growth, planning presents the strongest mean effect size (effect size = 0.203, $p < 0.001$) among our entrepreneurial talent variables. Similarly, planning exhibits the strongest relationship with the two categories of outcome variables measuring firm size, reflecting scale in number of employees (effect size = 0.198, $p = 0.002$) and sales (effect size = 0.173, $p = 0.005$). Turning to the performance category of profit, network emerges as the more stable relationship (effect size = 0.090, $p = 0.021$) of the two entrepreneurial talent variables that share the same effect size against that outcome. The main effect between planning and profit exhibits a comparable effect size (effect size = 0.090, $p = 0.050$) as network and profit (effect size = 0.090, $p = 0.021$), but the robustness tests (see Section 5.3) display that the connection between planning and profit is not as stable as the one between network and profit. The only other entrepreneurial talent aspect with a connection to profit differing significantly from zero is experience and skills (effect size = 0.065, $p = 0.005$). Against performance outcomes included in the "other financials" category, we find that network has the highest connection (effect size = 0.148, $p < 0.001$). For qualitative performance measures, we also observe that network presents the highest effect size (effect size = 0.243, $p < 0.001$).

Although we group independent and dependent variables, we do not presume to represent distinctive constructs. Instead we offer insight as to where interrelationships may lie with point estimates based on a random effects model to provide correlation estimates between independent and dependent variables in Tables 4 and 5. We observe no significant relationship above 0.116 for the independent variables (Table 4). We find one significant correlation greater than 0.5 for the dependent variables (Table 5). This strong correlation between the dependent variables offers reassurance to the validity of our underlying data in that the two firm size measures (scale in number of employees and sales) are highly correlated.

5.2. Moderator analyses

There are alternative methods for determining the presence of moderation in meta-analytic data. Hunter and Schmidt (2004) suggest the potential presence of subgroups that may moderate main effect data if the sampling error is responsible for less than 75% of the observed variability. Additionally, King et al. (2004) add a test from Koslowsky and Sagie (1993) analyzing the width of the 90% credibility intervals for values larger than 0.11 as this width indicates the presence of potential heterogeneity within the main effects. We followed King et al. (2004), using both tests and requiring a positive result to both in order to indicate potential moderation. These tests proved positive for our overall main effect, so we proceeded to investigate two moderators of interest to policy makers and of relevance to new venture research that could be operationalized in our dataset. To explore moderator variables, we used weighted meta-regression (Lipsey and Wilson, 2001) in order to control for the differential effects of various outcome variables indicated by our main effects analyses, and investigated

Table 4
Correlation estimates of independent variables.

	1. Experience and skills	2. Education	3. Planning	4. Team size	5. Network
1. Experience and skills		15,923	3198	8754	8157
2. Education	0.029		2420	4169	6018
3. Planning	0.044	0.004		1246	522
4. Team size	0.070*	0.069*	0.064*		6377
5. Network	0.065**	0.067***	0.210	0.116***	

Note. Values in the lower diagonal reflect point estimates; values in the upper diagonal reflect the number of firms.
Correlations are taken from the original studies, not corrected for artifacts, averaged on a study level for the calculation of the displayed point estimates based on a random effects model.
* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

Table 5
Correlation estimates of dependent variables.

	1. Growth	2. Scale	3. Sales	4. Profit	5. Other financials	6. Qualitative
1. Growth		11,127	6134	6712	6824	1673
2. Scale	0.098*		10,309	6241	7510	5052
3. Sales	0.126	0.577***		5652	6781	3252
4. Profit	0.163*	0.222**	0.450*		5618	971
5. Other financials	0.138*	0.058	0.028	0.410**		576
6. Qualitative	0.068	0.099**	0.283***	0.297**	0.303	

Note. Values in the lower diagonal reflect point estimates; values in the upper diagonal reflect the number of firms.
Correlations are taken from the original studies, not corrected for artifacts, averaged on a study level for the calculation of the displayed point estimates based on a random effects model.
* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

the impact of potential moderating variables on the elements of entrepreneurial talent included in our main effects analyses. The baseline model is included in Table 6 as Model 1.

5.2.1. Economy: advanced versus developing

To our baseline model, and for every study in which the data was available and specific, we included a binary variable reflecting advanced (1) versus developing (0) economy depending on where data were gathered. The addition of the variable to Model 2 generated significant R^2 change of 0.025 ($p < 0.001$) over Model 1, and the analyses revealed a negative (−0.066) and significant ($p < 0.001$) unstandardized coefficient, indicating that the connection between the entrepreneurial talent variables in our study is significantly smaller in advanced economies than in developing economies.

5.2.2. Uncertainty avoidance

Generally measured at the societal level, uncertainty avoidance reflects a culture's (in)tolerance for uncertainty and ambiguity, and the extent to which people within that culture are (un)comfortable in uncertain situations (Hofstede and Hofstede, 2005). This measure is an indication of how much people in a society minimize uncertainty through rules, safety and security (Hofstede and Hofstede,

Table 6
Meta-regression models with the moderating impact of economic context and level of uncertainty.

	Model 1 Baseline		Model 2 Economic context		Model 3 Economy and uncertainty avoidance	
	Unstandardized coefficient	Standard error	Unstandardized coefficient	Standard error	Unstandardized coefficient	Standard error
(Constant)	0.047***	0.006	0.104***	0.009	0.058***	0.012
Growth binary[a]	−0.038***	0.008	−0.037***	0.008	−0.037***	0.008
Sales binary	0.003	0.007	0.006	0.007	0.008	0.007
Profit binary[a]	−0.039***	0.008	−0.041***	0.008	−0.036***	0.008
Financial binary[a]	−0.050***	0.008	−0.051***	0.008	−0.050***	0.008
Qualitative binary[a]	0.019*	0.009	0.017†	0.009	0.016†	0.009
Planning binary[b]	0.093***	0.011	0.101***	0.011	0.093***	0.011
Experience and skills binary[b]	0.047***	0.006	0.051***	0.006	0.047***	0.006
Network binary[b]	0.081***	0.008	0.082***	0.007	0.085***	0.007
Team binary[b]	0.064***	0.009	0.070***	0.009	0.071***	0.009
Economy Adv/Dev.			−0.066**	0.008	−0.072***	0.008
Uncertainty avoidance					0.001***	0.000
R^2 (adjusted)	0.117 (0.100)***		0.143 (0.124)***		0.156 (0.135)***	
R^2 change (adjusted)			0.025 (0.024)***		0.013 (0.011)**	

[a] As the performance category variables are coded as dummies, scale is excluded as the baseline variable against other performance binaries.
[b] As the entrepreneurial talent variables are coded as dummies, education is excluded as the baseline variable against other talent binaries.
† $p < 0.10$.
* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

2005). The positive, significant ($p < 0.001$), unstandardized coefficient of 0.001 for uncertainty avoidance in Model 3 indicates that the connection between the entrepreneurial talent variables in our study and performance increases in cultures with a higher level of uncertainty avoidance. Model 3 generated a significant ($p = 0.009$) R^2 change of 0.013 over Model 2.

5.3. Robustness checks

5.3.1. Validity test: random versus fixed effect model

A fixed effect model assumes that studies used in the meta-analysis are functionally homogenous, and thus the "true effect size" of the studies is the same and resulting differences stem only from sampling error (Borenstein et al., 2007; Lipsey and Wilson, 2001). Consequently, researchers have argued for the use of a random effects model when combining studies from different researchers and contexts in meta-analysis (e.g., Erez et al., 1996) as it assumes heterogeneity between the studies due to a sampling error as well as an additional variability component that is assumed to be randomly distributed (Borenstein et al., 2007; Lipsey and Wilson, 2001). As our meta-analytic database covers 183 studies encompassing a variety of industries and geographies, applying a random effects model appears appropriate. To validate our results, we replicated our random effects model analyses by also using a fixed effects model (Read et al., 2009) and found our results robust and substantially the same, except point estimates of five of the 30 main effects, with four related to planning.[6]

The effect size between planning and scale in number of employees decreased from 0.198 (random effects model; $p = 0.002$) to 0.132 (fixed effect model; $p < 0.001$), while the effect size for team size and against scale increased from 0.180 (random effects model; $p < 0.001$) to 0.195 (fixed effect model; $p < 0.001$). This is due to the fact that the studies with a larger sample size such as Burke et al. (2010) and Matthews et al. (2001), which have a low correlation between planning and scale, are relatively higher weighted in a fixed effect model compared with a random effects model, where the weights are more balanced and larger size studies are less dominant (Borenstein et al., 2007). In addition, the effect size of experience and scale increased from 0.055 ($p = 0.007$) in the random effects model to 0.113 ($p < 0.001$) in the fixed effect model, which primarily results from one study (Muse et al., 2005), showing a high correlation between experience and scale. This study is based on secondary data and is large (4637 firms) in comparison with numerous survey-based studies in our data set; hence, it is weighted higher in the fixed than in the random effects model (Borenstein et al., 2007).

A similar difference was evidenced against the outcome variable of firm size in terms of sales, where again team size displaced planning (random effects model effect size = 0.173, $p = 0.005$; fixed effect model effect size = 0.155, $p < 0.001$) as the strongest effect against the outcome, using a fixed effect model. Effect size between team size and sales increases from 0.157 (random effects model, $p = 0.001$) to 0.223 (fixed effect model; $p < 0.001$). We analyzed the underlying data and found that the main difference stems from one study (Mollick, 2010) with a large sample size (1522 firms) in comparison with other studies in our data set and a high correlation between team size and sales.

In the case of profit, in the random effects model the effect sizes of planning and network are similar but differ in terms of significance. However, in the fixed effect model, planning (effect size = 0.098) displaces network (effect size = 0.078, $p < 0.001$) and increases in significance ($p = 0.002$) as the fixed effect model, with its different underlying assumption, produces narrower confidence intervals (Borenstein et al., 2007).

With regard to the qualitative performance measures, using a random effects model, planning had a higher effect size (effect size = 0.204, $p = 0.018$) than experience and skills (effect size = 0.180, $p < 0.001$). This effect size decreased for planning in the fixed effect model to 0.122 ($p < 0.001$) because the study of Dencker et al. (2009), which had the largest sample size in this sub-group analysis and a negative correlation, was weighted relatively higher in the fixed effect model. The effect size of network also remained the highest in the fixed effect model (effect size = 0.215, $p < 0.001$), followed by experience and skills (effect size = 0.148, $p < 0.001$).

The fact that only five of 30 results are meaningfully different in the fixed effect model, compared with the random effects model reassures us that our results are broadly similar across models. However, in the specific case of planning, the variation within these results suggests contingency endogenous to the variable of planning that merits closer investigation (Brinckmann et al., 2010), an issue we take up in Section 6.3.

5.3.2. Validity test: unit of analysis

Our collection of prior work yielded studies conducted at the individual, team and firm units of analysis. We developed an approach for including this variety of work while at the same time reducing the risk of systematic bias, which might result from differences in the level of analysis of the different studies. In order to standardize data, we captured both the number of firms and the number of individuals reported in every study. If a study only reported the number of firms, we used the description of the sample to estimate the value of the unreported individual N, and did the same to estimate the number of firms if the study only provided the number of individuals. We report our analyses using an N that reflects the number of firms in a study. However, we were concerned that standardizing based on the firm level might offer excess statistical power to studies that looked at the smallest firms, so we validated all our analyses by running them again using the individual unit of analysis. The 30 main effect results remained largely unchanged, except one. Network emerges clearly as the entrepreneurial talent aspect having the strongest relationship with profit (effect size = 0.109) differing significantly from zero ($p = 0.005$) as the effect size of the planning and profit relationship only marginally changes (effect size = 0.098), but experiences a decrease in significance ($p = 0.077$). With only one substantially differing result with regards to the effect sizes, the validation test gives us additional assurance that standardizing the unit of analysis did not generate a systematic bias in our meta-analyses, and offers an approach for future researchers using meta-analysis to combine studies of different units of analysis.

5.3.3. Validity test: reliability

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 a measurement error in our observed variables, we recalculated all 30 correlations between dependent and independent variables using an assumed average accuracy of 0.80 for all the observed variables (Dalton et al., 2003) and re-ran the random effects models. While point estimates and significances shifted marginally, the entrepreneurial talent variable changed position in only two cases. In the growth category, education displaced network as the talent variable with the second highest relationship to growth (education effect size = 0.121, $p < 0.001$; network effect size = 0.115, $p = 0.001$), still leaving planning with the strongest

[6] Due to different assumptions in the validity and robustness tests, it is natural that small changes in terms of significance level and effect sizes occur for nearly all calculated relationships. With consideration to article length and overall relevance of those smaller differences, we describe in the text only the meaningful differences that impact the results we discuss in this article. This applies to all validity and robustness tests in this section.

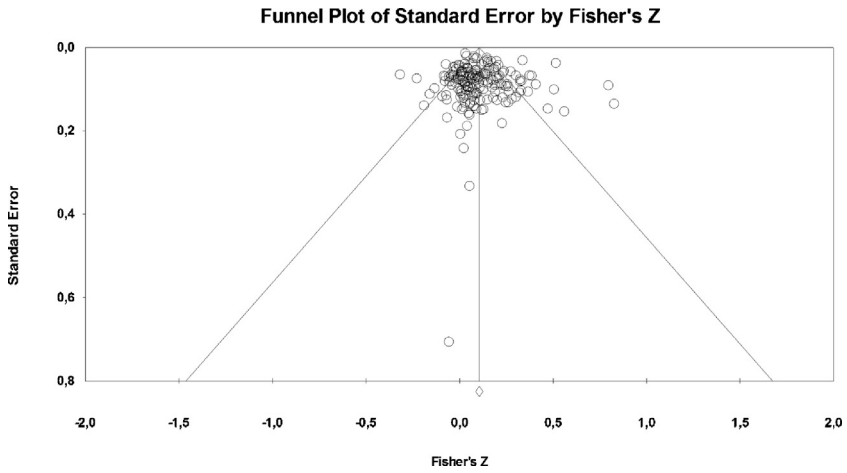

Fig. 1. Funnel plot (random effects model).

connection to growth (effect size = 0.237, $p < 0.001$). For the profit performance measures, experience and skills displaced planning as the second highest mean effect size differing significantly from zero (effect size = 0.078, $p = 0.005$) as the significance level of planning decreased (effect size = 0.112, $p = 0.059$), leaving network still with the strongest and significantly different from zero connection (effect size = 0.108, $p < 0.000$) to profit. With only two cases showing a meaningful change in results, this analysis gives us some assurance that observed variable measurement accuracy did not generate a systematic bias in our meta-analyses.

5.3.4. Validity test: firm size

In our operationalization of SME firm size, we set a maximum of 500 employees (e.g., Beck et al., 2005; Dickson et al., 2006; Rosenbusch et al., 2011). However, it is arguable whether the effect of entrepreneurial talent remains the same for a firm of 500 employees versus 50 employees. Hence, as a robustness test of our analysis, we carried out all main effect correlations for small firms with 50 employees or less, and compared those correlations with our previous results that included firms with up to 500 employees. The main difference was that the strength of the connection between planning and performance is lessened for smaller firms. In terms of scale in number of employees, team size with an effect size of 0.212 ($p < 0.001$) overtakes planning (effect size = 0.173, $p = 0.039$). For sales of small firms, network shows the highest main effect significant from zero (effect size = 0.144, $p = 0.005$) compared with the insignificant effect size of planning (effect size = 0.162, $p = 0.088$). For profit, we observe that planning loses effect size and significance level (effect size = 0.025, $p = 0.731$), leaving network as the strongest connection with profit (effect size = 0.120, $p = 0.006$), closely followed by experience and skills (effect size = 0.096, $p = 0.002$). With regard to "other financials" and qualitative performance measures, our findings do not change, with network remaining the entrepreneurial talent variable with the strongest connection. Generally speaking, these analyses suggest that researchers investigating planning should be conscious of the stage and size of the populations of firms under investigation.

5.4. Publication bias

One of the benefits of meta-analysis is the possibility of assessing whether publication bias may be present. Of the 183 studies included in the meta-analyses, 20 are unpublished studies (doctoral dissertations, working papers, conference proceedings). We tested with a mixed effect model to determine whether there is a significant difference between the effect sizes of published versus unpublished studies. We were reassured that our study faces only limited publication bias, as due to overlapping confidence intervals, no significant difference ($p > 0.05$) was observed between the main effects from published versus unpublished studies. In addition, we used a funnel plot to assess possible publication bias (see Fig. 1). Following Borenstein et al. (2005), a publication bias can be observed from the funnel plot if the studies at the bottom – where studies with a smaller sample size are located – are clustered on one or the other side of the mean. Studies with a smaller sample size, at the bottom of the plot, clustered largely different from the mean, suggest a greater than average effect size, which increases the likelihood of meeting statistical significance criteria and being published. This is not the case in our funnel plot. Furthermore, by applying the file drawer technique to our sample (Hunter and Schmidt, 2004; Rosenthal, 1979), our analysis revealed that 9158 studies with a null-effect are needed to cause an insignificance of our overall results, which exceeds the tolerance level suggested by Rosenthal (1979) by nearly 10 times: 5×183 studies + 10, which equals, for our meta-analysis, 925 cases, and further increases our confidence that publication bias is limited in our analysis.

5.5. Limitations

Beyond the results of our robustness tests, we highlight three additional limitations. First, although our meta-analysis covers 183 studies, during our literature search we identified numerous additional studies of interest that we were not able to include as the papers lacked the data necessary (e.g., statistics such as a correlation table) – a common complaint of meta-analysis authors (Read et al., 2009). Second, meta-analyses share limitations inherent to the underlying studies (Robertson et al., 1993). A case in point in the present study is potential endogeneity in business planning. The business planning of organizations may reflect a broader set of strategic choices that they make. However, this endogeneity is hardly ever controlled for in the underlying studies we meta-analyzed; therefore, this concern cannot be eliminated in our meta-analysis. A third, and perhaps related limitation of the method concerns granularity, since the underlying studies are typically not designed for the research question under investigation (Robertson et al., 1993). While meta-analysis offers extraordinary power to bring a large body of diverse extant work to a research question, it does not afford insight into follow-on questions suggested by the data, such as why some firms undertake business planning while other similar firms do not. There are many nuanced elements in the venture performance thesis, which might profitably be explored with investigation using alternative methods. As such,

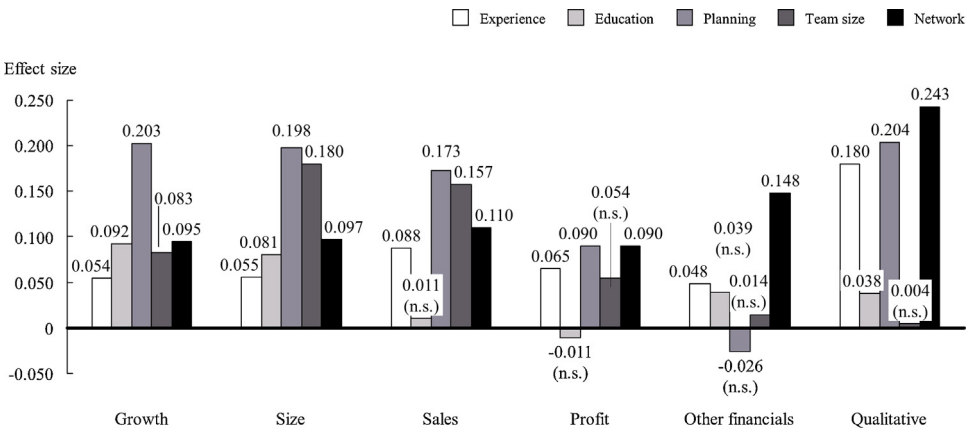

Fig. 2. Plotted summary model of research findings.

this meta-analysis does not seek to be the final point of the scholarly discussion, but rather aims to synthesize extant evidence and provide guidance and orientation for future research.

6. Discussion and conclusion

While the quantitative results are presented in Table 3, Fig. 2 displays the main effects in a clustered bar chart to provide a graphical illustration summarizing the main findings of our work. The richness and breadth of these data offer many potential avenues for discussion and conclusions, but we focus our attention on five elements in particular.

6.1. Moderating effects of economic development and uncertainty avoidance

Our moderator analyses revealed that entrepreneurial talent is more strongly connected with performance in developing economies than in advanced economies. As this finding may encourage policy makers in developing countries to consider ways of enhancing the relevant entrepreneurial talents of individuals, we explore related research and possible underlying explanations. Carayannis and von Zedtwitz (2005) build on a similar premise, assuming that startup incubators are more valuable in less developed economies since their functionalities of bridging knowledge or increasing the access to different resources can have more impact than in already developed countries. The resource-based view offers insight into why this may be, starting with the assumption that entrepreneurial talent is unevenly distributed across individuals entering entrepreneurship (Barney, 1991). Compounding that effect, individual entrepreneurial talent is likely to vary more in developing than in advanced economies, owing to a higher and more consistent education level across developed economy populations (e.g., Lerner et al., 1997). Furthermore, in developing economies, more individuals may enter entrepreneurship out of necessity, a situation that changes with economic development (Kelley et al., 2012; Venkataraman, 2004), adding to the heterogeneity of active entrepreneurial talent. As our results support these arguments of previous researchers, further efforts to unpack the mechanisms and causality underlying the relationship between entrepreneurial talent and performance in developing economies should be encouraged.

Our finding that entrepreneurial talent is connected with performance in uncertainty-avoiding cultures adds to the literature in important ways. Previous research has focused on entrepreneurial entry, and at the macro and micro levels generally connects low uncertainty avoidance and entrepreneurial entry (Hayton et al., 2002), though results and explanations are equivocal (Wennekers et al., 2007). Similarly, at the individual level, previous research shows that across countries, entrepreneurs exhibit lower uncertainty avoidance than non-entrepreneurs (McGrath et al., 1992), and that investigations focusing on entrepreneurial cognition propose lower uncertainty avoidance is positively connected with entrepreneurial cognition (Busenitz and Lau, 1996). Work investigating uncertainty avoidance and performance outcomes has not paralleled that investigating entrepreneurial entry, and the contingent influence of cultural elements on entrepreneurial outcomes has been identified as an under-explored area (George and Zahra, 2002). As we establish the connection between uncertainty avoidance and performance in our data, we offer a speculation regarding the self-selection effects that might be at play, as a means of encouraging future research. It could be that in high uncertainty-avoiding cultures, individuals who are quite sure they have what it takes to be successful in building and managing a venture are ready to choose entrepreneurship with its inherent uncertainty over a secure and more predictable employment. This could contrast with cultures that present a lower level of uncertainty avoidance where individuals of all levels of entrepreneurial talent might just "try" entrepreneurship, with less reflection on whether they have the necessary talents to make their business successful. As these considerations are purely hypothetical, we call out for further research to explore the underlying mechanisms of how cultural context affects the entrepreneurial talent–performance relationship.

6.2. Different outcomes are connected with different entrepreneurial talent aspects

Different firm performance outcomes are not necessarily correlated with each other (e.g., Chaganti and Schneer, 1994; Venkatraman and Ramanujam, 1985, 1986; Zou et al., 2010) and theory often does not provide us with indications on how talent mechanisms differ with regard to various venture performance outcomes (e.g., human capital theory). In this paper, we are able to provide a contribution to theory by synthesizing a large volume of empirical work. Growth and firm size measures (scale in number of employees and sales) are predominantly tied to talents connected with planning – at least for SMEs of a certain size. However, in addition to planning, team size also presents a strong association with scale and sales, supporting the notion that greater management capacity better enables the kind of coordination that is necessary as firms get bigger (Penrose, 1959).

Profit offers a stable connection with the entrepreneurial talent variable of network and to a lesser extent with experience

and skills. In our analysis, the connection between planning and profit is not as robust as the connection between network and profit or experience and profit, as the various robustness tests showed a decrease in the significance level with regard to planning. If SMEs are considered an important vehicle in generating economic surplus, this finding suggests the importance of support for public policies that increase the stock of strong entrepreneurial networks and entrepreneurial experience in an economy. Venture profit is not only important for tax revenues but also for individuals considering entry into entrepreneurship according to rent-seeking theory (Baumol, 1990) and selfish motivation (Weitzel et al., 2010). This implies a case for policy interventions that invest in building or deepening the stock of entrepreneurial networks and entrepreneurial experience in a region or country, beyond promoting startups. This notion is consistent with literature on economic growth that highlights the contribution of different knowledge stocks to growth (Romer, 1990).

Furthermore, we find that network has the highest correlation with the "other financials" performance category. This implies that some aspects of SME performance, ranging from financial alliance performance to initial public offering (IPO) and return on equity (ROE) may likely require a broader and more diverse cast of characters than the founders alone. We also observe the importance of clearly specifying the dependent variable. The connection between entrepreneurial talent and agglomerated performance measures such as "other financials" differs substantially from more narrow measures such as sales. For the qualitative performance category, network emerges as the entrepreneurial talent with the strongest connection. Our finding regarding qualitative measures and overall the finding that network is connected most strongly with three of the investigated performance outcomes are also in line with contemporary network research, which broadly shows positive network performance effects in the entrepreneurial context (Hoang and Antoncic, 2003). From a theoretical point of view, the four mechanisms of social networks in an inter-organizational context identified by Zaheer et al. (2010) provide an explanation as to why network has the strongest relationships with half of the tested performance outcomes. First, according to Zaheer et al.'s (2010) review, social networks are often considered a valuable resource offering access to additional (economic and non-economic) resources from which venture performance can benefit (e.g., Bourdieu, 1986; Nahapiet and Ghoshal, 1998; Portes, 1998). Second, according to Zaheer et al. (2010), they are also a means of generating trusting relationships, which add to performance by reducing transaction costs (e.g., Wu and Leung, 2005). A third mechanism described by Zaheer et al. (2010) refers to inter-organizational networks being a source of power and control that are able to reduce or increase resource dependencies of a focal firm (Pfeffer and Salancik, 1978). The fourth mechanism identified by Zaheer et al. (2010) refers to the signaling effect that can arise from partnering with a high-status company (see e.g., Stuart et al., 1999). These findings related to network and venture performance imply that policy makers need to simplify and encourage networking for (potential) founders. For example, by increasing and institutionalizing mentorship programs in universities or governmental institutions in which an experienced founder acts as a mentor and provides advice on a regular basis to new or potential firm founders, founder networks could be enhanced and hence lead to better venture performance on various dimensions.

Overall, two contributions are generated by our analysis. First, with these data, we are able to do more than demonstrate a differential correlation between outcome variables – we are able to show that entrepreneurial talent inputs associated with growth and firm size (scale in number of employees and sales) are different from those associated with performance outcomes such as profit, IPO and survival. This should further encourage researchers and policy makers to specify performance measures of interest, theorize more specifically with regard to specific dependent variables, and combine multiple performance measures with care. As enticing as it might be to combine performance variables, unpacking the objective function for both the founder and the policy maker will encourage more surgical, focused interventions that are more likely to generate the intended results.

Second, we show that entrepreneurial talent is associated with growth, scale and sales, but to a lesser extent with financial performance outcomes such as profit. With these findings, we are able to add specificity to Penrose's (1959) theory of the growth of the firm, which argues that a key limitation to enabling organizational growth is the capability of the management team. Meanwhile, the entrepreneurial talent of the entrepreneur or the entrepreneurial team appears to be less important for profitability. This finding is consistent with the broader view of entrepreneurs creating artifacts, which are of value especially to themselves (Benz and Frey, 2008). To this point, we have indications that across the population, entrepreneurs work more hours (Ajayi-Obe and Parker, 2005) and make less money than their employed peers (Hamilton, 2000), while at the same time extracting a number of side-benefits (Carter, 2011). Given that we find substantial variance across the different investigated performance outcomes, we suspect that there will be even greater variance against an even broader slate of dependent variables such as satisfaction, happiness, social progress, financial freedom and making a difference in the world. These variables have begun to be (somewhat grudgingly) accepted in economic circles, largely as a result of political adoption in some European countries (Blanchflower and Oswald, 2011; Stiglitz et al., 2010). So, as much as traditional economists might consider these objective functions irrational or subjective, there are indications that these variables may compose much of what the founder of a small firm is working to accomplish (e.g., Benz and Frey, 2008; Blanchflower et al., 2001). We believe that a clearer understanding of these variables will facilitate a more fruitful relationship between venture founders and policy makers in shaping outcomes.

6.3. Contingency in planning and performance

From a theoretical point of view, the positive relationship between planning and performance can be argued both from the perspectives of having the artifact (a plan) and from the learning that is derived from the process (Brews and Hunt, 1999; Brinckmann et al., 2010; Delmar and Shane, 2003). Expanding this debate, prior research has indicated that planning leads to better venture performance (Delmar and Shane, 2003), a finding reinforced by a recent meta-analysis (Brinckmann et al., 2010). At the same time, other researchers questioned the immediate impact of business planning on performance, with work showing the planning to performance relationship to be largely superficial (Honig and Karlsson, 2004; Kirsch et al., 2009; Powell, 1992). Another view suggests that planning is to some extent endogenous to cognitive ability and human capital (Frese et al., 2007), where planning leads to improved performance, but talented entrepreneurs would also be more likely to plan.

Overall, our data suggests support of the planning school, as the effect size of planning to performance overall is higher than any of our other talent variables (effect size = 0.171; $p < 0.001$). However, two important caveats accompany this result. First, the difference to the next highest talent variable – network (effect size = 0.135, $p < 0.001$) – is not statistically significant (t-value = 0.889; two-tailed $p = 0.374$). Moreover, the average breadth of the 95% confidence intervals around the main effect between performance and planning is 0.134, nearly the size of the effect itself (0.171), and more than 30% larger than the next highest average confidence interval (team size = 0.090). This indicates meaningful

endogeneity in the relationship between planning and performance, perhaps suggesting the presence of contextual moderators. Second, our results highlight the importance of specification of the dependent variable, as we find planning primarily associated with growth, scale and sales measures and to a substantially lesser extent with profitability and other financial measures. Moreover, as we see in a post hoc analysis (Section 5.3), this only applies to SMEs that have achieved a certain size.

The contingencies associated in planning are also illustrated when our results are viewed with those of Brinckmann et al. (2010). Neither their bivariate moderation analysis nor their meta-regression indicated significant differences between the performance impact of having a plan and the planning process. We also coded studies according to whether they measure having a plan or planning (excluding studies where the construct was ambiguous). With our data we do find a significant difference ($Q = 5.384$; $p = 0.020$) with regard to the impact on overall performance of planning process (effect size = 0.183, $p = 0.000$) versus having a plan (effect size = 0.066, $p = 0.011$). We assume the differences are attributed to the study inclusion criteria of both meta-analyses, but more importantly, we suspect that these findings might be more attributable to a lack of precision in the underlying studies. One issue lies in the difficulty of distinguishing between idiosyncratic planning and process from having a plan. There is a big difference between an entrepreneur who writes a plan once at the beginning of the venture, files it away and only takes it out for discussions with financial investors, and an entrepreneur who has a plan, uses it as a strategic and operational tool and revises it on a constant basis. Hence, it is not surprising that studies investigating only the bare existence of a plan might fail to capture a large part of the variance around planning.

There may also be an issue of measurement within underlying studies at play. Our review of the articles in our dataset that contained planning constructs revealed a meaningful difference. Of the 183 studies, 26% included independent variables measured as dichotomous (representing 36% of the firm population). But of the studies specific to planning, 42% of the firm population represented operationalized business planning as a dichotomous variable. This difference led us to not perform the correction for dichotomous variables (Hunter and Schmidt, 2004), as the correction would have unevenly biased our analyses toward studies measuring planning.[7] It also leads us to the question of why planning should be measured as a dichotomous variable at all (the degree to which a plan is developed and/or employed feels important in understanding planning). Our conclusion on this topic is that consumers of academic research demand that scholars investigating planning address a number of key issues with rigorous empirical research prior to making their own plans based on academic investigations of business planning. These include (but are not limited to):

(a) (How) is the business plan actually used in a small enterprise?
(b) Are business planning and adaptation alternatives or orthogonal?
(c) What is the causality between planning and scale?
(d) Do experienced founders use business plans differentially from novices?
(e) Is business planning in firms primarily a vestigial outcome of education?
(f) When is a business plan a liability?

We hope that until some clarity can be offered on these and other questions around business planning, policy makers and researchers alike will critically reflect on the application of planning in their specific venture context.

6.4. Re-educate education to foster entrepreneurial performance

Some of our key findings relate to education. Education is distinctive in that it presents the lowest effect size against two of our measured dependent variables (education with sales: effect size = 0.011, $p = 0.694$, education with profit: effect size = −0.011, $p = 0.739$) and presents the lowest relationship with all performance measures aggregated of any of our talent variables in direct effects (effect size = 0.060, $p < 0.001$). This finding is also reflected in the meta-regression (see Table 6), indicating that after controlling for different performance outcomes, every talent variable analyzed in the models demonstrates a significantly stronger relationship to performance than education since education is the excluded variable in the regression models. This persistently weak connection between education and performance may be unexpected because according to the education–growth nexus, it is plausible that societies with more educated populations have more skilled labor forces and should grow faster (Baumol et al., 2007), though Baumol et al. (2007) caution that for economic growth, education is not a sufficient but a necessary condition. One explanation for our finding could lie in the general empirical measurement of education, i.e., the number of years spent in an educational context. Rather, output (i.e., the quantity and quality) of what individuals actually accumulate as knowledge (see e.g., Unger et al., 2011) might provide a more accurate measure relating to economic growth. Further research needs to disentangle the education–growth nexus to provide additional policy implications to foster entrepreneurial talent.

Conversely, it is possible to argue that education in general today is not meant to help people start and run small firms. And although we looked at education in general, taking Baumol's view, this result would be expected to remain substantially the same if we investigated only specific entrepreneurial education. Baumol stated that it may not be feasible to teach entrepreneurial talent in class (Baumol and Blinder, 2010) – at least not in the kind of educational settings that past classrooms have provided.

To this, we strongly encourage the debate on *why* and suggest moving to *how*. Clearly, not every curriculum needs to promote entrepreneurship but – broadly speaking – education needs to provide people with the tools for what they want to do in the world. As evidenced by the amount of venture creation activity, one of the things that people want to do in the world is create firms to help themselves fulfill their goals, whatever these may be. The debate we seek to encourage is *how* education might be reshaped so that it provides a more positive connection to at least some of the objective and subjective functions entrepreneurs pursue when starting and running firms. Policy debates highlight the role of formal educational institutions in developing and socializing individuals (Heckman, 2000), but education might also fulfill a more prominent role in fostering the development of firms. At present, early entrepreneurship education is presumed to occur largely in families. However, skill formation is a dynamic process in which early learning provides foundations for later development (Heckman, 2000) and firms provide a strong source of skill development via on-the-job experience. Therefore, we suggest that there may be unrealized synergies between early (formal) education about entrepreneurship and later experiential skill acquisition in firms. Extant research and analyses summarized by Heckman (2000) point in general to underinvestment in the very young despite the benefits of learning synergies and much longer payoff horizons that such investments yield. We therefore encourage further research that takes a holistic view of the

[7] As an additional validity check, we also conducted the calculations including a correction for dichotomy. We observe only one meaningful change compared to the results discussed in this article. In the category of profit, planning slightly overtakes network and emerges as the talent variable with the highest effect size with profit.

connections between entrepreneurship-promoting skill formation across the institutions of family, formal education and firms.

6.5. Theoretical conclusions for researchers

For researchers, we raise three theoretical issues arising from our results:

6.5.1. Theory for predicting the relationships affecting performance

Our results underline the importance of a fine-grained analysis of distinct performance outcomes. However, current theoretical research offers little basis for predicting or understanding the relative magnitude of the relationships between the various components of entrepreneurial talent and different indicators of performance (Unger et al., 2011). Therefore, a challenge – and opportunity – now exists for researchers to craft a cohesive and persuasive theory that predicts specific talent variables' differential impact on certain measures of performance.

6.5.2. Conceptualizing talent mixes and profiles

The findings of our study lend support to notions of the multidimensionality of entrepreneurial talent (Federici et al., 2008). This leads us to suggest that future research should develop theory about entrepreneurial talent that recognizes the complexity of talents, including interactions between different aspects of talent. The notion we prefer here is that of talent mixes, resulting in an overall talent profile. There is no necessary one-to-one mapping of talents to an overall profile; dissimilar talents may yield similar overall profiles. Some prior research has highlighted one aspect of talent mixes: the performance impact of generalists ("jack-of-all-trades," balanced portfolio of talents) versus specialists (Hartog et al., 2010; Lazear, 2005). Furthermore, work by Weitzel et al. (2010) has already begun to explore the possible impact of specific talents (creativity and business talent) on selfishness versus altruism, thus highlighting the importance of distinguishing between different talent mixes when considering the impact on an entrepreneur's goals and performance.

6.5.3. Incorporating venture profiles into talent research

Lastly, there is an important modeling issue in the literature on entrepreneurial talent that needs to be addressed by researchers, which is that the talent–performance link is incomplete. Explicit in the economic research on entrepreneurial talent is the notion that persons can be (self) identified or revealed as entrepreneurs (Ferrante, 2005) and that these talents can be directed by appropriate economic policy into more or less productive avenues (Acemoglu, 1995; Baumol, 1990; Murphy et al., 1991). Based on our findings, we argue that one paradox of profiling people in entrepreneur versus non-entrepreneurs is that care has to be taken to go far enough in profiling. Dividing a population of students (for example) into those with entrepreneurial potential and those without it fails to incorporate the issue of what kinds of ventures might work well for individuals with different talent profiles, contingent on their choice to start a venture. Instead of asking whether an individual has the "right stuff" to become an entrepreneur, the next stage of talent research must ask and answer the question, "What kind of venture would be good for a person to start, given their particular constellation of talents?" In other words, future research should develop models of the talent–performance relationship that incorporate a mediating role for the venture profile, whereby the venture is construed as a design task that incorporates the individual's talents, values and aspirations. Researchers may then be able to recommend how venture design can be leveraged to appreciate a person's talents, whatever they may be.

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Appendix A.

Details on studies included in the meta-analysis

Authors name (year)	Sample size		Country of origin	Economy	Uncertainty avoidance index
	N firms	*N* ind.**			
Aarstad et al. (2010)	20	40	Norway	Advanced	50
Agarwal et al. (2004)	59	14,750	n/a	n/a	n/a
Amason et al. (2006)	174	43,500	U.S.	Advanced	46
Ancona and Caldwell (1992)	5	409	n/a	n/a	n/a
Arthurs et al. (2008)	307	92,100	U.S.	Advanced	46
Azriel (2003)	60	1200	U.S.	Advanced	46
Bamford et al. (2000)	140	7000	U.S.	Advanced	46
Barney et al. (1996)	205	10,250	U.S.	Advanced	46
Batjargal (2007)	52	2132	China	Developing	30
Batjargal (2010)	159	7473	China, Russia	Developing	n/a
Baum and Bird (2010)	143	2145	U.S.	Advanced	46
Baum and Locke (2004)	229	1438	U.S.	Advanced	46
Baum and Silverman (2004)	204	20,400	Canada	Advanced	48
Beal and Yasai-Ardekani (2000)	101	9494	U.S.	Advanced	46
Becerra et al. (2008)	65	3250	Norway	Advanced	50
Beckman et al. (2007)	161	9016	U.S.	Advanced	46
Begley (1995)	239	2390	U.S.	Advanced	46
Berman et al. (1997)	161	3220	U.S.	Advanced	46
Bingham et al. (2007)	12	70	n/a	n/a	n/a
Boeker and Wiltbank (2005)	86	25,800	U.S.	Advanced	46
Boone and de Brabander (1993)	51	4080	Belgium	Advanced	94
Boone and Hendriks (2009)	33	1320	Belgium, Netherlands	Advanced	n/a
Box et al. (1993)	95	4750	U.S.	Advanced	46
Box et al. (1995)	187	28,050	Thailand	Developing	64
Branko (2004)	415	83,000	U.S.	Advanced	46
Brunninge et al. (2007)	889	17,780	Sweden	Advanced	29
Brush and Chaganti (1999)	279	4185	U.S.	Advanced	46
Burgers et al. (2009)	240	118,800	Netherlands	Advanced	53
Burke et al. (2010)	422	7849	U.K.	Advanced	35
Capelleras et al. (2010)	647	17,469	Argentina, Brazil, Chile, Peru	Developing	n/a
Carson et al. (2003)	129	32,250	U.S.	Advanced	46
Carter et al. (1996)	71	142	U.S.	Advanced	46
Carter et al. (1997)*	144	1440	U.S.	Advanced	46
Carter et al. (1997)*	59	590	U.S.	Advanced	46
Chaganti and Schneer (1994)	372	372	U.S.	Advanced	46
Chaganti et al. (2008)	26	1950	U.S.	Advanced	46
Chandler and Hanks (1994)	155	2325	U.S.	Advanced	46
Chandler and Jansen (1992)	134	804	U.S.	Advanced	46
Chandler and Lyon (2009)	124	62,000	U.S.	Advanced	46
Chen et al. (2009)	202	50,500	China	Developing	30
Chrisman et al. (2005)	31	31	U.S.	Advanced	46
Ciavarella et al. (2004)	111	2220	U.S.	Advanced	46
Cliff (1998)*	141	3525	Canada	Advanced	48
Cliff (1998)*	88	1056	Canada	Advanced	48
Cooper et al. (1997)	391	1799	U.S.	Advanced	46
Crusoe (2000)	57	570	U.S.	Advanced	46
Davidsson and Honig (2003)	380	380	Sweden	Advanced	29
De Carolis et al. (2009)	269	269	U.S.	Advanced	46
De Clerq and Sapienza (2006)	298	14,900	U.S.	Advanced	46
Delmar and Shane (2003)	211	211	Sweden	Advanced	29
Delmar and Shane (2004)	211	211	Sweden	Advanced	29
Dencker et al. (2009)	436	436	Germany	Advanced	65
Dingkun (2003)	210	5250	U.S.	Advanced	46
Doutriaux (1992)	65	325	Canada	Advanced	48
Døving and Gooderham (2008)	234	234	Norway	Advanced	50
Edelman et al. (2005)	192	384	n/a	n/a	n/a
Escribá-Esteve et al. (2009)	295	36,875	Spain	Advanced	86
Farrell et al. (2005)	38	273	Ireland	Advanced	35
Fasci and Valdez (1998)	604	1812	U.S.	Advanced	46
Fernhaber and Li (2010)	150	52,500	U.S., Canada	Advanced	n/a
Florin (2001)	279	90,117	U.S.	Advanced	46
Florin (2005)	277	89,471	U.S.	Advanced	46
Forbes (2005a)	77	9625	U.S.	Advanced	46
Forbes (2005b)	108	1080	U.S.	Advanced	46
Freel and de Jong (2009)	594	29,700	Netherlands	Advanced	53

Authors name (year)	Sample size		Country of origin	Economy	Uncertainty avoidance index
	N firms	*N* ind.**			
Frese et al. (2007)*	117	117	South Africa	Developing	49
Frese et al. (2007)*	215	215	Zimbabwe	Developing	n/a
Frese et al. (2007)*	73	73	Namibia	Developing	n/a
Fung et al. (2007)	2105	324,170	China	Developing	30
Gimeno et al. (1997)	1457	1457	U.S.	Advanced	46
Gimmon and Levie (2010)	193	193	Israel	Advanced	81
Goedhuys and Sleuwaegen (2010)	254	7874	11 African countries	Developing	n/a
Gruber et al. (2008)	84	37,800	Germany	Advanced	65
Haber and Reichel (2007)	305	38,125	Israel	Advanced	81
Hayton (2002)	200	50,000	U.S.	Advanced	46
Higashide and Birley (2002)	57	2850	U.K.	Advanced	35
Hmieleski (2009)	201	10,050	U.S.	Advanced	46
Hmieleski and Baron (2008a)	159	39,750	U.S.	Advanced	46
Hmieleski and Baron (2008b)	207	51,750	U.S.	Advanced	46
Hmieleski and Carr (2008)	216	54,000	U.S.	Advanced	46
Hmieleski and Ensley (2007)*	66	168	U.S.	Advanced	46
Hmieleski and Ensley (2007)*	154	1540	U.S.	Advanced	46
Holcomb (2007)	632	305,256	U.S.	Advanced	46
Honig (1998)	215	250	Jamaica	Developing	13
Honig (2001)	64	448	Palestine	Developing	n/a
Honig and Karlsson (2004)	396	396	Sweden	Advanced	29
Hsu (2007)	149	7450	U.S.	Advanced	46
Jo and Lee (1996)	48	4800	South Korea	Advanced	85
Khavul (2001)	82	1394	Israel	Advanced	81
Kim and Higgins (2007)	292	24,820	U.S.	Advanced	46
Kishida (2005)	314	942	U.S.	Advanced	46
Kor (2003)	73	18,250	U.S.	Advanced	46
Kundu and Katz (2003)	47	470	India	Developing	40
Lane et al. (2001)	78	5538	Hungary	Developing	82
Lange et al. (2007)	330	41,250	U.S.	Advanced	46
Larsson et al. (2003)	223	223	Sweden	Advanced	29
Lee et al. (2001)	137	17,125	South Korea	Advanced	85
Lee and Tsang (2001)	168	3360	Singapore	Advanced	8
Lerner et al. (1997)	218	2616	Israel	Advanced	81
Lerner and Almor (2002)	220	3300	Israel	Advanced	81
Lerner and Haber (2001)	53	424	Israel	Advanced	81
Li (1998)	184	9200	China	Developing	30
Li and Zhang (2007)	184	9200	China	Developing	30
Lin et al. (2006)	125	25,000	Taiwan	Advanced	69
Lin et al. (2009)	110	5500	Taiwan	Advanced	69
Ling and Kellermanns (2010)	86	5160	U.S.	Advanced	46
Lubatkin et al. (2006)	139	8618	U.S.	Advanced	46
Lyles et al. (2004)	135	3645	Hungary	Developing	82
Manolova et al. (2007)	545	8938	Bulgaria	Developing	85
Matthews (1990)	103	2575	U.S.	Advanced	46
Matthews and Scott (1995)	130	4160	U.S.	Advanced	46
Matthews et al. (2001)	467	467	n/a	n/a	n/a
McEvily and Marcus (2005)	234	14,742	U.S.	Advanced	46
McGee et al. (1995)	210	21,000	U.S.	Advanced	46
Meziou (1991)	176	8800	U.S.	Advanced	46
Miner et al. (1994)	90	90	n/a	n/a	n/a
Minguzzi and Passaro (2001)	104	2600	Italy	Advanced	75
Mitchell et al. (2008)	220	220	U.S.	Advanced	46
Mollick (2010)	1552	55,872	n/a	n/a	n/a
Morris et al. (1997)	177	8850	U.S.	Advanced	46
Mursitama (2006)	1080	54,000	Indonesia	Developing	48
Muse et al. (2005)	4637	148,384	U.S.	Advanced	46
Nadkarni and Herrmann (2010)	195	80,155	India	Developing	40
Niehm et al. (2008)	221	1105	U.S.	Advanced	46
Niosi (2003)	60	1560	Canada	Advanced	48
Okamuro (2007)	255	32,130	Japan	Advanced	92
Orser et al. (2000)	1004	1004	Canada	Advanced	48
Oxley and Wada (2009)	548	137,000	n/a	n/a	n/a
Park (2010)	126	63,000	South Korea	Advanced	85
Park and Krishnan (2001)	78	5694	U.S.	Advanced	46
Patzelt et al. (2008)	99	4653	Germany	Advanced	65
Peña (2004)	114	114	Spain	Advanced	86
Pett and Wolff (2003)	149	11,175	U.S.	Advanced	46
Powell (1992)*	68	8500	U.S.	Advanced	46
Powell (1992)*	45	5625	U.S.	Advanced	46

Authors name (year)	Sample size		Country of origin	Economy	Uncertainty avoidance index
	N firms	*N* ind.**			
Rauch et al. (2000)*	66	1650	Germany	Advanced	65
Rauch et al. (2000)*	48	1200	Germany	Advanced	65
Rauch et al. (2005)	95	570	Germany	Advanced	65
Raz and Gloor (2007)	71	710	Israel	Advanced	81
Reuber and Fischer (1994)	43	2924	Canada	Advanced	48
Rosenkopf and Almeida (2003)	116	29,000	U.S.	Advanced	46
Saffu and Manu (2004)	171	2052	Ghana	Developing	54
Sambasivan et al. (2009)	243	12,150	Malaysia	Developing	36
Sapienza et al. (2004)	54	6048	Finland	Advanced	59
Sarason and Tegarden (2003)	314	7850	U.S.	Advanced	46
Schulze et al. (2003)	1464	266,448	U.S.	Advanced	46
Senjem (2001)	113	28,250	U.S.	Advanced	46
Shrader and Siegel (2007)	198	49,500	U.S.	Advanced	46
Sine et al. (2006)	449	2694	U.S.	Advanced	46
Smaltz et al. (2006)	100	25,000	U.S.	Advanced	46
Soh (2010)	49	12,250	U.S.	Advanced	46
Song et al. (2010)	694	52,050	China	Developing	30
Stam (2010)	75	375	Netherlands	Advanced	53
Stam and Elfring (2008)	87	348	Netherlands	Advanced	53
Stam and Wennberg (2009)	647	16,175	Netherlands	Advanced	53
Stetz et al. (2005)	865	865	n/a	n/a	n/a
Stewart (2003)	72	1800	U.S.	Advanced	46
Tiwana and Bush (2005)	122	122	n/a	n/a	n/a
Tornikoski and Newbert (2007)	830	830	U.S.	Advanced	46
Tsai (2009)	753	334,332	Taiwan	Advanced	69
Ucbasaran et al. (2003)	92	92	UK	Advanced	35
Unger et al. (2009)	90	90	South Africa	Developing	49
van Gelder et al. (2007)	91	455	Fiji	Developing	n/a
van Gelderen et al. (2000)	49	1225	Netherlands	Advanced	53
Vissa and Chacar (2009)	84	168	India	Developing	40
Walter et al. (2006)	149	2384	n/a	n/a	n/a
Walters et al. (2010)	494	123,500	U.S.	Advanced	46
Watson et al. (2003)	175	1750	U.S.	Advanced	46
Weaver and Dickson (1998)	252	12,600	Norway	Advanced	50
Wiklund and Shepherd (2003)	326	7172	Sweden	Advanced	29
Wiklund and Shepherd (2008)	2253	2253	Sweden	Advanced	29
Wincent et al. (2010)	41	861	Sweden	Advanced	29
Wright et al. (2008)	349	22,685	China	Developing	30
Yang et al. (2008)	105	52,500	Eastern Europe	Developing	n/a
Yli-Renko et al. (2001)	180	4320	UK	Advanced	35
Zahra et al. (1997)	121	10,164	U.S.	Advanced	46
Zahra et al. (2007)	384	38,400	U.S.	Advanced	46
Zahra and Bogner (2000)	116	5800	U.S.	Advanced	46
Zhao et al. (2010)*	133	1995	China	Developing	30
Zhao et al. (2010)*	75	150	China	Developing	30
Zheng et al. (2010)	170	42,500	U.S.	Advanced	46
Zollo et al. (2002)	81	20,250	U.S.	Advanced	46
Zou et al. (2010)	252	12,600	China	Developing	30

* Papers from which multiple studies were extracted are listed multiple times in this table.

** In situations where average firm size of the respective sample was not provided, we estimated the average firm size based on the sample description in order to calculate the number of individuals.

References [8]

*Aarstad, J., Haugland, S.A., Greve, A., 2010. Performance spillover effects in entrepreneurial networks: Assessing a dyadic theory of social capital. Entrepreneurship Theory and Practice 34, 1003–1019.

Acemoglu, D., 1995. Reward structures and the allocation of talent. European Economic Review 39, 17–33.

*Agarwal, R., Echambadi, R., Franco, A.M., Sarkar, M.B., 2004. Knowledge transfer through inheritance: spin-out generation, development, and survival. Academy of Management Journal 47, 501–522.

Ajayi-Obe, O., Parker, S.C., 2005. The changing nature of work among the self-employed in the 1990s: evidence from Britain. Journal of Labour Research 26, 501–517.

Aldrich, H.E., Auster, E., 1986. Even dwarfs started small: liabilities of age and size and their strategic implications. In: Staw, B., Cummings, L.L. (Eds.), Research in Organizational Behavior, 8. JAI Press, Greenwich, CT, pp. 165–198.

*Amason, A.C., Shrader, R.C., Tompson, G.H., 2006. Newness and novelty: relating top management team composition to new venture performance. Journal of Business Venturing 21, 125–148.

*Ancona, D.G., Caldwell, D.F., 1992. Demography and design: predictors of new product team performance. Organization Science 3, 321–341.

Ansoff, H.I., Avner, J., Brandenburg, R.G., Portner, F.E., Radosevich, R., 1970. Does planning pay? The effect of planning on success of acquisitions in American firms. Long Range Planning 3 (2), 2–7.

Ansoff, H.I., 1991. Critique of Henry Mintzberg's 'the design school: reconsidering the basic premises of strategic management'. Strategic Management Journal 12, 449–461.

Armstrong, J.S., 1982. The value of formal planning for strategic decisions: review of empirical research. Strategic Management Journal 3, 197–211.

*Arthurs, J.D., Hoskisson, R.E., Busenitz, L.W., Johnson, R.A., 2008. Managerial agents watching other agents: multiple agency conflicts regarding underpricing in IPO firms. Academy of Management Journal 51, 277–294.

Audretsch, D.B., Grilo, I., Thurik, A.R., 2007. Handbook of Research on Entrepreneurship Policy. Edward Elgar, Cheltenham, UK–Northampton, MA.

[8] References marked with an asterisk indicate studies included in the meta-analysis.

Audretsch, D.B., Grimm, H.M., Schuetze, S., 2009. Local strategies within a European policy framework. European Planning Studies 17, 463–486.
Ayyagari, M., Beck, T., Demirguc-Kunt, A., 2007. Small and medium enterprises across the globe. Small Business Economics 29, 415–434.
*Azriel, J.A., 2003. Small, High-Technology Firms and their Larger Strategic Alliance Partners: Entrepreneurial and Resource-Based Perspectives. Doctoral dissertation. University at Albany, State University of New York.
Bales, R., Borgatta, E., 1962. Size of group as a factor in interaction profile. In: Hare, A., Borgatta, E., Bales, R. (Eds.), Small Groups: Studies in Social Interaction. Knopf, New York, pp. 396–413.
*Bamford, C.E., Dean, T.J., McDougall, P.P., 2000. An examination of the impact of initial founding conditions and decisions upon the performance of new bank start-ups. Journal of Business Venturing 15, 253–277.
Barney, J.B., 1991. Firm resources and sustained competitive advantage. Journal of Management 17, 99–120.
*Barney, J.B., Busenitz, L.W., Fiet, J.O., Moesel, D.D., 1996. New venture teams' assessment of learning assistance from venture capital firms. Journal of Business Venturing 11, 257–272.
*Batjargal, B., 2007. Internet entrepreneurship: social capital, human capital and performance of new internet ventures in China. Research Policy 36, 605–618.
*Batjargal, B., 2010. The effects of network's structural holes. Strategic Entrepreneurship Journal 4, 146–163.
*Baum, J.A.C., Silverman, B.S., 2004. Picking winners or building them? Alliance, intellectual, and human capital as selection criteria in venture financing and performance of biotechnology startups. Journal of Business Venturing 19, 411–436.
*Baum, J.R., Bird, B.J., 2010. The successful intelligence of high-growth entrepreneurs: links to new venture growth. Organization Science 42, 397–412.
*Baum, J.R., Locke, E.A., 2004. The relationship of entrepreneurial traits, skill, and motivation to subsequent venture growth. Journal of Applied Psychology 89, 587–598.
Baumol, W.J., 1968. Entrepreneurship in economic theory. American Economic Review 58 (2), 64–71.
Baumol, W.J., 1990. Entrepreneurship: productive, unproductive and destructive. Journal of Political Economy 98, 893–921.
Baumol, W.J., Litan, R.E., Schramm, C.J., 2007. Good Capitalism, Bad Capitalism, and the Economics of Growth and Prosperity. Yale University Press, New Haven–London.
Baumol, W.J., 2010. The Microtheory of Innovative Entrepreneurship. Princeton University Press, New Jersey.
Baumol, W.J., Blinder, A.S., 2010. Economics: Principles and Policy, 11th ed. South-Western Cengage Learning, Mason, OH (2010 Update).
*Beal, R.M., Yasai-Ardekani, M., 2000. Performance implications of aligning CEO functional experiences with competitive strategies. Journal of Management 26, 733–762.
*Becerra, M., Lunnan, R., Huemer, L., 2008. Trustworthiness, risk, and the transfer of tacit and explicit knowledge between alliance partners. Journal of Management Studies 45, 691–713.
Beck, T., Demirgüç-Kunt, A., Maksimovic, V., 2005. Financial and legal constraints to growth: does firm size matter? Journal of Finance 60, 137–177.
Becker, G.S., 1964. Human Capital. Columbia Press, New York.
Becker, S.O., Wößmann, L., 2009. Was Weber wrong? A human capital theory of Protestant economic history. The Quarterly Journal of Economics 124, 531–596.
*Beckman, C.M., Burton, M.D., O'Reilly, C., 2007. Early teams: the impact of team demography on VC financing and going public. Journal of Business Venturing 22, 147–173.
*Begley, T.M., 1995. Using founder status, age of firm, and company growth rate as the basis for distinguishing entrepreneurs from managers of smaller businesses. Journal of Business Venturing 10, 249–263.
Benz, M., Frey, B., 2008. Being independent is a great thing: subjective evaluations of self-employment and hierarchy. Economica 75, 362–383.
*Berman, J.A., Gordon, D.D., Sussman, G., 1997. A study to determine the benefits small business firms derive from sophisticated planning versus less sophisticated planning. Journal of Business and Economic Studies 3 (3), 1–11.
Bian, Y., 1997. Bringing strong ties back in: indirect ties, network bridges, and job searches in China. American Sociological Review 62, 366–385.
*Bingham, C.B., Eisenhardt, K.M., Furr, N.R., 2007. What makes a process a capability? Heuristics, strategy, and effective capture of opportunities. Strategic Entrepreneurship Journal 1, 27–47.
Blanchflower, D.G., Oswald, A.J., 2011. International happiness: a new view on the measure of performance. Academy of Management Perspectives 25, 6–22.
Blanchflower, D.G., Oswald, A., Stutzer, A., 2001. Latent entrepreneurship across nations. European Economic Review 45, 680–691.
*Boeker, W., Wiltbank, R., 2005. New venture evolution and managerial capabilities. Organization Science 16, 123–133.
*Boone, C., de Brabander, B., 1993. Generalized versus specific locus of control expectancies of chief executive officers. Strategic Management Journal 14, 619–625.
*Boone, C., Hendriks, W., 2009. Top management team diversity and firm performance: moderators of functional-background and locus-of-control diversity. Management Science 55, 165–180.
Borenstein, M., Hedges, L., Higgins, J., Rothstein, H., 2005. Comprehensive Meta-Analysis Version 2.0. Biostat, Englewood, NJ.
Borenstein, M., Hedges, L., Rothstein, H., 2007. Meta-Analysis Fixed Effect versus Random Effects, Downloaded on 13 August 2011 from http://www.meta-analysis.com/
Bourdieu, P., 1986. The forms of capital. In: Richardson, J.G. (Ed.), Handbook of Theory and Research for the Sociology of Education. Greenwood Press, New York, pp. 241–258.
*Box, T., Beisel, J.L., Watts, L.R., 1995. Thai entrepreneurs: an empirical investigation of individual differences, background and scanning behavior. Academy of Entrepreneurship Journal 1, 18–25.
*Box, T., White, M.A., Barr, S.H., 1993. A contingency model of new manufacturing firm performance. Entrepreneurship Theory and Practice 18 (2), 31–45.
*Branko, B., 2004. The Mediating Role of Organizational Legitimacy in Resource-Based Models of Firm Performance. Doctoral dissertation. Case Western Reserve University.
Brews, P.J., Hunt, M.R., 1999. Learning to plan and planning to learn: resolving the planning school/learning school debate. Strategic Management Journal 20, 889–913.
Brinckmann, J., Grichnik, D., Kapsa, D., 2010. Should entrepreneurs plan or just storm the castle? A meta-analysis on contextual factors impacting the business planning-performance relationship in small firms. Journal of Business Venturing 25, 24–40.
Brinckmann, J., Högl, M., 2011. Effects of initial teamwork capability and initial relational capability on the development of new technology-based firms. Strategic Entrepreneurship Journal 5, 37–57.
*Brunninge, O., Nordqvist, M., Wiklund, J., 2007. Corporate governance and strategic change in SMEs: the effects of ownership, board composition and top management teams. Small Business Economics 29, 295–308.
*Brush, C.G., Chaganti, R., 1999. Business without glamour? An analysis of resources on performance by size and age in small service and retail firms. Journal of Business Venturing 14, 233–257.
Brush, C.G., VanderWerf, P.A., 1992. A comparison of methods and sources for obtaining estimates of new venture performance. Journal of Business Venturing 7, 157–161.
*Burgers, J.H., Jansen, J.J.P., Van den Bosch, F.A.J., Volberda, H.W., 2009. Structural differentiation and corporate venturing: the moderating role of formal and informal integration mechanisms. Journal of Business Venturing 24, 206–220.
*Burke, A., Fraser, S., Greene, F.J., 2010. The multiple effects of business planning on new venture performance. Journal of Management Studies 47, 391–415.
Burns, T., Stalker, G.M., 1961. The Management of Innovation. Tavistock, London.
Busenitz, L.W., Lau, C.M., 1996. A cross-cultural cognitive model of new venture creation. Entrepreneurship Theory and Practice 20 (4), 25–39.
*Capelleras, J.L., Greene, F.J., Kantis, H., Rabetino, R., 2010. Venture creation speed and subsequent growth: evidence from South America. Journal of Small Business Management 48, 302–324.
Carayannis, E.G., von Zedtwitz, M., 2005. Architecting gloCal (global-local), real-virtual incubator networks (G-RVINs) as catalysts and accelerators of entrepreneurship in transitioning and developing economies: lessons learned and best practices from current development and business incubation practices. Technovation 25, 95–110.
Carree, M.A., Thurik, A.R., 2010. The impact of entrepreneurship on economic growth. In: Acs, Z.J., Audretsch, D.B. (Eds.), Handbook of Entrepreneurship Research: An Interdisciplinary Survey and Introduction. , 2nd ed. Springer, New York, Dordrecht, Heidelberg and London, pp. 557–594.
*Carson, S.J., Madhok, A., Varman, R., John, G., 2003. Information processing moderators of the effectiveness of trust-based governance in interfirm R&D collaboration. Organization Science 14 (1), 45–56.
*Carter, N.M., Gartner, W.B., Reynolds, P.D., 1996. Exploring start-up sequences. Journal of Business Venturing 11, 151–166.
*Carter, N.M., Williams, M., Reynolds, P.D., 1997. Discontinuance among new firms in retail: the influence of initial resources, strategy, and gender. Journal of Business Venturing 12, 125–145.
Carter, S., 2011. The rewards of entrepreneurship: exploring the incomes, wealth, and economic well-being of entrepreneurial households. Entrepreneurship Theory and Practice 35, 39–55.
*Chaganti, R., Schneer, J.A., 1994. A study of impact of owner's mode of entry on venture performance and management patterns. Journal of Business Venturing 9, 243–260.
*Chaganti, R.S., Watts, A.D., Chaganti, R., Zimmermann-Treichel, M., 2008. Ethnic-immigrants in founding teams: effects on prospector strategy and performance in new Internet ventures. Journal of Business Venturing 23, 113–139.
*Chandler, G.N., Hanks, S.H., 1994. Founder competence, the environment, and venture performance. Entrepreneurship Theory and Practice 18 (3), 77–90.
*Chandler, G.N., Jansen, E., 1992. The founder's self-assessed competence and venture performance. Journal of Business Venturing 7, 223–236.
*Chandler, G.N., Lyon, D.W., 2009. Involvement in knowledge-acquisition activities by venture team members and venture performance. Entrepreneurship Theory and Practice 33, 571–592.
*Chen, D., Park, S.H., Newburry, W., 2009. Parent contribution and organizational control in international joint ventures. Strategic Management Journal 30, 1133–1156.
*Chrisman, J.J., McMullan, E., Hall, J., 2005. The influence of guided preparation on the long-term performance of new ventures. Journal of Business Venturing 20, 769–791.
*Ciavarella, M.A., Buchholtz, A.K., Riordan, C.M., Gatewood, R.D., Stokes, G.S., 2004. The big five and venture survival: is there a linkage? Journal of Business Venturing 19, 465–483.
*Cliff, J.E., 1998. Does one size fit all? Exploring the relationship between attitudes towards growth, gender, and business size. Journal of Business Venturing 13, 523–542.

Cooper, A.C., 1993. Challenges in predicting new firm performance. Journal of Business Venturing 8, 241–253.
Cooper, A.C., Bruno, A.V., 1977. Success among high-technology firms. Business Horizons 20 (2), 16–22.
Cooper, A.C., Gimeno-Gascon, F.J., Woo, C.Y., 1994. Initial human and financial capital as predictors of new venture performance. Journal of Business Venturing 9, 371–395.
*Cooper, A., Ramachandran, M., Schoorman, D., 1997. Time allocation patterns of craftsmen and administrative entrepreneurs: implications for financial performance. Entrepreneurship Theory and Practice 22 (2), 123–136.
*Crusoe, E.E., 2000. Planning in Small Firms: Extent and Effect. Doctoral dissertation. Nova Southeastern University, Fort Lauderdale, FL.
Dalton, D.R., Daily, C.M., Certo, S.T., Roengpitya, R., 2003. Meta-analyses of corporate financial performance and equity: fusion or confusion? Academy of Management Journal 46, 13–26.
*Davidsson, P., Honig, B., 2003. The role of social capital and human capital among nascent entrepreneurs. Journal of Business Venturing 18, 301–331.
*De Carolis, D.M., Litzky, B.E., Eddleston, K.A., 2009. Why networks enhance the progress of new venture creation: the influence of social capital and cognition. Entrepreneurship Theory and Practice 33, 527–545.
*De Clerq, D., Sapienza, H.J., 2006. Effects of relational capital and commitment on venture capitalists' perception of portfolio company performance. Journal of Business Venturing 21, 326–347.
*Delmar, F., Shane, S., 2003. Does business planning facilitate the development of new ventures? Strategic Management Journal 24, 1165–1185.
*Delmar, F., Shane, S., 2004. Legitimating first: organizing activities and the survival of new ventures. Journal of Business Venturing 19, 385–410.
*Dencker, J.C., Gruber, M., Shah, S.K., 2009. Pre-entry knowledge, learning, and the survival of new firms. Organization Science 20, 516–537.
Dickson, P.H., Weaver, K.M., Hoy, F., 2006. Opportunism in the R&D alliances of SMEs. The role of the institutional environment and SME size. Journal of Business Venturing 21, 487–513.
*Dingkun, G., 2003. Startup Valuation by Venture Capitalists: A Strategic Management Approach. Doctoral dissertation. University of Illinois at Urbana-Champaign.
*Doutriaux, J., 1992. Emerging high-tech firms: how durable are their comparative start-up advantages? Journal of Business Venturing 7, 303–322.
*Døving, E., Gooderham, P.N., 2008. Dynamic capabilities as antecedents of the scope of related diversification: the case of small firm accountancy practices. Strategic Management Journal 29, 841–857.
*Edelman, L.F., Brush, C.G., Manolova, T., 2005. Co-alignment in the resource-performance relationship: strategy as a mediator. Journal of Business Venturing 20, 359–383.
Eisenhardt, K.M., Schoonhoven, C.B., 1990. Organizational growth: linking founding team, strategy, environment, and growth among U.S. semiconductor ventures, 1978-1988. Administrative Science Quarterly 35, 504–529.
Erez, A., Bloom, M.C., Wells, M.T., 1996. Using random rather than fixed effects models in meta-analysis: implications for situational specificity and validity generalization. Personnel Psychology 49, 275–306.
*Escribá-Esteve, A., Sánchez-Peinado, L., Sánchez-Peinado, E., 2009. The influence of top management teams in the strategic orientation and performance of small and medium-sized enterprises. British Journal of Management 20, 581–597.
*Farrell, J.B., Flood, P.C., Mac Curtain, S., Hannigan, A., Dawson, J., West, M., 2005. CEO leadership, top team trust and the combination and exchange of information. Irish Journal of Management 26, 22–40.
*Fasci, M.A., Valdez, J., 1998. A performance contrast of male- and female-owned small accounting practices. Journal of Small Business Management 36 (3), 1–7.
Federici, D., Ferrante, F., Vistocco, D., 2008. On the sources of entrepreneurial talent in Italy: tacit versus codified knowledge. Journal of Knowledge Management 6 (6), 7–28.
*Fernhaber, S.A., Li, D., 2010. The impact of interorganizational imitation on new venture international entry and performance. Entrepreneurship Theory and Practice 34, 1–30.
Ferrante, F., 2005. Revealing entrepreneurial talent. Small Business Economics 25, 159–174.
*Florin, J.M., 2001. Born to Go Public: Human Capital, Social Capital, and Fundability of High-Potential Technology Ventures. Doctoral dissertation. University of Connecticut.
*Florin, J., 2005. Is venture capital worth it? Effects on firm performance and founder returns. Journal of Business Venturing 20, 113–135.
*Forbes, D.P., 2005a. The effects of strategic decision making on entrepreneurial self-efficacy. Entrepreneurship Theory and Practice 29, 599–626.
*Forbes, D.P., 2005b. Are some entrepreneurs more confident than others? Journal of Business Venturing 20, 623–640.
Foster, J., 2010. Productivity, creative destruction and innovation policy: some implications from the Australian experience. Innovation: Management, Policy & Practice 12, 355–368.
*Freel, M., de Jong, J.P.J., 2009. Market novelty, competence-seeking and innovation networking. Technovation 29, 873–884.
Freeman, J.H., Carroll, G.R., Hannan, M.T., 1983. The liability of newness: age dependence in organizational death rates. American Sociological Review 48, 692–710.
Frese, M., Bausch, A., Schmidt, P., Rauch, A., Kabst, R., 2012. Evidence-based entrepreneurship: cumulative science, action principles, and bridging the gap between science and practice. Foundations and Trends in Entrepreneurship 8 (1), 1–62.
*Frese, M., Krauss, S., Keith, N., Escher, S., Grabarkiewicz, R., Luneng, S.T., Heers, C., Unger, J., Friedrich, C., 2007. Business owners' action planning and its relationship to business success in three African countries. Journal of Applied Psychology 92, 1481–1498.
*Fung, H.G., Xu, X.E., Zhang, W.Z., 2007. On the financial performance of private enterprises in China. Journal of Developmental Entrepreneurship 12, 399–414.
George, G., Zahra, S.A., 2002. Culture and its consequences for entrepreneurship. Entrepreneurship Theory and Practice 26 (4), 5–8.
Geyskens, I., Krishnan, R., Steenkamp, J.B.E.M., Cunha, P.V., 2009. A review and evaluation of meta-analysis practices in management research. Journal of Management 35, 392–419.
*Gimeno, J., Folta, T.B., Cooper, A.C., Woo, C.Y., 1997. Survival of the fittest? Entrepreneurial human capital and the persistence of underperforming firms. Administrative Science Quarterly 42, 750–783.
*Gimmon, E., Levie, J., 2010. Founder's human capital, external investment, and the survival of new high-technology ventures. Research Policy 39, 1214–1226.
*Goedhuys, M., Sleuwaegen, L., 2010. High-growth entrepreneurial firms in Africa: a quantile regression approach. Small Business Economics 34, 31–51.
Granovetter, M.S., 1973. The strength of weak ties. American Journal of Sociology 78, 1360–1380.
Granovetter, M., 1985. Economic action and social structure: the problem of embeddedness. American Journal of Sociology 91, 481–510.
*Gruber, M., MacMillan, I.C., Thompson, J.D., 2008. Look before you leap: market opportunity identification in emerging technology firms. Management Science 54, 1652–1665.
*Haber, S., Reichel, A., 2007. The cumulative nature of the entrepreneurial process: the contribution of human capital, planning and environment resources to small venture performance. Journal of Business Venturing 22, 119–145.
Hamilton, B.H., 2000. Does entrepreneurship pay? An empirical analysis of the returns to self-employment. Journal of Political Economy 108, 604–631.
Hartog, J., van Praag, M., van der Sluis, J., 2010. If you are so smart, why aren't you an entrepreneur? Returns to cognitive and social ability: entrepreneurs versus employees. Journal of Economics & Management Strategy 19, 947–989.
*Hayton, J.C., 2002. The Effect of Intellectual Capital on Entrepreneurial Orientation in High Technology New Ventures. Doctoral dissertation. J. Mack Robinson College of Business Georgia State University.
Hayton, J.C., Gerard, G., Zahra, S.A., 2002. National culture and entrepreneurship: a review of behavioral research. Entrepreneurship Theory and Practice 26 (4), 33–52.
Heckman, J.J., 2000. Policies to foster human capital. Research in Economics 54, 3–56.
*Higashide, H., Birley, S., 2002. The consequences of conflict between the venture capitalist and the entrepreneurial team in the United Kingdom from the perspective of the venture capitalist. Journal of Business Venturing 17, 59–81.
*Hmieleski, K.M., 2009. Entrepreneur improvisational behavior and new venture performance: a social cognitive perspective. In: Zacharakis, A., et al. (Eds.), Frontiers of Entrepreneurship Research 2009. Babson College, Babson Park, MA.
*Hmieleski, K.M., Baron, R.A., 2008a. When does entrepreneurial self-efficacy enhance versus reduce performance? Strategic Entrepreneurship Journal 2, 57–72.
*Hmieleski, K.M., Baron, R.A., 2008b. Regulatory focus and new venture performance: a study of entrepreneurial opportunity exploitation under conditions of risk versus uncertainty. Strategic Entrepreneurship Journal 2, 285–299.
*Hmieleski, K.M., Carr, J.C., 2008. The relationship between entrepreneur psychological capital and new venture performance. In: Zacharakis, A., et al. (Eds.), Frontiers of Entrepreneurship Research 2008. Babson College, Babson Park, MA.
*Hmieleski, K.M., Ensley, M.D., 2007. A contextual examination of new venture performance: entrepreneur leadership behavior, top management team heterogeneity, and environmental dynamism. Journal of Organizational Behavior 28, 865–889.
Hoang, H., Antoncic, B., 2003. Network-based research in entrepreneurship: a critical review. Journal of Business Venturing 18, 165–187.
Hofstede, G., Hofstede, G.J., 2005. Cultures and Organizations: Software of the Mind, 2nd ed. McGraw-Hill, New York.
*Holcomb, T.R., 2007. Organizational Resources, Industry Membership, and Firm Performance: The Role of Capability Formation and Use in Value Creation for IPO-Stage New Ventures. Doctoral dissertation. Texas A&M University.
*Honig, B., 1998. What determines success? Examining the human, financial, and social capital of Jamaican microentrepreneurs. Journal of Business Venturing 13, 371–394.
*Honig, B., 2001. Human capital and structural upheaval: a study of manufacturing firms in the West Bank. Journal of Business Venturing 16, 575–594.
*Honig, B., Karlsson, T., 2004. Institutional forces and the written business plan. Journal of Management 30, 29–48.
*Hsu, D.H., 2007. Experienced entrepreneurial founders, organizational capital and venture capital funding. Research Policy 36, 722–741.
Hunter, J.E., Schmidt, F.L., 2004. Methods of Meta-Analysis: Correcting Error and Bias in Research Findings, 2nd ed. Sage Publications, Thousand Oaks, CA.
International Monetary Fund, 2010. World Economic Outlook, October 2010: Recovery, Risk, and Rebalancing, Accessed online in August 2011 at www.imf.org
*Jo, H., Lee, J., 1996. The relationship between an entrepreneur's background and performance in a new venture. Technovation 16, 161–171.
Kelley, D.J., Singer, S., Herrington, M., 2012. The Global Entrepreneurship Monitor. 2011 Global Report, Downloaded on 18 September 2012 from http://www.gemconsortium.org/docs/download/2409

*Khavul, S., 2001. Money and Knowledge: Sources of Seed Capital and the Performance of High-Technology Start-Ups. Doctoral dissertation. Boston University.
*Kim, J.W., Higgins, M.C., 2007. Where do alliances come from? The effects of upper echelons on alliance formation. Research policy 36, 499–514.
King, D.R., Dalton, D.R., Daily, C.M., Covin, J.G., 2004. Meta-analyses of post-acquisition performance: indications of unidentified moderators. Strategic Management Journal 25, 187–200.
*Kishida, R., 2005. An Analysis of New Venture Performance: Linking Product Innovation and Legitimation. Doctoral dissertation. Case Western Reserve University.
Kirca, A.H., Hult, G.T.M., Roth, K., Cavusgil, S.T., Perry, M.Z., Akdeniz, M.B., Deligonul, S.Z., Mena, J.A., Pollitte, W.A., Hoppner, J.J., Miller, J.C., White, R.C., 2011. Firm-specific assets, multinationality, and financial performance: a meta-analytic review and theoretical integration. Academy of Management Journal 54, 47–72.
Kirsch, D., Goldfarb, B., Gera, A., 2009. Form or substance: the role of business plans in venture capital decision making. Strategic Management Journal 30, 487–515.
Knight, F.H., 1921. Risk, Uncertainty and Profit, 1933 ed. Houghton Mifflin, New York, NY.
*Kor, Y.Y., 2003. Experience-based top management team competence and sustained growth. Organization Science 14, 707–719.
Koslowsky, M., Sagie, A., 1993. On the efficacy of credibility intervals as indicators of moderator effects in meta-analytic research. Journal of Organizational Behavior 14, 695–699.
*Kundu, S.K., Katz, J.A., 2003. Born-international SMEs: BI-level impacts of resources and intentions. Small Business Economics 20, 25–47.
*Lane, P.J., Salk, J.E., Lyles, M.A., 2001. Absorptive capacity, learning, and performance in international joint ventures. Strategic Management Journal 22, 1139–1161.
*Lange, J.E., Mollov, A., Pearlmutter, M., Singh, S., Bygrave, W.D., 2007. Pre-start-up formal business plans and post-start-up performance: a study of 116 new ventures. Venture Capital 9, 237–256.
*Larsson, E., Hedelin, L., Gärling, T., 2003. Influence of expert advice on expansion goals of small businesses in rural Sweden. Journal of Small Business Management 41, 205–212.
Lawrence, P., Lorsch, J., 1967. Organization and Environment. Harvard University Press, Cambridge, MA.
Lazear, E., 2005. Entrepreneurship. Journal of Labor Economics 23, 649–680.
*Lee, C., Lee, K., Pennings, J.M., 2001. Internal capabilities, external networks, and performance: a study on technology based ventures. Strategic Management Journal 22, 615–640.
*Lee, D.Y., Tsang, E.W.K., 2001. The effects of entrepreneurial personality, background and network activities on venture growth. Journal of Management Studies 38, 583–602.
*Lerner, M., Almor, T., 2002. Relationships among strategic capabilities and the performance of women-owned small ventures. Journal of Small Business Management 40, 109–125.
*Lerner, M., Brush, C., Hisrich, R., 1997. Israeli women entrepreneurs: an examination of factors affecting performance. Journal of Business Venturing 12, 315–339.
*Lerner, M., Haber, S., 2001. Performance factors of small tourism ventures: the interface of tourism, entrepreneurship and the environment. Journal of Business Venturing 16, 77–100.
*Li, H.Y. 1998. Marketing Strategies and New Venture Performance in China's Transitional Economy. Doctoral dissertation. City University of Hong Kong.
*Li, H., Zhang, Y., 2007. The role of managers' political networking and functional experience in new venture performance: evidence from China's transition economy. Strategic Management Journal 28, 791–804.
*Lin, B.W., Li, P.C., Chen, J.S., 2006. Social capital, capabilities, and entrepreneurial strategies: a study of Taiwanese high-tech new ventures. Technological Forecasting and Social Change 73, 168–181.
*Lin, J.L., Fang, S.C., Fang, S.R., Tsai, F.S., 2009. Network embeddedness and technology transfer performance in R&D consortia in Taiwan. Technovation 29, 763–774.
*Ling, Y., Kellermanns, F.W., 2010. The effects of family firm specific sources of TMT diversity: the moderating role of information exchange frequency. Journal of Management Studies 47, 322–344.
Lipsey, M.W., Wilson, D.B., 2001. Practical Meta-Analysis. Sage Publications Inc, Thousand Oaks, CA.
*Lubatkin, M.H., Simsek, Z., Ling, Y., Veiga, J.F., 2006. Ambidexterity and performance in small- to medium-sized firms: the pivotal role of top management team behavioral integration. Journal of Management 32, 646–672.
*Lyles, M.A., Saxton, T., Watson, K., 2004. Venture survival in a transitional economy. Journal of Management 30, 351–375.
Macpherson, A., Holt, R., 2007. Knowledge, learning and small firm growth: a systematic review of the evidence. Research Policy 36, 172–192.
*Manolova, T.S., Carter, N.M., Manev, I.M., Gyoshev, B.S., 2007. The differential effect of men and women entrepreneurs' human capital and networking on growth expectancies in Bulgaria. Entrepreneurship Theory and Practice 31, 407–426.
*Matthews, C.H., 1990. Small Firm Strategic Planning: Strategy, Environment, and Performance. Doctoral dissertation. University of Cincinnati.
*Matthews, C.H., Scott, S., 1995. Uncertainty and planning in small and entrepreneurial firms: an empirical assessment. Journal of Small Business Management 33 (4), 34–52.
*Matthews, C.H., Ford, M.W., Human, S.E., 2001. The context of new venture initiation: comparing growth expectations of nascent entrepreneurs and intrapreneurs. In: Bygrave, W.D., Autio, E., Brush, C.G., Davidsson, P., Green, P.G., Reynolds, P.D., Sapienza, H.J. (Eds.), Frontiers of Entrepreneurship Research 2001. Babson College, Babson Park, MA.
*McEvily, B., Marcus, A., 2005. Embedded ties and the acquisition of competitive capabilities. Strategic Management Journal 26, 1033–1055.
*McGee, J.E., Dowling, M.J., Megginson, W.L., 1995. Cooperative strategy and new venture performance: the role of business strategy and management experience. Strategic Management Journal 16, 568–580.
McGrath, R.G., MacMillan, I.C., Scheinberg, S., 1992. Elitists, risk-takers, and rugged individualists? An exploratory analysis of cultural differences between entrepreneurs and non-entrepreneurs. Journal of Business Venturing 7, 115–135.
Mengistae, T., 2006. Competition and entrepreneur's human capital in small business longevity and growth. Journal of Development Studies 42, 812–836.
*Meziou, F., 1991. Areas of strength and weakness in the adoption of the marketing concept by small manufacturing firms. Journal of Small Business Management 29 (4), 72–78.
*Miner, J.B., Smith, N.R., Bracker, J.S., 1994. Role of entrepreneurial task motivation in the growth of technologically innovative firms: interpretations from follow-up data. Journal of Applied Psychology 79, 627–630.
*Minguzzi, A., Passaro, R., 2001. The network of relationships between the economic environment and the entrepreneurial culture in small firms. Journal of Business Venturing 16, 181–207.
Mintzberg, H., 1994. The Rise and Fall of Strategic Planning. The Free Press, New York, NY.
*Mitchell, R.K., Mitchell, J.R., Smith, J.B., 2008. Inside opportunity formation: enterprise failure, cognition, and the creation of opportunities. Strategic Entrepreneurship Journal 2, 225–242.
*Mollick, E.R., 2010. In the Blood: Organizational History and the Heritability of New Venture Performance, Downloaded on 12 March, 2012 from wwww.ssrn.com
*Morris, M.H., Williams, R.O., Allen, J.A., Avila, R.A., 1997. Correlates of success in family business transitions. Journal of Business Venturing 12, 358–401.
Murphy, K., Shleifer, A., Vishny, R., 1991. The allocation of talent: implications for growth. Quarterly Journal of Economics 106, 503–530.
*Mursitama, T.N., 2006. Creating relational rents: the effect of business groups on affiliated firms' performance in Indonesia. Asia Pacific Journal of Management 23, 537–557.
*Muse, L.A., Rutherford, M.W., Oswald, S.L., Raymond, J.E., 2005. Commitment to employees: does it help or hinder small business performance? Small Business Economics 24, 97–111.
*Nadkarni, S., Herrmann, P., 2010. CEO personality, strategic flexibility, and firm performance: the case of the Indian business process outsourcing industry. Academy of Management Journal 53, 1050–1073.
Nahapiet, J., Ghoshal, S., 1998. Social capital, intellectual capital, and the organizational advantage. Academy of Management Review 23, 242–266.
Naudé, W., 2011. Entrepreneurship is not a binding constraint on growth and development in the poorest countries. World Development 39, 33–44.
*Niehm, L.S., Swinney, J., Miller, N.J., 2008. Community social responsibility and its consequences for family business performance. Journal of Small Business Management 46, 331–350.
*Niosi, J., 2003. Alliances are not enough explaining rapid growth in biotechnology firms. Research Policy 32, 737–750.
Nyström, K., 2008. Is entrepreneurship the salvation for enhanced economic growth? CESIS Electronic Working Paper Series, paper no. 143.
OECD, 2006. Policy Brief: Financing SMEs and Entrepreneurs, Downloaded on 8 July 2011 from http://www.oecd.org/dataoecd/53/27/37704120.pdf
*Okamuro, H., 2007. Determinants of successful R&D cooperation in Japanese small businesses: the impact of organizational and contractual characteristics. Research Policy 36, 1529–1544.
*Orser, B.J., Hogarth-Scott, S., Riding, A.L., 2000. Performance, firm size, and management problem solving. Journal of Small Business Management 38 (4), 42–58.
*Oxley, J., Wada, T., 2009. Alliance structure and the scope of knowledge transfer: evidence from U.S.-Japan agreements. Management Science 55, 635–649.
*Park, B.I., 2010. What matters to managerial knowledge acquisition in international joint ventures? High knowledge acquirers versus low knowledge acquirers. Asia Pacific Journal of Management 27, 55–79.
*Park, D., Krishnan, H.A., 2001. Supplier selection practices among small firms in the United States: testing three models. Journal of Small Business Management 39, 259–271.
*Patzelt, H., zu Knyphausen-Aufseß, D., Nikol, P., 2008. Top management teams, business models, and performance of biotechnology ventures: an upper echelon perspective. British Journal of Management 19, 205–221.
*Peña, I., 2004. Business incubation centers and new firm growth in the Basque country. Small Business Economics 22, 223–236.
Penrose, E.T., 1959. The Theory of the Growth of the Firm. John Wiley & Sons, New York.
*Pett, T.L., Wolff, J.A., 2003. Firm characteristics and managerial perceptions of NAFTA: an assessment of export implications for U.S. SMEs. Journal of Small Business Management 41, 117–132.
Pfeffer, J., Salancik, G.R., 1978. The External Control of Organizations: A Resource Dependence Perspective. Harper and Row, New York.
Portes, A., 1998. Social capital: its origins and applications in modern sociology. Annual Review of Sociology 24, 12.
*Powell, T.C., 1992. Strategic planning as competitive advantage. Strategic Management Journal 13, 551–558.
*Rauch, A., Frese, M., Sonnentag, S., 2000. Cultural differences in planning/success relationships: a comparison of small enterprises in Ireland, West Germany, and East Germany. Journal of Small Business Management 38 (4), 28–41.

*Rauch, A., Frese, M., Utsch, A., 2005. Effects of human capital and long-term human resources development and utilization on employment growth of small-scale businesses: a causal analysis. Entrepreneurship Theory and Practice 29, 681–698.
*Raz, O., Gloor, P.A., 2007. Size really matters – new insights for start-ups' survival. Management Science 53, 169–177.
Read, S., Song, M., Smit, W., 2009. A meta-analytic review of effectuation and venture performance. Journal of Business Venturing 24, 573–587.
*Reuber, A.R., Fischer, E.M., 1994. Entrepreneurs' experience, expertise, and the performance of technology-based firms. IEEE Transactions on Engineering Management 41, 365–374.
Reynolds, P.D., Curtin, R.T., 2008. Business creation in the United States: panel study of entrepreneurial dynamics II initial assessment. Foundations and Trends in Entrepreneurship 4 (3), 155–307.
Robertson, P.J., Roberts, D.R., Porras, J.I., 1993. Dynamics of planned organizational change: assessing empirical support for a theoretical model. Academy of Management Journal 36, 619–634.
Romer, P.M., 1990. Endogenous technological change. Journal of Political Economy 98, 71–102.
Rosenberg, W., Donald, A., 1995. Evidence based medicine: an approach to clinical problem-solving. British Medical Journal 310, 1122–1126.
Rosenbusch, N., Brinckmann, J., Bausch, A., 2011. Is innovation always beneficial? A meta-analysis of the relationship between innovation and performance in SMEs. Journal of Business Venturing 26, 441–457.
*Rosenkopf, L., Almeida, P., 2003. Overcoming local search through alliances and mobility. Management Science 49, 751–766.
Rosenthal, R., 1979. The "file drawer problem" and tolerance for null results. Psychological Bulletin 86, 638–641.
*Saffu, K., Manu, T., 2004. Strategic capabilities of Ghanaian female business owners and the performance of their ventures. In: Paper Presented at the ICSB World Conference, Johannesburg, South Africa.
*Sambasivan, M., Abdul, M., Yusop, Y., 2009. Impact of personal qualities and management skills of entrepreneurs on venture performance in Malaysia: opportunity recognition skills as a mediating factor. Technovation 29, 798–805.
*Sapienza, H.J., Parhankangas, A., Autio, E., 2004. Knowledge relatedness and post-spin-off growth. Journal of Business Venturing 19, 809–829.
*Sarason, Y., Tegarden, L.F., 2003. The erosion of competitive advantage of strategic planning: a configuration theory and resource based view. Journal of Business and Management 9, 1–20.
SBA, 2010. U.S. Small Business Administration – Table of Small Business Size Standards Matched to North American Industry Classification System Codes, Downloaded on 7 July 2011 from http://www.sba.gov/sites/default/files/Size_Standards_Table.pdf
*Schulze, W.S., Lubatkin, M.H., Dino, R.N., 2003. Exploring the agency consequences of ownership dispersion among the directors of private family firms. Academy of Management Journal 46, 179–194.
Schumpeter, J.A., 1976. Capitalism, Socialism and Democracy, 5th ed. George Allen and Unwin Ltd., London.
*Senjem, J.C., 2001. Human Capital Gains: How the Investment and Allocation of Human Capital Affects Performance of High Technology Initial Public Offering firms. Doctoral dissertation. University of Colorado at Boulder.
Shane, S., 2003. A General Theory of Entrepreneurship: The Individual-Opportunity Nexus. Edward Elgar, Cheltenham, U.K.
Shea-Van Fossen, R.J., Rothstein, H.R., Korn, H.J., 2006. Thirty-five years of strategic planning and firm performance research: a meta-analysis. Academy of Management Proceedings 1, M1–M6.
*Shrader, R., Siegel, D.S., 2007. Assessing the relationship between human capital and firm performance: evidence from technology-based new ventures. Entrepreneurship Theory and Practice 31, 893–908.
*Sine, W.D., Mitsuhashi, H., Kirsch, D.A., 2006. Revisiting Burns and Stalker: formal structure and new venture performance in emerging economic sectors. Academy of Management Journal 49, 121–132.
Slotte-Kock, S., Coviello, N., 2010. Entrepreneurship research on network processes: a review and ways forward. Entrepreneurship Theory and Practice 34, 31–57.
*Smaltz, D.H., Sambamurthy, V., Agarwal, R., 2006. The antecedents of CIO role effectiveness in organizations: an empirical study in the healthcare sector. IEEE Transactions on Engineering Management 53, 207–222.
*Soh, P.H., 2010. Network patterns and competitive advantage before the emergence of a dominant design. Strategic Management Journal 31, 438–461.
*Song, L.Z., Di Benedetto, C.A., Song, M., 2010. Competitive advantages in the first product of new ventures. IEEE Transactions on Engineering Management 57, 88–102.
Song, M., Podoynitsyna, K., van der Bij, H., Halmann, J.I.M., 2008. Success factors in new ventures: a meta-analysis. Journal of Product Innovation Management 25, 7–27.
*Stam, E., Wennberg, K., 2009. The roles of R&D in new firm growth. Small Business Economics 33, 77–89.
*Stam, W., 2010. Industry event participation and network brokerage among entrepreneurial ventures. Journal of Management Studies 47, 625–653.
*Stam, W., Elfring, T., 2008. Entrepreneurial orientation and new venture performance: the moderating role of intra- and extraindustry social capital. Academy of Management Journal 51, 97–111.
Stangler, D., 2009. The Economic Future Just Happened. Ewing Marion Kauffman Foundation, Kansas City, MO, Kansas City.
*Stetz, P.E., Howell, R., Stewart, A., Blair, J.D., Fottler, M.D., 2005. Multidimensionality of entrepreneurial firm-level processes: do the dimensions covary? In: Zahra, S.A., et al. (Eds.), Frontiers of Entrepreneurship Research 2005. Babson College, Babson Park, MA.
*Stewart, K.S., 2003. The Relationship between Strategic Planning and Growth in Small Firms. Doctoral dissertation. Nova Southeastern University.
Stiglitz, J.E., Sen, A., Fitoussi, J.P., 2010. Mismeasuring Our Lives: Why GDP doesn't Add Up. New Press, New York.
Stinchcombe, A., 1965. Social structure and organizations. In: March, J. (Ed.), Handbook of Organizations. Rand McNally, Chicago, IL, pp. 141–193.
Stuart, T.E., Hoang, H., Hybels, R.C., 1999. Interorganizational endorsements and the performance of entrepreneurial ventures. Administrative Science Quarterly 44, 315–349.
*Tiwana, A., Bush, A.A., 2005. Continuance in expertise-sharing networks: a social perspective. IEEE Transactions on Engineering Management 52, 85–101.
*Tornikoski, E.T., Newbert, S.L., 2007. Networks, networking activity and organizational emergence. In: Zacharakis, A., et al. (Eds.), Frontiers of Entrepreneurship Research 2007. Babson College, Babson Park, MA.
*Tsai, K.H., 2009. Collaborative networks and product innovation performance: toward a contingency perspective. Research Policy 38, 765–778.
*Ucbasaran, D., Lockett, A., Wright, M., Westhead, P., 2003. Entrepreneurial founder teams: factors associated with member entry and exit. Entrepreneurship Theory and Practice 28, 107–128.
*Unger, J.M., Keith, N., Hilling, C., Gielnik, M.M., Frese, M., 2009. Deliberate practice among South African small business owners: relationships with education, cognitive ability, knowledge, and success. Journal of Occupational and Organizational Psychology 82, 21–44.
Unger, J.M., Rauch, A., Frese, M., Rosenbusch, N., 2011. Human capital and entrepreneurial success: a meta-analytic review. Journal of Business Venturing 26, 341–358.
*van Gelder, J.L., de Vries, R.E., Frese, M., Goutbeek, J.P., 2007. Differences in psychological strategies of failed and operational business owners in the Fiji Islands. Journal of Small Business Management 45, 388–400.
*van Gelderen, M., Frese, M., Thurik, M., 2000. Strategies, uncertainty and performance of small business startups. Small Business Economics 15, 165–181.
van Praag, C.M., van Ophem, H., 1995. Determinants of willingness and opportunity to start as an entrepreneur. Kyklos 48, 513–530.
van Praag, C.M., Versloot, P.H., 2008. The economic benefits and costs of entrepreneurship: a review of the research. Foundations and Trends in Entrepreneurship 4 (2), 65–154.
Venkataraman, S., 1997. The distinctive domain of entrepreneurship research: an editor's perspective. In: Katz, J., Brockhaus, R. (Eds.), Advances in Entrepreneurship, Firm Emergence, and Growth, 3. JAI Press, Greenwich, CT, pp. 119–138.
Venkataraman, S., 2004. Regional transformation through technological entrepreneurship. Journal of Business Venturing 19, 153–167.
Venkatraman, N., Ramanujam, V., 1985. Construct validation of business economic performance measures: a structural equation modeling approach. In: Paper Presented at the Annual Meeting of the Academy of Management, San Diego.
Venkatraman, N., Ramanujam, V., 1986. Measurement of business performance in strategy research: a comparison of approaches. Academy of Management Review 11, 801–814.
*Vissa, B., Chacar, A.S., 2009. Leveraging ties: the contingent value of entrepreneurial teams' external advice networks on Indian software venture performance. Strategic Management Journal 30, 1179–1191.
*Walter, A., Auer, M., Ritter, T., 2006. The impact of network capabilities and entrepreneurial orientation on university spin-off performance. Journal of Business Venturing 21, 541–567.
*Walters, B.A., Kroll, M., Wright, P., 2010. The impact of the TMT board member control and environment on post-IPO performance. Academy of Management Journal 53, 572–595.
*Watson, W., Stewart Jr., W.H., BarNir, A., 2003. The effects of human capital, organizational demography, and interpersonal processes on venture partner perceptions of firm profit and growth. Journal of Business Venturing 18, 143–164.
*Weaver, K.M., Dickson, P.H., 1998. Outcome quality of small- to medium-sized enterprise-based alliances: the role of perceived partner behaviors. Journal of Business Venturing 13, 505–522.
Weitzel, U., Urbig, D., Desai, S., Sanders, M., Acs, Z., 2010. The good, the bad, and the talented: entrepreneurial talent and selfish behavior. Journal of Economic Behavior & Organization 76, 64–81.
Wennekers, S., Thurik, R., van Stel, A., Noorderhaven, N., 2007. Uncertainty avoidance and the rate of business ownership across 21 OECD countries, 1976-2004. Journal of Evolutionary Economy 17, 133–160.
Wennekers, S., Uhlaner, L.M., Thurik, R., 2002. Entrepreneurship and its conditions: a macro perspective. International Journal of Entrepreneurship Education 1, 25–68.
Wheelan, S.A., 2009. Group sizes, group development and group productivity. Small Group Research 40, 247–262.
*Wiklund, J., Shepherd, D.A., 2003. Aspiring for, and achieving growth: the moderating role of resources and opportunities. Journal of Management Studies 40, 1919–1941.
*Wiklund, J., Shepherd, D.A., 2008. Portfolio entrepreneurship: habitual and novice founders, new entry, and mode of organizing. Entrepreneurship Theory and Practice 32, 701–725.

Wiltbank, R., Dew, N., Read, S., Sarasvathy, S.D., 2006. What to do next? The case for non-predictive strategy. Strategic Management Journal 27, 981–998.
*Wincent, J., Anokhin, S., Örtqvist, D., Autio, E., 2010. Quality meets structure: generalized reciprocity and firm-level advantage in strategic networks. Journal of Management Studies 47, 597–624.
*Wright, M., Liu, X., Buck, T., Filatotchev, I., 2008. Returnee entrepreneurs, science park location choice and performance: an analysis of high-technology SMEs in China. Entrepreneurship Theory and Practice 32, 131–155.
Wu, W.P., Leung, A., 2005. Does a micro-macro link exist between managerial value of reciprocity, social capital and firm performance? The case of SMEs in China. Asia Pacific Journal of Management 22, 445–543.
*Yang, Q., Mudambi, R., Meyer, K.E., 2008. Conventional and reverse knowledge flows in multinational corporations. Journal of Management 34, 882–902.
*Yli-Renko, H., Autio, E., Sapienza, H.J., 2001. Social capital, knowledge acquisition, and knowledge exploitation in young technology-based firms. Strategic Management Journal 22, 587–613.
Zaheer, A., Gözübüyük, R., Milanov, H., 2010. It's the connections: the network perspective in interorganizational research. Academy of Management Perspectives 24, 62–77.
*Zahra, S.A., 1996. Governance, ownership, and corporate entrepreneurship: the moderating impact of industry technological opportunities. Academy of Management Journal 39, 1713–1735.
*Zahra, S.A., Bogner, W.C., 2000. Technology strategy and software new ventures' performance: exploring the moderating effect of the competitive environment. Journal of Business Venturing 15, 135–173.
*Zahra, S.A., Neubaum, D.O., Huse, M., 1997. The effect of the environment on export performance among telecommunications new ventures. Entrepreneurship Theory and Practice 22 (1), 25–46.
*Zahra, S.A., Neubaum, D.O., Naldi, L., 2007. The effects of ownership and governance on SMEs' international knowledge-based resources. Small Business Economics 29, 309–327.
*Zhao, X., Frese, M., Giardini, A., 2010. Business owners' network size and business growth in China: the role of comprehensive social competency. Entrepreneurship and Regional Development 22, 675–705.
Zhang, W., Cooper, W.W., Deng, H., Parker, B.R., Ruefli, T.W., 2010. Entrepreneurial talent and economic development in China. Socio-Economic Planning Sciences 44, 178–192.
*Zheng, Y., Liu, J., George, G., 2010. The dynamic impact of innovative capability and inter-firm network on firm valuation: a longitudinal study of biotechnology start-ups. Journal of Business Venturing 25, 593–609.
*Zollo, M., Reuer, J.J., Singh, H., 2002. Interorganizational routines and performance in strategic alliances. Organization Science 13, 701–713.
*Zou, H., Chen, X., Ghauri, P., 2010. Antecedents and consequences of new venture growth strategy: an empirical study in China. Asia Pacific Journal of Management 27, 393–421.