ONLINE APPENDIX FOR
PERSONALITY TRAITS OF ENTREPRENEURS

Appendix A: Summary Tables of Studies by Topic
Appendix B: Typical Big-5 Inventory Utilized in Entrepreneurship Studies
Appendix C: Representative Examples of Survey Questions and Measures Related to Risk Attitudes

Appendix A: Summary Tables of Studies by Topic

Studies on Personality Traits

Study	Authors	Year	Country	Personality traits / demographic	Measurement approach	Data source & sample size	Outcomes / Findings	Population of "entrepreneurs":
The Big Five Personality–Entrepreneurship Relationship: Evidence from Slovenia	Antoncic B., T. Bratkovic Kregar, G. Singh & A.F. DeNoble	J Small Bus Management 2015	Slovenia	Big-5 of: practicing entrepreneurs, potential entrepreneurs, maybe-entrepreneurs, and non-entrepreneurs	Face-to-face interviews and questionnaire	62 face-to-face interviews (random sample) in firms. Remaining 501 questionnaires werefilled out in groups in classes at education institutions.	Entrepreneurs scored higher on openness dimension than comps. People with no intention of starting up afirm (non-entrepreneurs) scored lower in extraversion and higher in agreeableness than comps. People lower on extraversion (i.e., talkative,bold, and energetic) unlikely to become entrepreneurs. Conscientiousness and neuroticism not very relevant for entrepreneurship.	Firm owners, individuals planning to start own firm, individuals maybe planning to start own firm, and individuals who do not plan to start their own firm
The relationship of entrepreneurial traits, skill, and motivation to subsequent venture growth	Baum J.R. & E.A. Locke	Journal of Applied Psychology (2004)	US	Entrepreneurial traits, skills (passion, tenacity, new resource skill) and situationally specific motivation (communicated vision, self-efficacy, goals)	Questionnaire	Data from 229 entrepreneur-CEOs and 106 associates in a single industry, 6-year longitudinal study. North American architectural woodwork firms (SIC 2421, 2431, and 2434). Firms employ architects, skilled woodworkers, applied technologists, high-tech machinery operators, carpentry installers, managers, and salespersons.	Goals, self-efficacy, and communicated vision had direct effects on venture growth, and these factors mediated the effects of passion, tenacity, and new resource skill on subsequent growth. Furthermore, communicated vision and self-efficacy were related to goals, and tenacity was related to new resource skill.	Founder-owner-manager planning to grow firm and associate employee nominated by CEO
The role of personality dimensions and occupational preferences on the formation of entrepreneurial intentions	Brice J.	Dissertation (2002)	USA	Predictive validity of Big-5 and preference for an entrepreneurial career (based on rewards of independence, profit, and a satisfying way of life) for formation of entrepreneurial intentions.	Questionnaire	Three independent samples (2 pretests and 1 main analysis), totaling 833 university student respondents. Sample composed of undergraduate graduating business students, MBA students, and veterinary students in the process of making career-related decisions. Majority of data collected utilizing an Internet web-based self-report methodology (on-line survey).	High openness and low agreeableness were only personality dimensions directly related to formation of entrepreneurial intentions. Entrepreneurial career preferences (based on rewards of independence and profits) had a significant direct effect on entrepreneurial intentions. Moderated effect of reward of profits on relationship of entrepreneurial career attraction (based on reward of a satisfying way of life) and entrepreneurial intentions was supported. Openness had a mediated effect on entrepreneurial intentions through preference (for reward of independence). Conscientiousness had a mediated effect on entrepreneurial intentions through intrinsic entrepreneurial career preference constructs (independence and a satisfying lifestyle).	MBA and business students
Personality characteristics and the decisions to become and stay self-employed	Caliendo M., F. Frank & A.S. Kritikos	Small Bus Econ (2014)	Germany	Big-5, locus of control, risk tolerance, need for achievement	GSOEP survey data	10 sequential waves of the SOEP (2000-2009). Uses entry into self-employment as indicator of entrepreneurship. Individuals aged 19 to 59 (N=60,701 person-year observations). Socio-economic characteristics, short personality inventory in select years (Big-5), several specific personality characteristics	Openness to experience, extraversion, and risk tolerance affect entry. Agreeableness and different parameter values of risk tolerance affect exit from self-employment. Only locus of control has a similar influence on the entry and exit decisions. Explanatory power of all observed traits among all observable variables amounts to 30 % (risk tolerance, locus of control, and openness have highest explanatory power).	Self-employed
Does self-efficacy affect entrepreneurial investment?	Cassar G. & H. Friedman	Strat Entrep Journal (2009)	US	Self-efficacy, aggressiveness of entrepreneurial investment decisions	PSED dataset with questionnaire	Panel Study of Entrepreneurial Dynamics (PSED), ESE and entrepreneurial investment decisions. In the first round of PSED, 830 respondents qualified as nascent entrepreneurs. Researchers interviewed a control sample of 431 individuals by telephone and sent questionnaires to 422 of them.	Self-efficacy increases the likelihood of being a nascent entrepreneur and creating an operating business. Also increases proportion of personal wealth invested in venture and amount of hours / week devoted to venture.	Nascent entrepreneurs
Entrepreneurship: From motivation to start-up	Estay C., F. Durrieu & M. Akhter	J Int Entrep (2013)	France	Motivation (needs and intensities) for entrepreneurs, logics of action (imigation, innovation-adventure, reproduction, innovation-valorisation)	4-part questionnaire (motivation, antecedents, logics of action, info on entrepreneurs and their businesses)	235 entrepreneurs (100% response rate) of those who registered with the Bordeaux (France) Chamber of Commerce and Industry were administered questionnaires. No selection on basis of age, sex, level of education.	Need for personal independence at beginning stages of entrepreneurial planning. Hope for tangible financial and material results. Conscious that must make commitment across a range of dimensions for organisation (managerial, commercial, etc.). In quest for valorisation, entrepreneurs take risks, show a need for creativity. Competences and creativity associated with the objective of independence. The logic of reproduction is characterised by self-confidence (locus of control).	New business creators
The relationship of need for achievement to entrepreneurship: A meta-analysis.	Collins C.J., P. Hanges & E.A. Locke	Human Performance (2004)	Many sources, mostly US	Achievement motivation on entrepreneurial career choice and performance	Meta-analysis	Final set of 41 studies	Achievement motivation significantly correlated with choice of entrepreneurial career and performance. Projective and self-reported measures of achievement motivation were valid. Known group studies hadd higher validity coeffs than individual difference studies.	Mixed (meta-analysis)

The Five-Factor model of personality: assessing entrepreneurs and managers	Envick B.R. & M. Langford	Academy of Entrepreneurship Journal (2000)	Canada	Big-5 of managers vs. entrepreneurs	Questionnaire	Chamber of Commerce of large Southwestern city created list of 2,500 entrepreneurs and managers. 1,200 randomly selected to survey. Response rate 19% (237 surveys returned, 218 usable: 99 managers, 119 entrepreneurs). Avg. career length of managers 17 years, 9 years in current position. Entrepreneurs had owned an avg. of 3 businesses, and owned current business for an avg. of 14 years.	Managers significantly more conscientious and agreeable than entrepreneurs. Also more social, but not significantly. Entrepreneurs more adjusted and open than managers (not significant).	Owner-managers and managers
The Significance of Personality in Business Start-Up Intentions, Start-Up Realization and Business Success	Frank H., M. Lueger & C. Korunka	Entrepreneurship and Regional Development (2007)	Austria	Varying roles of personality factors in business start-up intentions, in start-up success and in business success	Compare 4 conceptually similar studies (Vienna Entrepreneurship Studies), all questionnaires	Study 1: Personal entrepreneurial orientation and start-up inclinations (students at general and vocational secondary schools in Austria; Frank et al. 2001) // Study 2: Entrepreneurial spirit: personal entrepreneuria orientation and start-up inclinations (university-level students; Frank et al. 2002) // Study 3: Supporting and hindering factors in start-up process (Frank et al. 1999a,b, Lueger et al. 2000, Korunka et al. 2003) // Study 4: From business ideas to business success: empirical analysis of development in Austrian business start-ups (Frank et al. 2002)	Significance of personality traits among (potential) founders decreases in start-up/new business development from initial intentions to start-up process and to realization, and on to business success (existence/growth). 20% of variance in origins of entrepreneurial intentions can be explained by personality, this % drops to zero in explaining business success. Confirms that meaningful assessment of personality traits only possible in conjunction with additional influencing factors (founder's environment, resources and processes).	Business founders, 18-year-olds, university-level students
Need for achievement, locus of control and the prediction of business start-ups: A longitudinal study	Hansemark O.C.	Journal of Economic Psychology (2003)	Sweden	Need for achievement and locus of control vs. entrepreneurial activity, across genders	Longitudinal study, questionnaire vs. public-register business data	91 individuals with HS or equivalent education. Experimental group (n = 25) and control group (n = 66) consisted of higher education classes. Experimental group attended an entrepreneurship program. Control group chosen to match the experimental group in education level, age and area of study. At time of data collection (longitudinal study) avg. age 33 years. Psychological data compared 11 years later against Swedish public-authority registries of new businesses (to see if participant started a business).	Neither Achievement (TAT) nor Need for Achievement (CMPS) had any predictive validity on Entrepreneurial Activity (start of new business). True for both men and women. Locus of Control has predictive validity only for men, not for women	Individuals in special entrepreneurship program, higher education, high school or equivalent education; all three groups compared as later business founders
The Relationship of Personality to Entrepreneurial Intentions and Performance: A Meta-Analytic Review	Zhao H., S. Seibert & G.T. Lumpkin	Journal of Management (2010)	Varied sources	Big-5and risk propensity on entrepreneurial intentions and performance	Meta-analysis	Total of 60 studies with 66 independent samples, total sample size 15,423 individuals. 18 out of 60 studies were from non-journal sources (book chapters, dissertations, conference presentations, or reports).	Multivariate effect sizes moderate for full set of Big-5 variables on entrepreneurial intentions (multiple R = .36) and entrepreneurial performance (multiple R = .31). Risk propensity positively associated with entrepreneurial intentions but not related to entrepreneurial performance.	Business founder-manager for performance, students and other individuals who have not started businesses for intentions
Personality aspects of entrepreneurship: A look at five meta-analyses	Brandstätter H.	Personality and Individual Differences (2011)	Many sources, mostly US	Entrepreneur vs. manager, intention vs. performance (business creation and success), Big-5 and non-Big-5 traits (locus of control, need for achivement, etc)	Synthesis of meta-analysis	5 meta-analyses: Risk propensity of entrepreneurs and managers (Stewart & Roth, 2001); Entrepreneurs' vs. managers' Big Five (Zhao & Seibert, 2006); Specific personality traits predict business creation and success (Rauch & Frese, 2007); Entrepreneurial intention and performance – Big Five (Zhao et al., 2010); Achievement motivation of entrepreneurs (Stewart & Roth, 2007)	In Big-5 personality traits matter when entrepreneurs are compared with managers (C+, O+, E+, N, A). Also relevant in predicting entrepreneurial intention (C+, O+, N, E+) and performance (C+, O+, E+, N). For other more specific scales (e.g., readiness for innovation, proactive personality, generalized self-efficacy, stress tolerance, need for autonomy, locus of control) also significant correlations with business creation and success. Risk propensity supports business foundation, but not necessarily success. Achievement motivation favourable both for business foundation and business success.	Small business founder-owners and/or early stage owner-operators
When does entrepreneurial self-efficacy enhance versus reduce firm performance?	Hmieleski K.M. & R.A. Baron	Strat Entrep Journal (2008)	US	In dynamic vs. stable industry environments, effects of entrepreneurial self-efficacy (including dispositional optimism) on firm performance	Questionnaire	National random sample of 1,000 firms (aged 3-12 years) drawn from Dun & Bradstreet Database. Survey sent to CEO of each firm. Participants (founders and CEOs) mostly male (133 versus 26), avg. age 52 years. Locations span 40 states and 105 4-digit SIC codes.	In dynamic environments effect of high entrepreneurial self efficacy on firm performance positive when combined with moderate optimism, but negative when combined with high optimism. In stable environments effect of self-efficacy weak and not moderated by optimism.	Founder-CEOs
Predicting founding success and new venture survival: A longitudinal nascent entrepreneurship approach	Kessler, A., C. Korunka, H. Frank & M. Lueger	Journal of Enterprising Culture (2012)	Austria	Indicators for entrepreneurial person, resource/environment, and founding process, examine who starts firms and if they survive	Questionnaire / interview	Interviewed 227 Austrian business founders a total of 3 times between years 1998 and 2005	Risk-taking affected founding success, but not survival. Resource and environment aspects had no effect on founding success or survival. Aspects of founding process explain both founding success and survival.	Business founders

Prospecting for strategic advantage: the proactive entrepreneurial personality and small firm innovation	Kickul J. & L.K. Gundry	J Small Bus Management (2002)	US	Interrelationship between small firm owner's personality, strategic orientation, and innovation	Questionnaire	Sample was 107 U.S. small business owners (via state agency that assists businesses), 52% women-owned and 26% minority-owned.Variety of industries, average revenues $267,000 and average of 4 employees.	Prospector strategy orientation mediated relationship between proactive personality and 3 types of innovations: innovative targeting processes, innovative organizational systems, innovative boundary supports	Small-business owners
The entrepreneurial personality in the context of resources, environment, and the startup process – A configurational approach.	Korunka C., H. Frank, M. Lueger & J. Mugler	Entrep Theory and Practice (2003)	Austria	Influence of personality of nascent entrepreneurs in startup process based on "configuration approach"	Questionnaire	At "Business Startup Information Day" (in Vienna) nascent entrepreneurs contacted in person. At general support institutions for nascent entrepreneurs targets reached directly through staff. At financial support institutions address database available, and target group reached by a mail survey. Total of 5,983 questionnaires were distributed between April - August 1998, 1,169 surveys returned.	Typology of nascent entrepreneurs was compared to an empirically defined configuration of successful new business owner-managers. Latter configuration showed a personality pattern characterized by a high need for achievement, high internal locus of control, and medium risk-taking propensity.	Nascent entrepreneurs
The role of SME entrepreneurs' innovativeness and personality in the adoption of innovations.	Marcati A., G. Guido & A.M. Peluso	Research Policy (2008)	Italy	Relates general innovativeness (GI, degree of openness to newness) and specific innovativeness (SI, predisposition to be among the firsts to adopt innovations in a specific domain) to Big-5 and entrepreneurial intentions	Questionnaire	Close-ended questionnaire based administered by personal interviews at firms to entrepreneurs of a sample of 188 Italian SMEs stratified according to industry and size. Entrepreneurs' "concept of innovation" (6 questions), cognitive style (a 32-item scale to measure GI), readiness and speed to adopt innovations (6-item scale, to measure SI), personality (40 attributes), intention to adopt innovations (2 items) and its determinants.	Innovativeness significantly related to basic personality traits and entrepreneurs with different tendencies to innovate (GI and SI) have noticeably different personality profiles. Entrepreneurs with a creative cognitive style have a personality that is characterized by lower levels of thoroughness and higher levels of open-mindedness, which favor emergence of original ideas. These entrepreneurs are moderately more aversive, extrovert, and emotionally stable.	Entrepreneurs of SMEs
The Big Five and venture survival: Is there a linkage?	Ciavarella M.A., A.K. Buchholtz, C.M. Riordan, R.D. Gatewood & G.S. Stokes	J Bus Venturing (2004)	US	Big-5 of entrepreneurs, looking back at career 18-23 years after graduation	Questionnaire	Survey graduates of large south-eastern university about work histories in 1972-1995. Total of 111 respondents with complete information (57 considered successful, i.e. maintained venture for a min of 8 years, 54 individuals closed business to seek work elsewhere).	Conscientiousness positively related to long-term venture survival. Negative relationship between openness and long term venture survival. Extraversion, emotional stability, and agreeableness unrelated to long-term venture survival.	Founders with venture aged at least 8 years
Testing a psychological typology of entrepreneurship using business founders	Miner J.B.	Journal of Applied Behavioral Science (2000)	US	Extend 4-way psychological typology (personal achievers, real managers, expert idea generators, empathic super-salespeople) to venture initiation phase and student population	Questionnaire	Participants accumulated over 5-year period in a graduate entrepreneurship course at large state university. Total of 159 students (141 MBA level and 18 Ph.D. level). Mostly men (108 versus 51), mean age 27.4. Mostly marketing majors (22%), finance (20%), HR and organizational behavior (18%), general MBA (15%), and systems and production (11%).	Students characterized by one or more of the types more likely to be entrepreneurs after graduation. Measures of entrepreneurial propensities and skill in business plan preparation (obtained pre-graduation) also predicted by typology.	Entrepreneurship students
Personality types of entrepreneurs	Müller G.F. & C. Gappisch	Psychological Reports (2005)	Germany	Creative Acquisitor, Controlled Perseverator, Distant Achiever, Rational Manager, Egocentric Agitator (types in Miner, and Myer-Briggs Indicator). Correlations of general type with job and life satisfaction of entrepreneurs.	Questionnaire	85 German entrepreneurs psychometrically assessed on 12 primary traits. Sample was 49 men and 36 women, mean age 45.6. Occupations in production (40%) and services (60%). Mean duration of entrepreneurship 13.1 years. 35-item questionnaire: Need for Achievement, Internal Locus of Control, (analytical) Problem-solving Orientation, Risk-taking Propensity, and Manipulation.	Scores on general type potential positively correlated with rated Job and Life Satisfaction. A better match between entrepreneurial task requirements and personal aptitudes predict economic success and corresponds with positive feelings towards one's job and life situation.	Entrepreneurs and employed persons
Effects of self-concept traits and entrepreneurial orientation on firm performance.	Poon J.M.L., R.A. Ainuddin & S.O.H. Junit	Int Small Bus Journal (2006)	Malaysia	Three self-concept traits: innovativeness, proactiveness, and propensity to take risks; entrepreneurial orientation, and firm performance	Questionnaire	Participants were entrepreneurs of SMES. Self-administered questionnaire mailed to 600 entrepreneurs. Received 104 responses (17%), used 96 (16%) in analyses. Mean age 44.31, and 94% were men. Covered manufacturing (64%), services (32%), and trading (4%). Average entrepreneur had 128 employees and 9.43 years of entrepreneurial experience.	Internal locus of control positively related to firm performance, and entrepreneurial orientation had no mediating role. Generalized self-efficacy had no direct effects on firm performance, but influenced it positively through entrepreneurial orientation. Achievement motive was not significantly related to entrepreneurial orientation or firm performance.	Owner-operators of SMEs
Let's put the person back into entrepreneurship research: A meta-analysis on the relationship between business owners' personality traits, business creation, and success.	Rauch A. & M. Frese	Eur J of Work and Org Psychology (2007)	Many sources	Business creation vs. success. Need for achievement, generalized self-efficacy, innovativeness, stress tolerance, need for autonomy, proactive personality, and more.	Meta-analysis	Final database had 116 independent samples from 104 different articles (overall N of 26,700). Of these, 62 studies dealt with business creation and 54 studies tested relationships between owners' traits and business success. 27 studies came from sources other than peer-reviewed journals.	Traits matched to running a business created higher effect sizes with business creation than traits not matched to running an enterprise. Traits matched to task produced higher correlations with success than traits not matched to task of running a business. Traits matched to entrepreneurship significantly correlated with entrepreneurial behaviour (business creation, business success) include need for achievement, generalized self-efficacy, innovativeness, stress tolerance, need for autonomy, and proactive personality.	Mixed - meta-analysis. "Broad behavioral definition of entrepreneurship"

Born to Be an Entrepreneur? Revisiting the Personality Approach to Entrepreneurship	Rauch A. & M. Frese. (Eds. J.R. Baum, M. Frese & R.A. Baron)	Book chapter: The Psychology of Entrepreneurship. NJ: Lawrence Erlbaum Associates Inc., 41–65. (2007)	Many sources	Need for achievement, risk taking, innovativeness, autonomy, locus of control, self-efficacy; mediator vs. contingency approaches, challenge to the literature (quality issues, etc)	Literature review (book chapter)	N/A	N/A	
Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future.	Rauch A., J. Wiklund, G.T. Lumpkin & M. Frese	Entrep Theory and Practice (2009)	Many sources	Relationship between entrepreneurship orientation (innovativeness, risk-taking, proactiveness) and business performance.	Meta-analysis	53 samples from 51 studies (N=14,259 companies) from PsycInfo, EconLit, Social Science Citation Index, and ABI/Inform, as well as entrepreneurship specific journals and conferences.	Correlation of EO with performance is moderately large (r = .242) and robust to different operationalizations of key constructs as well as cultural contexts. Internal and environmental moderators identified.	Mixed - meta-analysis
Views on Self-Employment and Personality: An Exploratory Study	Singh G.& A.F. De Noble	J Devel Entrep (2003)	US	Relationship between early developmental views on self-employment (intent, perceived ability, personal investment) and personality (Big-5).	Questionnaire	Data from 342 students from a large state university on west coast of US, targeted business administration classes. 52.3% women, 50.7% had close relative who was self-employed.	Views on self-employment related to personality. Openness positively related to pereived ability and personal investment. Neuroticism negatively related to intent and ability. Significant interactions between personality, gender, having close self-employed relative	Business administration university students
A meta-analysis of achievement motivation. Differences between entrepreneurs and managers.	Stewart W.H. & P.L. Roth	J Small Bus Management (2007)	Many sources (US and international)	Achievement motivation (linked to conscientiousness) of entrepreneurs and managers	Meta-analysis	18 studies (N=3,272 subjects). Study had to make an achievement motivation comparison between clearly defined entrepreneurial and managerial groups of adults, or a comparison between entrepreneurs who had growth goals versus those who did not. Operational definition of entrepreneur had to include firm ownership.	Entrepreneurs exhibited higher achievement motivation than managers and differences were influenced by entrepreneur's venture goals, by use of U.S. or foreign samples, and by projective or objective instrumentation. When analysis was restricted to founders the difference between entrepreneurs and managers on achievement motivation was substantially larger and statistically significant.	Mixed (owner-entrepreneurs, entrepreneurs with growth goals, managers, etc)
Entrepreneurial characteristics in Switzerland and the UK: A comparative study of techno-entrepreneurs	Tajeddini K. & S.L. Mueller	J Int Entrep (2009)	UK, Switzerland	UK vs. Swiss entrepreneurs across 7 characteristics (risk, innovativeness, locus of control, NAch, ambiguity, confidence, autonomy)	Questionnaire	Total number of respondents 253 (133 in Switzerland and 120 in the UK). Swiss sample had 35 females and 98 males, UK sample was 26 and 94, respectively.	UK entrepreneurs more likely risk takers than Swiss entrepreneurs, but innovativeness in Swiss entrepreneurs slightly higher. Some characteristics (e.g. autonomy, propensity for risk, and locus of control) more likely to be higher among UK entrepreneurs, but others (e.g. achievement need, tolerance for ambiguity, innovativeness, and confidence) higher among Swiss entrepreneurs.	Hi-tech business owner-manager
Innovativeness and initiative as mediators between achievement orientation and venture performance.	Utsch A. & A. Rauch	Eur J of Work & Org Psychology (2000)	Germany	Innovativeness and initiative as mediators between achievement orientation (including self-efficacy, higher order need strength, need achievement, and internal locus of control) and venture performance.	Questionnaire	350 entrepreneurs from Jena and Giessen asked to participate by mail or fax (randomly selected from list of the local chambers of commerce), 201 provided data via interview and questionnaire. Participants had 1 50 employees, were founders, owners and managers of the business started in 1990-1992. Data collected on October 1993 - February 1995.	Innovativeness is a mediator between achievement orientation and venture performance, whereas initiative was not a mediator.	Founder-owner-manager of business with 1-50 employees
Entrepreneurial characteristics amongst university students: Some insights for entrepreneurship education and training in Turkey	Gurol Y. & N. Atsan	Education + Training (2006)	Turkey	6 traits: need for achievement, locus of control, risk taking propensity, tolerance for ambiguity, innovativeness and self-confidence.	Questionnaire	Random sample of 4th year university students (n = 400) from 2 Turkish universities. Asked “what are you planning to do after graduation?” to identify entrepreneurially inclined and those not. Those saying “I'm planning to form my own business venture” defined as potential entrepreneurs. Entrepreneurial traits of these two sets of students compared using a 40-item questionnaire.	Except for tolerance for ambiguity and self-confidence, all entrepreneurial traits found to be higher in entrepreneurially inclined students relative to entrepreneurially non-inclined students. These students had higher risk taking propensity, internal locus of control, higher need for achievement and higher innovativeness.	University students with entrepreneurship plans
The big five personality dimensions and entrepreneurial status: a meta-analytical review.	Zhao H. &. S.E. Seibert	J Appl Psychol. (2006)	English language lit (most US, 1 Swiss, 1 Irish, 1 NZ, 1 German)	Big-5 of entrepreneurs vs. managers	Meta-analysis	Total of 23 nonoverlapping studies, 5 out of 23 from sources other than journals.	Significant differences between entrepreneurs and managers on 4 personality dimensions such that entrepreneurs scored higher on Conscientiousness and Openness to Experience and lower on Neuroticism and Agreeableness. No difference for Extraversion.	Founder-owner-manager of a small business and whose principal purpose is growth, managers of all ranks
The Mediating Role of Self-Efficacy in the Development of Entrepreneurial Intentions	Zhao H., S.E. Seibert & G.E. Hills	J Appl Psychol. (2005)	US	How self-efficacy mediates students' intentions to become entrepreneures	Questionnaire	Survey with a sample of 265 MBA students across 5 universities	Effects of perceived learning from entrepreneurship-related courses, previous entrepreneurial experience, and risk propensity on entrepreneurial intentions fully mediated by entrepreneurial self-efficacy. Gender not mediated by self-efficacy but had a direct effect (women reported lower entrepreneurial career intentions).	MBA students

Risk Attitude Studies

Study	Authors	Publication	Country	Characteristics	Measurement	Data source & sample size	Outcomes	Population of "entrepreneurs"
Attitudes toward risk and self-employment of young workers	Ahn T.	Labour Econ (2010)	US	Individual risk tolerance on probability of entry into self-employment	1979 National Longitudinal Survey of Youth (NLSY79)	Final NLSY-1979 sample of 3,775 respondents (1,171 blacks, 748 Hispanics, 1,856 non-black non-Hispanicics).	Risk tolerance is a determinant of entry into self-employment, but effect much smaller if measurement error not taken into account. Important to account for correlation between risk tolerance and other covariates.	Men entering self-employment
The Role of Cognitive Style and Risk Preference on Entrepreneurial Self-Efficacy and Entrepreneurial Intentions	Barbosa, Gerhardt, & Kickul	J Leadership and Org Studies (2007)	Russia, Norway, Finland	Role of cognitive style and risk preference on 4 types of entrepreneurial self-efficacy and entrepreneurial intentions.	Questionnaire	528 university students enrolled in entrepreneurship programs across three countries (Russian, Norway and Finland). Russia: 324 students of Baltic State Technical University (St. Petersburg) in December 2004. Norway: 111 Bode Graduate School of Business students. Finland: 100 students at the Helsinki School of Economics Mikkeli Campus.	Individuals with high risk preference had higher levels of entrepreneurial intentions and opportunity identification efficacy, while those with a low risk preference had higher levels of relationship efficacy, and tolerance efficacy. Individuals with an intuitive cognitive style had lower perceived self-efficacy w.r.t. establishment of relationship with investors, economic management of new venture, and capacity to tolerate ambiguity. Intuitive individuals with high risk preference showed higher levels of opportunity identification efficacy. Analytic individuals with low risk preference had higher levels of relationship and tolerance self-efficacy than those with a high risk preference.	Male and female entrepreneurship students
How Do Risk Attitudes Differ within the Group of Entrepreneurs? The Role of Motivation and Procedural Utility	Block, J., P. Sandner, F. Spiegel	J Small Bus Manag (2015)	Germany	Opportunity vs. necessity entrepreneurs' risk attitudes. How motivation for work ties with risk attitudes	Questionnaires through German email newsletter	Contacted 24,875 individuals via e-mail in 2009. Targeted early-stage entrepreneurs or individuals planning to start a firm in near future. 2,330 responses, of which 1,526 usable (970 male, 556 female, mean age 42.1). Median age of start-ups 21 months. Indicate (1) Willingness to take start-up risk measured on 7-point Likert scale. Amount invested in hypothetical investment lottery.	Opportunity entrepreneurs more willing to take risks than necessity entrepreneurs. Those motivated by creativity more risk tolerant than other entrepreneurs.	Early-stage entrepreneurs and persons planning to start a firm
Personality aspects of entrepreneurship: A look at five meta-analyses	Brandstätter H.	Personality and Indiv Diff (2011)	Many sources, mostly US	Entrepreneur vs. manager, intention vs. performance (business creation and success), Big-5 and non-Big 5 traits	Meta-analysis	Meta-analyses: Risk propensity of entrepreneurs and managers (Stewart & Roth, 2001); Personality traits that predict business creation and success (Rauch & Frese, 2007); Entrepreneurial intention and performance, Big-5 (Zhao et al., 2010)	Risk propensity supports business foundation, but not business success.	Mixed
Self-employment and attitudes towards risk: Timing and unobserved heterogeneity	Brown S., M. Dietrich, A. Ortiz-Nuñez, K. Taylor	J Econ Psych (2011)	US	Probability of self-employment vs. attitude toward risk	US Panel Study of Income Dynamics (PSID)	Data from PSID, includes attitude towards hypothetical gambles (in 1996 PSID), employment status in 1997, 1999, 2001, 2003 and 2005. Unbalanced panel data with 14,305 observations (10.13% self-employed).	Willingness to take financial risk positively associated with self-employment. Robust to including individual fixed effects.	Self-employed individuals
Personality characteristics and the decisions to become and stay self-employed	Caliendo, M., F. Fossen, A.S. Kritikos	Small Bus Econ (2014)	Germany	Big-5, locus of control, risk tolerance, need for achievement	GSOEP survey data	10 waves of SOEP (2000-2009). Entry into self-employment as indicator of entrepreneurship. Individuals aged 19-59, N=60,701 person-year observations. Socio-economic situation, personality inventory (Big-5 traits and other traits).	Risk tolerance affects entry, but different parameter values of risk tolerance affect exit from self-employment.	Self-employed individuals.
Risk attitudes of nascent entrepreneurs–new evidence from an experimentally validated survey	Caliendo, M., F.M. Fossen, A.S. Kritikos	Small Bus Econ (2009)	Germany	Is decision to start business influenced by risk attitudes	GSOEP survey data	German Socio-Economic Panel (SOEP); individuals not self-employed in 2004 but self-employed in 2005.	Individuals with lower risk aversion more likely to become self-employed. True only for people coming from regular employment.	Self-employed individuals.
The impact of risk attitudes on entrepreneurial survival	Caliendo, M., F.M. Fossen, A.S. Kritikos	J Econ Beh & Org (2010)	Germany	Is business survival related to risk attitudes	GSOEP survey data	Self-employed in the GSOEP in 2000-2005, those exiting self-employment. Risk attitude measused as willingness to take risks in occupation.	Inverse U-shaped relationship between risk attitudes and exits from self-employment	Self-employed individuals.

Low risk aversion encourages the choice for entrepreneurship: an empirical test of a truism.	Cramer, J.,J. Hartog, N. Jonker, C. Van Praag	J Econ Beh and Org (2002)	Netherlands	Risk aversion on selection of individuals into entrepreneurial positions	Brabant survey data	"Brabant survey" has 5,800 children interviewed and tested in 1952 (aged 12) in Dutch province "Noord-Brabant". Re-interviewed in 1983 and 1993. Aptitude scores, parental background, labor market histories, entrepreneurship experiences. Final sub-sample 1,500 individuals who ever participated in labor market.	Negative effect of risk aversion on entrepreneurship selection. Causality of relationship unclear.	Self-employed individuals.
Risk attitude, product innovation, and firm growth. Evidence from Italian manufacturing firms	Cucculelli, M., B. Ermini	Econ Letters (2013)	Italy	Individual risk attitude on relationship between product innovation and firm performance	Survey Italian manufacturing firms (Merloni Foundation), Financial data: Cerved, Italian Registry of Companies, Italian Chambers of Commerce	Survey 178 entrepreneurs in Italian manufacturing firms in 2007. How much would pay for ticket in a lottery with 10 tickets and a single prize. Matched to financial data from Cerved. Each company's financial statement is updated annually.	Introduction of a new product affects firm growth significantly only in sample of risk-loving individuals.	CEO, chairman, president, highest ranking executive
The Self-Efficacy and Risk-Propensity of Entrepreneurs	Densberger, K.	J. Enterp Culture (2014)	US	Is risk propensity a side effect of high self-efficacy	In-person interviews in three cities	Semi-structured, in-person interviews with 49 entrepreneurs in 3 U.S. cities	High level of self-efficacy allows entrepreneurs to be comfortable taking risks.	Individuals who founded their own firm
Self-employment and risk aversion—evidence from psychological test data	Ekelund, J., E. Johansson, M. Järvelinc, D. Lichtermanne	Labour Econ (2005)	Finland	Risk aversion on probability of self-employment	Finnish 1966 Birth Cohort Study (psychometric data, large unselected cohort of Finns)	Northern Finland 1966 Birth Cohort Study, individuals born in 1966 in provinces of Oulu and Lappi. 5,041 subjects (83%) completed a personality questionnaire, 4,691 in final analysis.	The measure of risk aversion ("harm avoidance") has a statistically significant negative effect on self-employment probability.	Self-employed individuals.
Entrepreneurship: From motivation to start-up	Estay, C., F. Durrieu, M. Akhter	J Int Entrep (2013)	France	Motivation (needs and intensities) for entrepreneurs, logics of action (imigation, innovation-adventure, reproduction, innovation-valorisation)	4-part questionnaire (motivation, antecedents, logics of action, info on entrepreneurs and their businesses)	235 entrepreneurs (100% response rate) of those who registered with the Bordeaux (France) Chamber of Commerce and Industry were administered questionnaires. No selection on basis of age, sex, level of education.	Need for personal independence at early stages of entrepreneurial planning, hope for tangible financial and material results. Entrepreneurs take risks, show a need for creativity.	Entrepreneurs registering their business
The Significance of Personality in Business Start-Up Intentions, Start-Up Realization and Business Success	Frank, H., M. Lueger, C. Korunka	Entrep and Reg Devel (2007)	Austria	Role of personality in business start-up intentions, start-up success and business success (need for achievement, locus of control, innovativeness, risk propensity)	4 conceptually similar questionnaire studies (Vienna Entrepreneurship Studies)	4 studies: 1) Personal entrepreneurial orientation and start-up inclinations: inventory of students at general and vocational secondary schools in Austria. 2) Entrepreneurial spirit: personal entrepreneurial orientation and start-up inclinations among university-level students. 3) Supporting and hindering factors in the start-up process. 4) From business ideas to business success: analysis of development in Austrian business start-ups.	Higher risk propensity advantageous in start-up decisions, while opposite true for continued existence of the business. Risk appetite required to make 'jump' into self-employment can prove harmful in later stages.	University students with start-up intentions, start-up founders
Entrepreneurial characteristics amongst university students: Some insights for entrepreneurship education and training in Turkey	Gurol Y., N. Atsan	Educ + Training (2006)	Turkey	Six traits: need for achievement, locus of control, risk taking propensity, tolerance for ambiguity, innovativeness and self-confidence	Questionnaire	Random sample of 4th year university students (N=400) from 2 Turkish universities. Asked "what are you planning to do after graduation?" to identify entrepreneurially inclined and those not. Those saying "I'm planning to form my own business venture" defined as potential entrepreneurs. Entrepreneurial traits of these two sets of students compared using a 40-item questionnaire.	Entrepreneurially inclined students had higher risk taking propensity.	University students with entrepreneurship plans
Does innovativeness reduce startup survival rates?	Hyytinen A., M. Pajarinen & P. Rouvinen	J Bus Venturing (2015)	Finland	Innovativeness of firm, risk preference of person, riskiness of industry	Telephone interview combined with register data	Two cohorts (n=1165) Finnish startups surveyed shortly after their entry into the market. Follow-up from business register. Risk-preference of the entrepreneur (0, 0.33, 0.67, 1).	Firm survival over a 3-year period	Individuals who recently founded their own firm

Risk Tolerance and Entrepreneurship	Hvide, H.K, G.A. Panos	J Fin Econ (2014)	Norway	Are risk tolerant individuals more likely to become entrepreneurs and perform worse	Datasets from Statistics Norway, Bronnoysundregisteret, Dun & Bradstreet, Norwegian Central Securities Depository.	Data from Norway, from several government registries. Sociodemographics (1993-2007), start-ups (2000-2007), accounting information from Dun and Bradstreet, common stock transactions . Two risk tolerance proxies: stock market participation and personal leverage. N=400,000 individuals.	Common stock investors 50% more likely to start up a firm. Firms started up by stock market investors have 25% lower sales and 15% lower return on assets. Results similar with personal leverage as risk tolerance proxy.	Men with more than 50% ownership of an incorporated firm started in 2000-07
Predicting founding success and new venture survival: A longitudinal nascent entrepreneurship approach	Kessler, A., C. Korunka, H. Frank, M. Lueger	J Enterp Culture (2012)	Austria	Impact of personality, resource/environment, and founding process on firm start-ups and survival	Vienna Entrepreneurship Survey	VES subsample of 290 nascent entrepreneurs, observed over 7 years (until 2005) and surveyed in 1998, 2001 and 2005.	Risk-taking affects founding success, but not survival.	Nascent entrepreneurs
The entrepreneurial personality in the context of resources, environment, and the startup process – A configurational approach.	Korunka, Ch., Frank, H., Lueger, M., & Mugler, J.	Entrep Theory and Practice (2003)	Austria	Influence of the personality of nascent entrepreneurs in the startup process based on the configuration approach	Questionnaire	At "Business Startup Information Day" (in Vienna) nascent entrepreneurs contacted in person. At general support institutions for nascent entrepreneurs targets reached directly through staff. At financial support institutions address database available, and target group reached by a mail survey. Total of 5,983 questionnaires were distributed between April - August 1998, 1,169 surveys returned.	Typology of nascent entrepreneurs compared to a configuration of successful new business owner-managers. The latter had a high need for achievement, high internal locus of control, and medium risk-taking propensity.	Nascent entrepreneurs
Risk Propensity Differences Between Managers and Entrepreneurs and Between Low- and High-Growth Entrepreneurs: A Reply in a More Conservative Vein	Miner, J. B., N.S. and Raju	J Appl Psych (2004)	Varied sources	Risk propensities of entrepreneurs vs. managers, low- and high-growth entrepreneurs	Meta-analysis	Studies used Risk Avoidance subscale of the Miner Sentence Completion Scale–Form T (MSCS-T) with 8 items scored: risk avoidance, neutral, or risk taking.	Entrepreneurs and those with a growth orientation are more risk avoidant.	Mixed
Effects of self-concept traits and entrepreneurial orientation on firm performance.	Poon, J.M.L., R.A. Ainuddin, S.O.H. Junit	Intl Small Bus Journal (2006)	Malaysia	Three self-concept traits: innovativeness, proactiveness, and propensity to take risks; entrepreneurial orientation, and firm performance	Questionnaire	Entrepreneurs from listings of SMEs. Mailed self-administered questionnaire to 600 entrepreneurs, 104 responses (17%), 96 usable. Mean age 44.31, 94% men. Manufacturing (64%), services (32%), and trading (4%). Average number of employees 128, average of 9.43 years of entrepreneurial experience.	Entrepreneurial orientation (innovativeness, proactiveness, and propensity to take risks) used as mediating variable for relationship between self-concept traits and firm performance. Internal locus of control positively related to firm performance, but entrepreneurial orientation (incl. propensity to take risks) not play mediating role.	People operating their own business
Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future.	Rauch, A., J. Wiklund, G.T. Lumpkin, M. Frese	Entrep Theory and Practice (2009)	Varied sources	Relationship between entrepreneurship orientation (innovativeness, risk-taking, proactiveness) and business performance	Meta-analysis	53 samples from 51 studies (N=14,259 companies) from PsycInfo, EconLit, Social Science Citation Index, and ABI/Inform, as well as entrepreneurship specific journals and conferences.	Innovation, risk taking, and proactiveness (jointly called entrepreneurial orientation or EO) of equal importance in explaining business performance. Correlation between EO and firm performance was .242.	Mixed
Risk propensity differences between entrepreneurs and managers: a meta-analytic review.	Stewart W.H., P.L. Roth	J Applied Psych 145–53 (2001)	Varied sources	Risk propensities of entrepreneurs vs. managers	Meta-analysis of 14 studies	14 samples from ABI-INFORM, Business and Management Practices, UnCover, Dissertation Abstracts Online, Expanded Academic ASAP, General BusinessFile, Management Contents, PsycINFO, Sociological Abstracts, and Social SciSearch databases. Risk propensity comparison of entrepreneurial group to a managerial group. Entrepreneurs independently owned and actively managed the firm (or expressed intention to do so).	Risk propensity of entrepreneurs greater than managers. Larger differences between entrepreneurs whose primary goal is venture growth vs. those focused on producing family income.	Mixed

Entrepreneurial characteristics in Switzerland and the UK: A comparative study of techno-entrepreneurs	Tajeddini, K., S.L. Mueller	J Int Entrep (2009)	UK, Switzerland	UK vs. Swiss entrepreneurs across 7 characteristics (risk, innovativeness, locus of control, NAch, ambiguity, confidence, autonomy)	Questionnaire	253 respondents (133 in Switzerland, 120 in the UK). 35 females and 98 males in Switzerland, 26 and 94, respectively, in the UK.	UK entrepreneurs are more likely risk takers than Swiss entrepreneurs.	Tech entrepreneurs identified from Dun & Bradstreet and Swiss Federal Statistics data.
The myth of the risk-tolerant entrepreneur	Xu, H., M. Ruef	Strategic Org (2004)	US	Entrepreneurs vs. general pop on risk-aversion and driving factors (autonomy, identity fulfillment, etc)	Panel Study of Entrepreneurial Dynamics (PSED)	PSED sample of 1,261 nascent entrepreneurs (NE) and comparison group (CG). Vignettes concerning business investment decisions. Strategic model of risk tolerance based on investment choices; and a non-strategic model of risk tolerance, based on information bias about business success.	Entrepreneurs significantly more risk-averse than general population.	Nascent entrepreneurs
The Relationship of Personality to Entrepreneurial Intentions and Performance: A Meta-Analytic Review	Zhao H., S. Seibert, G.T. Lumpkin	J Manag (2010)	Varied sources	Big-5 and risk propensity on entrepreneurial intentions and performance	Meta-analysis	Total of 60 studies with 66 independent samples N=15,423 individuals), 18 out of 60 from nonjournal sources.	Risk propensity was positively associated with entrepreneurial intentions but not related to entrepreneurial performance.	Mixed
The Mediating Role of Self-Efficacy in the Development of Entrepreneurial Intentions	Zhao, Seibert, Hills	J Appl Psych. (2005)	US	How self-efficacy mediates students' intentions to become entrepreneures	Questionnaire	265 MBA students across 5 universities	Effect of risk propensity on entrepreneurial intentions fully mediated by entrepreneurial self-efficacy.	MBA students

Impacts of Big-5 Personality Traits

Study	Authors	For each Big-5 trait: Impact on entry					For each Big-5 trait: Impact on growth/performance					For each Big-5 trait: Impact on survival					Overall effect on being an entrepreneur (prevalence, versus other population)				
		O	C	E	A	N	O	C	E	A	N	O	C	E	A	N	O	C	E	A	N
The Big Five Personality–Entrepreneurship Relationship: Evidence from Slovenia	Antoncic B., T. Bratkovic Kregar, G. Singh & A.F. DeNoble																4.03 entrepreneur, 3.71 non-entrepreneur; 1.00 obs. power on entrep. (MANOVA)	4.14 entrepreneur, 4.19 non-entrepreneur; 0.10 obs. power on entrep. (MANOVA)	3.91 entrepreneur, 3.68 non-entrepreneur; 0.90 obs. power on entrep. (MANOVA)	3.95 entrepreneur, 4.23 non-entrepreneur; 0.54 obs. power on entrep. (MANOVA)	2.66 entrepreneur, 2.60 non-entrepreneur; 0.26 obs. power on entrep. (MANOVA)
Personality characteristics and the decisions to become and stay self-employed	Caliendo M., F. Fossen & A.S. Kritikos	+0.0017 (marg.eff.)	-0.0002 (insign, marg.eff.)	+0.0009 (marg.eff.)	-0.0001 (insign., marg.eff.)	-0.0004 (marg.eff.)						+0.0033 exit (insing, marg.eff.)	-0.0035 exit (insing, marg.eff.)	-0.0057 exit (insing, marg.eff.)	+0.0094 exit (marg.eff.)	-0.0026 exit (insing, marg.eff.)	+17%, +0.0175 (marginal effect)	0%, -0.0013 (marginal effect)	+7%, +0.0119 (marginal effect)	0%, -0.0026 (marginal effect)	0%, -0.0019 (marginal effect)
The Five-Factor model of personality: assessing entrepreneurs and managers	Envick B. R. & M. Langford																14.515 managers, 14.941 entrepren	19.667 managers, 18.639 entrepren	17.596 managers, 17.277 entrepren	20.081 managers, 19.101 entrepren	13.152 managers, 13.496 entrepren
The Relationship of Personality to Entrepreneurial Intentions and Performance: A Meta-Analytic Review	Zhao H., S. Seibert & G.T. Lumpkin	+0.24 intentions	+0.19 intentions	+0.16 intentions	+0.04 intentions (insign.)	(Emotional Stability) +0.22 intentions	+0.21 performance, +0.23 growth	+0.19 performance, +0.28 growth	+0.09 performance	+0.05 performance (insign.)	(Emotional Stability) +0.12 performance, +0.12 growth										
The role of SME entrepreneurs' innovativeness and personality in the adoption of innovations.	Marcati A., G. Guido & A.M. Peluso						+0.414 correlation general innovativeness, +0.375 correl. special innovativeness	-0.506 correlation GI, -0.214 correlation SI	+0.241 correlation GI, +0.389 correlation SI	-0.377 correlation GI, -0.339 correlation SI	+0.218 correlation GI, -0.071 correlation SI (ES)										
The Big Five and venture survival: Is there a linkage?	Ciavarella M.A., A.K. Buchholtz, C.M. Riordan, R.D. Gatewood & G.S. Stokes											-0.592; survival until year 8	+0.907; survival until year 8	+0.109; survival until year 8 (insign.)	+0.358; survival until year 8 (insign.)	(Emotional Stability) +0.161; survival until year 8 (insign.)					
Views on Self-Employment and Personality: An Exploratory Study	Singh G.& A.F. De Noble	+0.15 intent (insign.)	-0.31 intent (insign.)	-0.30 intent	+0.11 intent (insign.)	-0.40 intent						+0.34 confident to quit (insign.)	-0.57 confident to quit	-0.002 confident to quit (insign.)	-0.02 confident to quit (insign.)	-0.18 confident to quit					
The big five personality dimensions and entrepreneurial status: a meta-analytical review.	Zhao H. & S.E. Seibert																+0.36 (avg effect size, entrepreneur = 1, manager=0)	+0.45 (avg effect size, entrepreneur = 1, manager=0)	+0.22 (avg effect size, entrepreneur = 1, manager=0) (insign.)	-0.16 (avg effect size, entrepreneur = 1, manager=0)	-0.37 (avg effect size, entrepreneur = 1, manager=0)
The role of personality dimensions and occupational preferences on the formation of entrepreneurial intentions	Brice J.	+.169 intent, beta (standardiz.)	+0.131 intent, beta (standardiz.)	+0.048 intent, beta (standardiz.) (insign.)	-0.161 intent, beta (standardiz.)	-0.071 intent, beta (standardiz.) (insign.)															

Impacts of Locus of Control

Study	Authors	Impact on entry	Impact on growth	Impact on survival	Overall/Other
Personality characteristics and the decisions to become and stay self-employed	Caliendo M., F. Fossen & A.S. Kritikos	+0.0008 entry (marg. effect)		-0.0062 exit self-employment (marg. effect)	+0.0136 being self-employed (marg. effect)
Entrepreneurship: From motivation to start-up	Estay C., F. Durrieu & M. Akhter				+0.243 the goal of development on ILOC, +0.23 ILOC to "reproduction" (enrepreneur will re-use skills)
The Significance of Personality in Business Start-Up Intentions, Start-Up Realization and Business Success	Frank H., M. Lueger & C. Korunka				+0.12 ILOC to integrated variable (entrepr. orientation, start-up inclination, start-up suitability).
Need for achievement, locus of control and the prediction of business start-ups: A longitudinal study	Hansemark O.C.	-0.288 for men, +(insign) for women in starting new business, (coefficient)			
The entrepreneurial personality in the context of resources, environment, and the startup process – A configurational approach.	Korunka C., H. Frank, M. Lueger & J. Mugler				0 for successful entrep., +0.32 for would-be-entrep., +0.39 networking nascent entrep. w/ risk avoidance pattern, -0.24 for against-will-entrep. in startup process (effect size, approx.)
Personality types of entrepreneurs	Müller G.F. & C. Gappisch				+0.70 principal component in factor-5 personality, +0.31 factor-5 personality effect on job satisfaction, +0.17 factor 5-personality effect on life satisfaction
Born to Be an Entrepreneur? Revisiting the Personality Approach to Entrepreneurship	Rauch A. & M. Frese	+0.188 business creation (r)	+0.134 business success (r)		
Innovativeness and initiative as mediators between achievement orientation and venture performance.	Utsch A. & A. Rauch				4 characteristics (nAch, ILOC, higher order need strength, self-efficacy) aggregated into "achievement orientation": +0.18 on initiative and +0.38 on innovativeness
Entrepreneurial characteristics amongst university students: Some insights for entrepreneurship education and training in Turkey	Yonca G. & N. Atsan	Mean=3.26 entrepreneurially inclined students, mean=2.95 non-entrepreneurially inclined students			
Entrepreneurial characteristics in Switzer	Tajeddini K. & S.L. Mueller				ILOC of UK entrepreneurs mean=6.06, Swiss entrepreneurs mean=6.01
Effects of self-concept traits and entrepreneurial orientation on firm performance.	Poon J.M.L., R.A. Ainuddin & S.O.H. Junit		+0.27 firm performance (path estimate)		

Impacts of Need for Autonomy

Study	Authors	Impact on entry	Impact on growth	Impact on survival	Overall/Other
Born to Be an Entrepreneur? Revisiting the Personality Approach to Entrepreneurship	Rauch A. & M. Frese	+0.312 business creation (r)	+0.164 business success (r)		
Entrepreneurial characteristics in Switzerland and the UK: A comparative study of techno-entrepreneurs	Tajeddini K. & S.L. Mueller				Autonomy of UK entrepreneurs mean=6.35, Swiss entrepreneurs mean=6.23

Impacts of Need for Acievement

Study	Authors	Impact on entry	Impact on growth	Impact on survival	Overall/Other
The relationship of need for achievement to entrepreneurship: A meta-analysis.	Collins C. J., P. Hanges & E.A. Locke	+0.21 (0.18 - 0.24) career choice (r)	+0.46 (0.42 - 0.49) known group studies, +0.18 (0.15 - 0.22) individual studies, performance (r)		
The Significance of Personality in Business Start-Up Intentions, Start-Up Realization and Business Success	Frank H., M. Lueger & C. Korunka				Means: 35.1 (secondary school students), 64.7 (university students), 79.4 (potential founders), 80.1 (successful founders)
Need for achievement, locus of control and the prediction of business start-ups: A longitudinal study	Hansemark O. C.	Not signif for men or women on start of new business			
The entrepreneurial personality in the context of resources, environment, and the startup process – A configurational approach.	Korunka C., H. Frank, M. Lueger & J. Mugler				Effect size: 0 for successful entrepreneur, -0.6 for "against will entrepreneur", -0.05 "would be entrepreneur", +0.25 risk avoidance entrepreneur (approx. from line graph)
Personality types of entrepreneurs	Müller G. F. & C. Gappisch				nAch 0.69 principal component factor in Factor-3 personality (with beta 0.01=job satisfaction and beta=0.05 life satisfaction)
Let's put the person back into entrepreneurship research: A meta-analysis on the relationship between business owners' personality traits, business creation, and success.	Rauch A. & M. Frese	+0.219 business creation (r)	+0.304 business success (r)		
A meta-analysis of achievement motivation. Differences between entrepreneurs and managers.	Stewart W.H. & P.L. Roth				0.59 all entrepreneurs to managers, 0.67 income-entrepreneurs to growth-entrepreneurs (d, avg obs effect size)
Innovativeness and initiative as mediators between achievement orientation and venture performance.	Utsch A. & A. Rauch				Explains 3% variance of initative, 15% variance of innovativeness
Entrepreneurial characteristics amongst university students: Some insights for entrepreneurship education and training in Turkey	Gürol Y. & N. Atsan				Means: 3.69 (entrepreneurially inclined students) 3.39 (non-entrepreneurially inclined students)
Entrepreneurial characteristics in Switzerland and the UK: A comparative study of techno-entrepreneurs	Tajeddini K. & S.L. Mueller				nAch of UK entrepreneurs mean=6.02, Swiss entrepreneurs mean=6.09
Effects of self-concept traits and entrepreneurial orientation on firm performance.	Poon J.M.L., R.A. Ainuddin & S.O.H. Junit		-0.05 (not signif.) achievement motive on firm performance (path estimate)		

Impact of Stress and Ambiguity Tolerance

Study	Authors	Impact on entry	Impact on growth	Impact on survival	Overall/Other
Let's put the person back into entrepreneurship research: A meta-analysis on the relationship between business owners' personality traits, business creation, and success.	Rauch A. & M. Frese	+0.104 business creation (r)	+0.198 business success (r)		
Entrepreneurial characteristics amongst university students: Some insights for entrepreneurship education and training in Turkey	Gürol T. & N. Atsan	Means: 3.58 (entrepreneurially inclined students), 3.45 (non-entrepreneurially inclined students)			
Entrepreneurial characteristics in Switzerland and the UK: A comparative study of techno-entrepreneurs	Tajeddini K. & S.L. Mueller				Tolerance of ambiguity of UK entrepreneurs mean=6.17, Swiss entrepreneurs mean=6.22

Impact of Self-Efficacy

Study	Authors	Impact on entry	Impact on growth	Impact on survival	Overall/Other
The relationship of entrepreneurial traits, skill, and motivation to subsequent venture growth	Baum J.R. & E.A. Locke		0.34 venture growth (lamda)		
Does self-efficacy affect entrepreneurial investment?	Cassar G. & H. Friedman				(ESE) ρ=0.29 nascent entrepreneur, ρ=0.16 operating entrepreneur, ρ=0.13 wealth share, ρ=0.26 hours per week, ρ=0.20 risk tolerance
When does entrepreneurial self-efficacy enhance versus reduce firm performance?	Hmieleski K.M. & R.A. Baron		0.19, firm performance (b)		
Prospecting for strategic advantage: the proactive entrepreneurial personality and small firm innovation	Kickul J. & L.K. Gundry		proactive personality +.23 innovative targeting processes, +.19 innovative		
Effects of self-concept traits and entrepreneurial orientation on firm performance.	Poon J.M.L., R.A. Ainuddin & S.O.H. Junit		-0.02 (not signif) generalized self-efficacy on firm performance (path estimates)		
Let's put the person back into entrepreneurship research: A meta-analysis on the relationship between business owners' personality traits, business creation, and success.	Rauch A. & M. Frese	+0.378 business creation (r)	+0.247 business success (r)		
Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future.	Rauch A., J. Wiklund, G.T. Lumpkin & M. Frese		+0.178 proactivity on performance (r)		
Innovativeness and initiative as mediators between achievement orientation and venture performance.	Utsch A. & A. Rauch		+0.15 profit growth, +0.11 employee growth (path)		
The Mediating Role of Self-Efficacy in the Development of Entrepreneurial Intentions	Zhao H., S.E. Seibert & G.E. Hills	+0.49 entrepreneurial intentions (path)			

Impact of Innovativeness

Study	Authors	Impact on entry	Impact on growth	Impact on survival	Overall/Other
The Significance of Personality in Business Start-Up Intentions, Start-Up Realization and Business Success	Frank H., M. Lueger & C. Korunka				Measured for 1 of 4 groups (mean=55.1 secondary school students), no comparison
The role of SME entrepreneurs' innovativeness and personality in the adoption of innovations.	Marcati A., G. Guido & A.M. Peluso		GI = +.299, SI = +.198 on behavioral intention to adopt innovations		
Effects of self-concept traits and entrepreneurial orientation on firm performance.	Poon J.M.L., R.A. Ainuddin & S.O.H. Junit				Considered as part of EO, individual effect not reported
Let's put the person back into entrepreneurship research: A meta-analysis on the relationship between business owners' personality traits, business creation, and success.	Rauch A. & M. Frese	+0.235 business creation (r)	+0.273 business success (r)		
Entrepreneurial characteristics amongst university students: Some insights for entrepreneurship education and training in Turkey	Gürol Y. & N. Atsan				Means: 4.10 (entrepreneurially inclined students), 3.50 (non-entrepreneurially inclined students)
Entrepreneurial characteristics in Switzerland and the UK: A comparative study of techno-entrepreneurs	Tajeddini K. & S.L. Mueller				Innovativeness of UK entrepreneurs mean=6.02, Swiss entrepreneurs mean=6.34
Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future.	Rauch A., J. Wiklund, G.T. Lumpkin & M. Frese		+0.195 performance (r)		

Impact of Risk Attitudes

Study	Authors	Prevalence Relative to Other Groups	Impact signs & sizes: Entry	Impact signs & sizes: Growth/Performance	Impact signs & sizes: Survival/Exit
Attitudes toward risk and self-employment of young workers	Ahn T.	N/A	Marginal effect: +0.0218 (stat. sign.) (Range 0.0022 to 0.0219)	N/A	N/A
The Role of Cognitive Style and Risk Preference on Entrepreneurial Self-Efficacy and Entrepreneurial Intentions	Barbosa, Gerhardt, & Kickul	N/A	T-test: high risk preference individuals have higher entrepreneurship intention (mean=4.45) than low risk preference individuals (mean=3.85). Difference stat.sign. at 5% level.	N/A	N/A
How Do Risk Attitudes Differ within the Group of Entrepreneurs? The Role of Motivation and Procedural Utility	Block, J., P. Sandner, F. Spiegel	Opportunity entrepreneurs willing to invest 27% more than necessity entrepreneur (stat.sign. diff at 5% level).	N/A	N/A	N/A
Personality aspects of entrepreneurship: A look at five meta-analyses	Brandstätter H.	Entrepreneurs minus managers mean risk propensity: +0.36 (stat.sign. at 5% level)	Business creation: +0.10 (Rauch & Frese, 2007)	Business success: +0.10 (Rauch & Frese, 2007), 0/insignificant (Zhao et al., 2010)	N/A
Self-employment and attitudes towards risk: Timing and unobserved heterogeneity	Brown S., M. Dietrich, A. Ortiz-Nuñez, K. Taylor	Self-employed mean risk attitude 2.117, full sample mean 1.633 (scale 1-5). Marginal effect: +0.0047 (stat.sign.)	N/A	N/A	N/A
Personality characteristics and the decisions to become and stay self-employed	Caliendo, M., F. Fossen, A.S. Kritikos	Self-employed / workers / not employed: risk tolerance (5.518 / 4.615 / 4.230).	Marginal effect on entry: risk tolerance -0.0003 (insign), risk tolerance^2 +0.0001 (stat.sign.)	N/A	Marginal effect on exit: risk tolerance -0.0160 (stat.sign.), risk tolerance^2 +0.0015 (stat.sign.)
Risk attitudes of nascent entrepreneurs–new evidence from an experimentally validated survey	Caliendo, M., F.M. Fossen, A.S. Kritikos	Self-employed/workers/not employed: high-risk (0.209 / 0.094 / 0.103), med-risk (0.675 / 0.735 / 0.643).	Marginal effect: +0.0030 (stat.sign)	N/A	N/A
The impact of risk attitudes on entrepreneurial survival	Caliendo, M., F.M. Fossen, A.S. Kritikos	N/A	N/A	N/A	Exit probability model, logit coefficients: occrisk=-0.177 (stat.sign), occrisk^2=0.016 (stat.sign.)
Low risk aversion encourages the choice for entrepreneurship: an empirical test of a truism.	Cramer, J.,J. Hartog, N. Jonker, C. Van Praag	Self-employed / employees: risk averse (80.3% / 89.2%), risk neutral (17.1% / 9.4%), risk loving (2.6% / 1.4%)	Probability of ever entering, elasticity: absolute risk eversion -0.11 (stat.sign.), relative risk aversion -0.13 (stat.sign.)	N/A	N/A
Risk attitude, product innovation, and firm growth. Evidence from Italian manufacturing firms	Cucculelli, M., B. Ermini	Of total sample: 76.4% risk averse, 16.8% risk neutral, 6.7% risk loving	N/A	Effect of innovation on growth: in risk loving firms +0.491 (stat.sig.), in risk averse firms +0.114 (insign.)	N/A

The Self-Efficacy and Risk-Propensity of Entrepreneurs	Densberger, K.	Of total sample, 8.2% risk-takers (self-assessed)	N/A	N/A	N/A
Self-employment and risk aversion—evidence from psychological test data	Ekelund, J., E. Johansson, M. Järvelinc, D. Lichtermanne	Self-employed / employees: risk aversion (3.24 / 3.67) (diff. stat.sign.)	Probability of self-employment, logit estimates: risk aversion -0.086 (stat.sign.)	N/A	N/A
Entrepreneurship: From motivation to start-up	Estay, C., F. Durrieu, M. Akhter	Unclear	N/A	Unclear	N/A
The Significance of Personality in Business Start-Up Intentions, Start-Up Realization and Business Success	Frank, H., M. Lueger, C. Korunka	Entrepreneurial orientation: risk propensity effects range +0.14 to +0.20 (stat.sign.).	Start-up probability: risk propensity effects range +0.17 to +0.19 (stat.sign)	Staff growth: risk propensity effect 0	Continued survival: risk propensity effects range -0.14 to -0.11 (stat.sign.)
Entrepreneurial characteristics amongst university students: Some insights for entrepreneurship education and training in Turkey	Gurol Y., N. Atsan	Risk taking propensity: entrepreneurially inclined students (3.60) and non-inclined students (3.25)	N/A	N/A	N/A
Does innovativeness reduce startup survival rates?	Hyytinen A., M. Pajarinen & P. Rouvinen	N/A	N/A	N/A	Insignificant effect of risk-preference when included alone. If included also with interaction to firm innovativeness, coeff range +0.086 to +0.104 (stat.sign). Interaction with "firm innovates": -0.235 to -0.240 (stat.sign.).
Risk Tolerance and Entrepreneurship	Hvide, H.K, G.A. Panos	Unclear	Entry into entrepreneurship: investor-dummy effect range +0.0068 to +0.0096 (stat.sign.). Portfolio-value-to-wealth effect range: 0.0013 to +0.0022 (stat.sign.)	Investor dummy / debt-to-income effects on: operation return on assets (-0.0120 / -0.0084), sales (-0.2501 / -0.0313), employees (-0.3155 / -0.0619) (all stat.sign.)	4-year survival: investor dummy effect -0.0255 (stat.sign.), debt-to-income effect -0.00190 (stat.sign.)
Predicting founding success and new venture survival: A longitudinal nascent entrepreneurship approach	Kessler, A., C. Korunka, H. Frank, M. Lueger	Sample mean risk-taking propensity 54.2 (range 0-100)	Founding success: risk taking propoensity effect +0.04 (stat.sign.)	N/A	New venture survival: risk taking propensity effect: 0
The entrepreneurial personality in the context of resources, environment, and the startup process – A configurational approach.	Korunka, Ch., Frank, H., Lueger, M., & Mugler, J.	Success sample mean risk-taking propensity ~58 (range 0-100)	N/A	N/A	N/A

Risk Propensity Differences Between Managers and Entrepreneurs and Between Low- and High-Growth Entrepreneurs: A Reply in a More Conservative Vein	Miner, J. B., N.S. and Raju	Entrepreneurs minus comparisons difference: MSCS-T risk measure range -0.975 to +0.078 (11 studies). Meta-analysis average -0.429 (stat.sign.)	N/A	N/A	N/A
Effects of self-concept traits and entrepreneurial orientation on firm performance.	Poon, J.M.L., R.A. Ainuddin, S.O.H. Junit	Unclear	N/A	Firm performance: effect of "entrepreneurial oriontation" (includes risk taking propensity): 0.19 (stat.sign.)	N/A
Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future.	Rauch, A., J. Wiklund, G.T. Lumpkin, M. Frese	N/A	N/A	Correlation of firm performance and risk taking: 0.139	N/A
Risk propensity differences between entrepreneurs and managers: a meta-analytic review.	Stewart W.H., P.L. Roth	Risk-taking propensity of entrepreneurs minus founders: 0.36	N/A	N/A	N/A
Entrepreneurial characteristics in Switzerland and the UK: A comparative study of techno-entrepreneurs	Tajeddini, K., S.L. Mueller	Risk taking propensity (1-8): Entrepreneurs in Swizerland (5.81) and UK (6.03)	N/A	N/A	N/A
The myth of the risk-tolerant entrepreneur	Xu, H., M. Ruef	Venture investment preference: Nascent entrepreneur dummy 0.349 to 0.368 (stat.sign.)	N/A	N/A	N/A
The Relationship of Personality to Entrepreneurial Intentions and Performance: A Meta-Analytic Review	Zhao H., S. Seibert, G.T. Lumpkin	Unclear	Intension: risk propensity +0.30 (stat.sign.)	Performance: -0.02 (insign.). Growth: +0.03 (insign.). Profitability / operations: -0.05 (insign.).	N/A
The Mediating Role of Self-Efficacy in the Development of Entrepreneurial Intentions	Zhao, Seibert, Hills	Risk propensity mean 3.33	N/A	N/A	N/A

Appendix B: Typical Big-5 Inventory (BFI) Utilized in Entrepreneurship Studies

1 Disagree Strongly	**2** Disagree a little	**3** Neither agree nor disagree	**4** Agree a little	**5** Agree strongly

I am someone who...

1. _____ Is talkative
2. _____ Tends to find fault with others
3. _____ Does a thorough job
4. _____ Is depressed, blue
5. _____ Is original, comes up with new ideas
6. _____ Is reserved
7. _____ Is helpful and unselfish with others
8. _____ Can be somewhat careless
9. _____ Is relaxed, handles stress well.
10. _____ Is curious about many different things
11. _____ Is full of energy
12. _____ Starts quarrels with others
13. _____ Is a reliable worker
14. _____ Can be tense
15. _____ Is ingenious, a deep thinker
16. _____ Generates a lot of enthusiasm
17. _____ Has a forgiving nature
18. _____ Tends to be disorganized
19. _____ Worries a lot
20. _____ Has an active imagination
21. _____ Tends to be quiet
22. _____ Is generally trusting
23. _____ Tends to be lazy
24. _____ Is emotionally stable, not easily upset
25. _____ Is inventive
26. _____ Has an assertive personality
27. _____ Can be cold and aloof
28. _____ Perseveres until the task is finished
29. _____ Can be moody
30. _____ Values artistic, aesthetic experiences
31. _____ Is sometimes shy, inhibited
32. _____ Is considerate and kind to almost everyone
33. _____ Does things efficiently
34. _____ Remains calm in tense situations
35. _____ Prefers work that is routine
36. _____ Is outgoing, sociable
37. _____ Is sometimes rude to others
38. _____ Makes plans and follows through with them

39. _____ Gets nervous easily
40. _____ Likes to reflect, play with ideas
41. _____ Has few artistic interests
42. _____ Likes to cooperate with others
43. _____ Is easily distracted
44. _____ Is sophisticated in art, music, or literature

Appendix C: Representative Examples of Survey Questions and Measures Related to Risk Attitudes

Study	***Risk measurement questions***
Ahn (2010) NLSY79	Suppose that you are the only income earner in the family, and you have a good job guaranteed to give you your current (family) income every year for life. You are given the opportunity to take a new and equally good job, with a 50–50 chance that it will double your (family) income and a 50–50 chance that it will cut your (family) income by a third. Would you take the new job? If respondent answers "yes", he is asked a similar question where risk becomes "a 50–50 chance that it will cut your (family) income by a half." If he says "no" to first question, he faces a different follow-up where risk becomes "a 50–50 chance that it will cut your (family) income by a fifth."
Barbosa et al. (2007) PSED	Assuming you are the sole owner, which situation would you prefer? 1) A business that would provide a good living, but with little risk of failure, and little likelihood of making you a millionaire, or 2) A business that was much more likely to make you a millionaire but had a much higher chance of going bankrupt
Block, Sandner, and Spiegel (2009)	Risk attitude with regard to start-up: "In your entrepreneurial decisions, are you prepared to take risks, or do you try to avoid taking risks?; ordinal scale ranging from 1 (complete willingness) to 7 (complete unwillingness). Amount invested in investment lottery: "Imagine you have won $100,000 in a lottery. After having received the money, you have the possibility to invest the money in an entrepreneurial activity. With a probability of 50%, you double the amount. With a probability of 50%, you would lose half the invested money. How much money obtained from the lottery would you invest?"
Brown et al. (2006) PSID	All heads of household were asked (M1): Suppose you had a job that guaranteed you income for life equal to your current total income. And that job was (your/your family's) only source of income. Then you are given the opportunity to take a new, and equally good, job with a 50–50 chance that it will double your income and spending power. But there is a 50–50 chance that it will cut your income and spending power by a third. Would you take the new job? Individuals who answered 'yes' were then asked (M2): Now, suppose the chances were 50–50 that the new job would double your (family) income, and 50–50 that it would cut it in half. Would you still take the job? Those who answered 'yes' to this question were then asked (M5): Now, suppose that the chances were 50–50 that the new job would double your (family) income, and 50–50 that it would cut it by 75%. Would you still take the new job? Individuals who answered 'no' to Question M1 were asked (M3): Now, suppose the chances were 50–50 that the new job would double your (family) income, and 50–50 that it would cut it by 20 per cent. Then would you take the job? Individuals who replied 'no' were asked (M4): Now, suppose that the chances were 50–50 that the new job would double your (family) income, and 50–50 that it would cut it by 10 per cent. Then would you take the new job?

Brown, Dietrich, Nunez, and Taylor (2011) PSID	Same as above
Caggese (2012) Mediocredito Surveys	Firms are asked whether they engaged, in the previous three years, in R&D expenditure. Firms that answer 'yes' (37%) are asked what percentage of this expenditure was directed toward improving existing products, improving existing productive processes, introducing new products, introducing new productive processes, or other objectives. Furthermore, under the heading ''Investment,'' firms are asked if they undertook new investment in plant or equipment in the three previous years. Firms that answer 'yes' (89%) were asked to specify to what extent the fixed investment had the following objectives: to improve existing products, to increase the production of existing products, to produce new products, to reduce pollution, to reduce the cost of materials, to reduce labor costs, or other objectives. For each chosen answer, firm indicates three possible degrees of intensity: low, medium, or high.
Caliendo et al. (2009) GSOEP	a) The original SOEP-question for the hypothetical investment is: Please consider what you would do in the following situation: Imagine that you had won 100,000 Euros in the lottery. Almost immediately after you collect the winnings, you receive the following financial offer from a reputable bank, the conditions of which are as follows: There is the chance to double the money within 2 years. It is equally possible that you could lose half of the amount invested. You have the opportunity to invest the full amount, part of the amount or reject the offer What share of your lottery winnings would you be prepared to invest in this financially risky, yet lucrative investment? Possible answers: '100,000', '80,000', '60,000% '40,000% '20,000 Euros', and 'Nothing, I would decline the offer'" b) The original SOEP-question for the general willingness to take risks is: "How do you see yourself: Are you generally a person who is fully prepared to take risks or do you try to avoid taking risks? Please tick a box on the scale, where the value 0 means: 'risk averse' and the value 10 means: 'fully prepared to take risks'" c) The original SOEP-questions for the different areas are: "People can behave differently in different situations. How would you rate your willingness to take risks in the following areas? Please tick a box on the scale, where the value 0 means: 'risk averse' and the value 10 means: 'fully prepared to take risks' How is it in financial matters? How is it in your occupation?"
Cramer et al. (2002) Brabant Survey (Netherlands)	How much the respondent would pay for a ticket in a hypothetical lottery with 10 tickets and a single prize of 1000 guilders ($500)
Cucculelli and Ermini (2013)	Q1. What is the largest amount the firm can invest? Answer: X Q2. How much would you pay for a ticket in a hypothetical lottery with 10 tickets and a single prize of the same amount of the investment you have specified in the previous question, i.e. X?

Dawson et al. (2014) British Household Panel Study 1991-2008	Optimism is measured by comparing earning expectations from the British Household Panel Study 1991-2008 with future earnings as an entrepreneur.
Ekelund et al. (2005) Northern Finland 1966 Birth Cohort Study	(1) I often feel tense or worried in unfamiliar situations, even when others feel there is little to worry about. (2) Most of the time I would prefer to do something a little risky (like riding in an automobile over steep hills and sharp turns)—rather than having to stay quiet and inactive for a few hours. (3) I usually stay calm and secure in situations that most people would find physically dangerous. (4) I often feel tense and worried in unfamiliar situations, even when others feel there is no danger at all. (5) Most of the time I would prefer to do something risky (like hang-gliding or parachute jumping)—rather than having to stay quiet and inactive for a few hours. (6) I am usually confident that I can easily do things that most people would consider dangerous (such as driving an automobile fast on a wet or icy road). (7) I usually feel tense and worried when I have to do something new and unfamiliar. The range of the measure is 1–7.
Hall and Woodward (2010)	IPO data used to create a model-based approach to back out what the relative risk aversion of an entrepreneur has to be for a given wealth level and external guaranteed earnings option, given the wide distribution of exit outcomes (ranging from failure to highly successful sales and public offerings) for VC-backed companies.
Hyytinen et al. (2015)	“I am willing to take a lot of risk to get large revenue or income” with responses on a four-point scale from “totally disagree” to “totally agree,” rescaled to 0–1.
Hvide and Panos (2014)	Several proxies to capture revealed risk preference: stock market participation, personal leverage, and fraction of wealth invested in the stock market.
Lazear (2005)	Standard deviation of industry-wide earnings from 5,000 Stanford Graduate School of Business graduates used to measure how willing the person is to tolerate earnings-related risk. Questionnaire data combined with student transcripts.
Moore and Healy (2008)	Risk perception is correlated to overconfidence, which is measured by participants’ estimation of their performance on six quizzes versus real performance on the quizzes.
Puri and Robinson (2007) Survey of Consumer Finances (SCF)	Measure of optimism using the Survey of Consumer Finance by comparing self-reported life expectancy to that implied by statistical tables. Survey questions regarding attitudes toward financial risk:

	(1) ‘‘Which of the statements on this page comes closest to the amount of financial risk that you and your (spouse/partner) are willing to take when you save or make investments?’’ Responses: ‘‘Take substantial financial risks expecting to earn substantial returns;’’ ‘‘Take above average financial risks expecting to earn above average returns;’’ ‘‘Take average financial risks expecting to earn average returns;’’ ‘‘Not willing to take any financial risks.’’ (2) ‘‘Would you say that your spending exceeded your income, that it was about the same as your income, or that you spent less than your income?’’ (Question X7508).
Stewart and Roth (2001) Kogan-Wallach Choice Dilemmas Questionnaire (CDQ) Jackson Personality Inventory (JPI; Jackson, 1976)	CDQ contains 12 scenarios that describe a person who is faced with a choice of pursuing a risky course of action with high return or pursuing a less risky decision where the return is less. In each case, the respondent is asked to advise the person in the scenario by indicating what probability of success (1, 3, 5, 7, or 9 in 10) would be sufficient to warrant the choice of the risky alternative. Although scoring guidelines are not explicitly provided, most researchers have summed the scores across the scenarios to derive a risk propensity measure. Second instrument is the Jackson Personality Inventory (JPI; Jackson, 1976), a structured inventory of 16 personality variables. Risk Taking scale is designed to assess the willingness to commit to a decision that could lead to success or failure and the corresponding outcomes. Contains components of social, physical, monetary, and ethical risk taking - but weights monetary risk taking most heavily.
Uusitalo (2001)	Personality test data of 37,000 Finnish army recruits converted to measures of eight character traits. The variable “cautiousness” is closely related to risk aversion; a person with a high score “considers and plans carefully his doings”, “is able to resist temptations” and “avoids unnecessary risks”.
Xu and Ruef (2004)	To capture the risk propensity differences behaviorally, NE and CG were asked about their preferences among three ventures which have the same expected payout in the sense that the probability of the success times the profit is the same. The three options were: a profit of $5,000,000 with a 20 percent chance of success; a profit of $2,000,000 with a 50 percent chance of success; and a profit of $1,250,000 with an 80 percent chance of success.