THE IMPACT OF COGNITIVE FRAMES ON THE UTILIZATION OF START-UP CAPITAL

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EXTENDED ABSTRACT

Entrepreneurship theorists have long proposed and practitioners have often observed that cognitive factors, such as perceptions, are important in understanding new venture creation. Two key perceptions with a long tradition in entrepreneurship are risk (Knight, 1921) and uncertainty (Matthews & Scott, 1995).Examining entrepreneurs along these dimensions can potentially provide useful insights toward understanding why some start-ups use particular forms of capital over others. . Drawing on the perspective of cognitive frames (Baron, 2007), we examine capital use over a four-year time period among nascent entrepreneurs, and inquire whether perceptions of risk and uncertainty influence the use of capital in the earliest stages of venture emergence.

Cognitive frameworks help founders understand and subsequently frame the start-up process (Palich & Bagby, 1995). Cognition impacts how people perceive, frame, and solve problems. We expand upon the entrepreneur's perception of the situation based on his/her cognitions of risk and uncertainty. The founder's tolerance for risk and perception of

environmental uncertainty may differentially direct the desirability of particular kinds of capital among entrepreneurs during firm gestation.[1] Since financial resources are a factor often cited for why start-ups succeed, it is of interest to further explore whether there is a link from particular forms of capital and an entrepreneur's cognitive framework.

Some studies have begun to address the disparity of knowledge over the intricacies of capital structure in new venture creation by applying *pecking order theory* of the firm (Cassar, 2007; Paul, Whittam, & Wyper, 2007; Gartner, Frid, & Alexander, 2012). These studies investigate if the "pecking order hypothesis" (POH) applies to the capital use of early-stage businesses. According to the POH (Myers & Majluf, 1984), firms will attempt to reduce information asymmetries and maintain ownership control based on following a hierarchy of funding from internal capital, debt, and equity (Berger & Udell, 2003).

Expanding upon research on financing of nascent ventures (Gartner, et al., 2012), we hypothesize a pecking order hierarchy among sources of financing that nascent entrepreneurs pursue according to their tolerance for risk and their perception of environmental uncertainty. Integrating this cognitive perspective to understand capital use among nascent entrepreneurs is a key link to understand why a pecking order preference for financing is so prevalent in a context where firms do not yet exist. For example, founders with high risk tolerance and a perception of high environmental uncertainty may prefer higher levels of debt financing due to their cognitive framework, because external debt is riskier than using Internal funds. Conversely, entrepreneurs who have a low risk tolerance and also have low perception of environmental uncertainty may likely pursue more conservative financing methods, such as personal fund contributions. As a result, cognitive aspects would provide a compelling logic to explain why a pecking order hierarchy of financing is consistently found in the start-up context before organizations come into existence (Frid, 2009, Paul, et. al, 2007, Gartner, et. al, 2012).

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[1] The firm gestation process is the period from conception, first initial action founders take to create a new venture, until the start-up becomes a viable firms with sustained profits (Reynolds, 1992; Schoonhoven et al., 2009). Therefore, the gestation window is the period before the fledgling start-up actually materializes into a new firm, or start-up founders disengage from the effort.

We suggest that variations in the perceptions of perceived environmental uncertainty and individual risk preferences influence potential sources of financing. For example, all things being equal, greater or less uncertainly and/or risk preference may make certain sources of financing more or less attractive than others due to their ease of use in a given situation. A founder's cognitive framework captures the acceptable risk-benefit tradeoffs under perceptions of environmental uncertainty and tolerance for risk. Therefore, examining risk and uncertainty as cognitive framework for strategic decisions, could provide key insights into capital use over time during the start-up process.

To test our hypotheses (see Figure 1) between cognitive frames and capital use, we use the Panel Study of Entrepreneurial Dynamics (PSED) I[2], a nationally representative sample of individuals actively involved in the start-up process. Using random coefficient modeling (RCM) we analyze the PSED longitudinally and model the effects of time and other time-varying covariates. This allows for the testing of both intra-individual change (the fixed effects) and inter-individual differences in intra-individual change (the random effects) over time (West, Welch, & Galecki, 2006). Our findings suggest that a tolerance for strategic risk among founders tends to increase equity investments, and uncertainty over debt increased the use of internal financial sources, uncertainty over start-up capital increased equity investments, and uncertainty over venture capital support decreased debt and equity investments (see Table 1). While most cognition research in entrepreneurship examines cognitive issues at related to opportunity recognition, this work emphasizes how cognitive features of founders impact financing choices during the earliest stages of the organizational life-cycle. Accordingly, a key contribution of this research is modeling how time changes the relationships between social cognitive influences and start-up capital. Our study identifies variance related to time and between individuals. For instance, about 84% of the variance in internal funds was due to intra-individual change. The data also showed that about 16% of the variance in internal funds invested towards the start-up was

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2 http://www.psed.isr.umich.edu

due to inter-individual changes in financing over time (i.e., year-to-year). Therefore, it appears that only a small proportion of changes in internal financing are related to time.

By applying a process approach to our research we will ultimately identify predictable patterns in our dependent variable that variance-oriented studies generally miss, particularly in terms of start-up financing (McMullen and Dimov, 2013). Our findings allow us to contribute to the literature, showing that the cognitive frameworks centering on risk and uncertainty considerably influence shifts in start-up capital utilized over time by founders.

Obtaining start-up capital has, is, and will remain a central challenge for nascent entrepreneurs. Given its importance, this research investigates the critical elements of social-cognitive influences of demand for finance for start-ups. In this study we suggest that variations in the perceptions of perceived environmental uncertainty and individual risk preferences influence potential sources of financing in terms of debt, equity, and internal financing. Using the Panel Study of Entrepreneurial Dynamics (PSED) I[3], a nationally representative sample of individuals actively involved in the start-up process, this research examines how individual attributes associated with perceptions of strategic risk and environmental uncertainty work as mechanisms impacting start-up capital structure choices over time. Our study investigates how a founder's cognitive framework influences the temporal dynamics of start-up financing.

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[3] http://www.psed.isr.umich.edu

Table 1. Summary of Findings

Hypotheses	Variable	Relationship Argued	Start-up Capital	Findings
H1a	Tolerance for strategic risk	Increase	Debt	Reverse Support
H1b	Non-strategic risk perception	Increase	Debt	No relationship
H5a	High uncertainty: bank help	Decrease	Debt	No relationship
H6b	High uncertainty: venture capital	Decrease	Debt	Support
H2a	Tolerance for strategic risk	Increase	Internal	No relationship
H2b	Non-strategic risk perception	Increase	Internal	No relationship
H5b	High uncertainty: bank help	Increase	Internal	Support
H6a	High uncertainty: venture capital	Increase	Internal	No relationship
H3a	Tolerance for strategic risk	Decrease	Equity	Reverse Support
H3b	Non-strategic risk perception	Increase	Equity	No relationship
H5c	High uncertainty: bank help	Increase	Equity	Support
H4a	Financial uncertainty: start-up capital	Increase	Equity	No relationship
H4b	Financial uncertainty: working capital	Increase	Equity	No relationship
H6c	High uncertainty: venture capital	Decrease	Equity	No relationship

Figure 1. Predicted Relationships between Cognitive Frames of Risk and Uncertainty on Capital Use