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Social-cognitive Antecedents of Ambidextrous Orientation in Family-owned Startups: The Role of Family Ties, Achievement Motivation, and Internal Locus of Control

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FLORIDA INTERNATIONAL UNIVERSITY

Miami, Florida

SOCIAL-COGNITIVE ANTECEDENTS OF AMBIDEXTROUS ORIENTATION IN FAMILY-
OWNED STARTUPS: THE ROLE OF FAMILY TIES, ACHIEVEMENT MOTIVATION, AND
INTERNAL LOCUS OF CONTROL

A dissertation submitted in partial fulfillment of the

requirements for the degree of

DOCTOR OF PHILOSOPHY

in

BUSINESS ADMINISTRATION

by

Patricio Mori

2013

To: Dean David R. Klock
College of Business Administration

This dissertation, written by Patricio Mori, and entitled Social-cognitive Antecedents of Ambidextrous Orientation in Family-owned Startups: The Role of Family Ties, Achievement Motivation, and Internal Locus of Control, having been approved in respect to style and intellectual content, is referred to you for judgment.

We have read this dissertation and recommend that it be approved.

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Date of Defense: May 17, 2013

The dissertation of Patricio Mori is approved.

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Florida International University, 2013

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ABSTRACT OF THE DISSERTATION

SOCIAL-COGNITIVE ANTECEDENTS OF AMBIDEXTROUS ORIENTATION IN FAMILY-
OWNED STARTUPS: THE ROLE OF FAMILY TIES, ACHIEVEMENT MOTIVATION, AND
INTERNAL LOCUS OF CONTROL

by

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Miami, Florida

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Regulatory Focus Theory predicts that the motivation to self-regulate goal-directed thought and behavior depends on two distinct regulation strategies: a promotion focus based on attaining gains and a prevention focus based on avoiding losses.

This study took a social-cognitive approach predicting that regulatory focus has an impact on how family startups (several family related founders) explore “new ideas”, exploit “old certainties” and achieve the balance of both (ambidexterity), compared to lone founder startups (only one founder present).

It was proposed that the social context of family ties among founders leads them to a prevention focus concerned with avoiding the loss of the socio-emotional benefits of those ties. In order to avoid such a loss, family founders were expected to increase their risk perceptions and thus, explore less than lone founders, who lack such socio-emotional ties. It was also proposed that two commonly used psychological traits in entrepreneurship research --achievement motivation and internal locus of control, predispose entrepreneurs to a promotion focus. Founders with a promotion focus, in turn, were hypothesized to lead startups to more risk-seeking behaviors and to more explorative orientation.

The previous argument was used as a springboard to derive hypotheses about ambidexterity (the ability to exploit and explore simultaneously) and survival hazards. Using Regulatory Focus Theory, exploitative orientation, conceptualized as the motivational strength to continue on previous paths of action, was hypothesized to be not significantly different from that

of lone founder startups. Taking previous arguments together, lone founder startups were hypothesized to be more ambidextrous than family startups. Finally, ambidexterity and internal locus of control were hypothesized to reduce survival hazards in family startups.

The findings suggested that family startups explore less than lone founder startups even after controlling for group effects. Interesting but contradictory findings revealed that internal locus of control have both a positive direct effect and a positive interaction that increases the explorative and ambidextrous orientation gap of family startups over lone founder startups. As expected, ambidexterity and internal locus of control reduced survival hazards on family startups. Implications for practitioners were derived based on a sample of 470 nascent entrepreneurs.

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CHAPTER 1: INTRODUCTION

Nearly all supporters of a capitalistic model would agree that the encouragement of innovation is vital for the growth and long-term health of the economy (Schumpeter, 1961). Astrachan, Zahra, and Sharma (2003) found that family businesses are internationally a key source of funding for new startups, promoting economic growth and technological progress (Chakrabarty, 2009). Although family entrepreneurial firms are important drivers for economic growth and technological progress, little is known about innovation processes in family-owned startups such as exploring new ideas versus exploiting current capabilities.

Since the publication of March's (1991) pioneering article, the terms "exploration" and "exploitation" have increasingly dominated organizational analyses of technological innovation, organizational design, organizational adaptation, organizational learning, competitive advantage and organizational survival (e.g., Benner & Tushman, 2003; Burgelman, 2002; Holmqvist, 2004; Katila & Ahuja, 2002; Lee, Lee, & Lee, 2003; McGrath, 2001; Sigglekow & Levinthal, 2003). Exploration, as a strategic action, is risk seeking behavior which relates to the attempt to explore new ideas, increase variance in profit outcomes and generate variety in firm activity (McGrath, 2001). These strategies and actions include characteristics embodied by the creation of new markets and products, experimentation, frequent change, broad search and discovery (Katila & Ahuja, 2002). Exploitation, in turn, consists of behaviors that maximize known capacities, such as exploiting an existing product or service. Exploitation requires motivational strength to commit to current courses of actions which results in persistence and perseverance. Characteristics embodied by exploitation include incremental rather than radical innovation, decrease in variance of profit outcomes, focus on implementation, refinement, routinization, local search and efficiency (March, 1991; Beckman, 2006; Miles & Snow, 1978).

Exploration and exploitation have both been found to be positively related to organizational performance and sales growth when strategically concurrent (He & Wong 2004; Lubatkin, Simsek & Veiga, 2006). March's (1991) suggested that "organizational adaptation requires both exploitation and exploration to achieve persistent success" (1991: 205). Some studies have concluded that the answer lies in "ambidexterity" (e.g. Benner & Tushman, 2003, Tushman & O'Reilly, 1997, Eisenhardt & Martin, 2000, Ancona, Goodman & Lawrence, 2001, Katila & Ahuja, 2002, He & Wong, 2004; Lubatkin, Simsek, Ying & Vega 2006) or the organization's ability to be able to exploit and explore simultaneously. However, because exploitation and exploration may stem from contradictory knowledge-processing capabilities (Floyd & Lane, 2000), there is a theoretical debate over the feasibility of achieving a balance between both and whether such simultaneous pursuits result in higher performance.

This tension can lead firms to be trapped into either unconstrained exploration or excessive exploitation. Excessive exploitation can lead to a reinforcing loop by making attractive for firms to augment current capabilities even if the environment demands new ones, turning these core competencies into core rigidities (Leonard-Barton, 1995), organizational myopias or competency traps (Levitt & March, 1988). Unbridled exploration, in turn, can lead to self-destruction because "... failure leads to search and change which lead to failure which leads to even more search, and so on" (He & Wong, 2004, p. 105).

The main purpose of this study is to propose antecedents that help to understand how this balance of exploitation and exploration plays out in family startups. Since exploitation and exploration are both related to risk behaviors, this study analyzes what factors influence risk behaviors at the startup level taking a social cognitive perspective. This perspective follows recommendation from scholars to include these two dimensions to predict risky decision making processes (Higgins, 2002; Mischel & Shoda, 1998; Sitkin & Weingart, 1995). The social context and the cognitions of a decision maker have been proposed as important antecedents of risk propensities and risk perceptions (Bryant & Dunford, 2008; Sitkin & Pablo, 1992; Sitkin &

Weingart, 1995). Social cognition is concerned with learning about what matters in the social world and, thereby, provides essential aspects of risk perceptions and risk propensities which underlie risk behaviors (Bryant & Dunford, 2008).

Social cognitions are concerned with the fundamental motivation that drives people's systematic thought and behavior in order to regulate their behaviors and achieve goals (Higgins, 2002).

Specifically, the regulation focus (Higgins, 1997, 1998) is concerned with people's motivations to accomplish aspirations (gains) or with procuring safety and maintaining responsibilities (avoiding losses) (Higgins, 1997, 1998). This study uses Regulatory Focus Theory (Higgins, 1997, 1998) as the major theoretical framework and proposes that these motivations affect the way founders approach their goals and their risk perceptions and propensities at the social and individual levels.

Regulatory Focus Theory is a comprehensive framework in which external situations and individuals' propensities are cues to activate a systematic self-regulation system. This regulation system controls to attain two end states: one aimed at positive states related to accomplishments, fulfilling aspirations and hopes, and the other aimed at avoiding undesired states by embracing safety, responsibility and security values (Higgins, 1997). Regulatory focus theory proposes that, in order to achieve these end states, decision makers develop certain strategies to regulate their behaviors, which become persistent over time. A promotion regulation focus leads to strategies aimed to attaining goals and aspirations and a preventive regulation focus leads to strategies aimed to attain safety and security.

Regulatory focus can be activated by external situations -situational regulation, or by individual characteristics -chronic regulation (Shah, Higgins, & Friedman, 1998; Van-Dijk & Kluger, 2004).

This study applies the Regulatory focus framework to make predictions about exploration and the balance of exploration and exploitation in family startups, using the socio-emotional context of

family ties as situational regulation, and individual differences of the main founder as the chronic regulation.

Explorative Orientation and Family Ties

Exploration is a risk seeking behavior (March, 1991) and, as such, depends on risk propensities and risk perceptions of decision makers (Sitkin & Pablo, 1992, Sitkin & Weingart, 1995). In the case of startups, exploration refers to an orientation, rather than actual behaviors, which may not be yet observable at startup launch. Therefore, in this study, rather than exploration per se, which refers to the variability of outcomes and behaviors (March, 1991), exploration will be referred to as an explorative orientation, or the founder's assessment of the importance of explorative behaviors and actions, such as targeting new markets, developing new products, being the first to achieve a competitive advantage, developing a new technology development, and the importance of patents (Benner & Tushman, 2003; He & Wong, 2004).

An explorative orientation is often challenging for family startups. Research on family top management teams (TMTs) engaged in new ventures points out that these TMTs lack the cognitive diversity, such as differences of opinions or new contributions of ideas, that new ventures with non-family TMTs tend to exhibit (e.g. Ensley and Pearson, 2005). Contrarily, new ventures with non-family TMTs often lack social interaction capacities, such as team cohesion, conflict resolution, and consensus capabilities that result from shared values and common experiences that new ventures with family TMTs tend to have (e.g. Knight, Pearce, Smith, Olian, Sims, & Smith, 1999). For example, Beckman (2006) found that entrepreneurial firms with strong social ties and common experiences provided shared understanding and consensus necessary for exploitative behaviors, but these ties also hindered discussion of alternative courses of action necessary for explorative actions.

Moreover, recently, Gomez-Mejia, Tabacs Nickel, Nunez-Nickel, Jacobson, and Moyano-Fuentes (2007) suggested that family businesses are more risk averse because family owners tend to

protect their involvement in the business, which provides them with a psychological benefit equivalent to non-economic welfare, or “socio-emotional wealth” (SEW). Gomez–Mejia et al. (2007) argued that SEW was embedded in family ties among owners, which is the major distinction between family and non-family business (Chrisman, Chua, & Sharma, 2005) and should, therefore, predict several organizational outcomes as compared to other ownership types that lack such ties (see Gomez-Mejia, Cruz, Berrone, & DeCastro, 2011 for a review). SEW was defined by Gomez-Mejia et al. (2007) as the non-economic factors embedded in family relationships among the owners such as altruism, sense of belongingness, identification and control (Berrone, Cruz & Gomez-Mejia, 2012). Gomez-Mejia et al. (2007) applied a Behavioral Agency Model ---which is an adaptation of agency theory propositions but applied to a specific context- to predict risk behaviors in family owned firms. They found empirical evidence that family business founders were willing to take higher risks by accepting a higher probability of failure and below target level performance in order to avoid deviation from existing courses of actions which may challenge their already accrued SEW.

Moreover, exploration, in the form of diversification strategy, has been shown to be negatively related to family owned business as compared to non-family owned businesses, both nationally and internationally, with a greater proportion of diversification in culturally close countries than in culturally distant countries (Gomez-Mejia, Makri & Larraza-Kintana, 2010).

Similarly, Hills & Lumpkin and Singh (1997) found that solo entrepreneurs considered creativity more important than did networked entrepreneurs. Miller, Le Breton-Miller, Lester and Canella (2007) found that founders who lack family ties to other members (i.e. lone founders) had faster rates of revenue growth, invested more in R&D, and were often more emotionally detached, diverse, and financially motivated (Miller et al. 2007) than firms with multiple family members in a Fortune 1000 sample. They explained these findings based on the social context among family owners, which might have evoked familial attitudes and agendas.

In sum, previous research suggests that family founders' ties involve socio-emotional factors, which influence founders' risk behaviors by reducing variability in actions. Contrarily, lone founders, lacking such ties, tend to be more risk seeking, diverse and financially motivated. It is surprising, therefore, that the literature is mute about how family ties may affect the difference between family and lone founder startups in terms of explorative orientation. In order to shed light on this research gap, this study proposes that family ties have a direct effect on explorative orientation. Specifically, using Regulatory Focus Theory, it is argued that family ties have a situational "prevention" regulation focus which leads family startups to be less explorative than lone founder startups which lack such ties.

Cognitions of the Main Founder and Explorative Orientation

This study also focuses on the stable personal traits or attributes which provide predictive stability and are essential to a person's potential for, and interest in, acting in an entrepreneurial way (Allport, 1937; Mischel, 1973). These attributes stem from cognitions formed by life experience either by interaction with the social context or genetic predisposition (Gaglio & Katz, 2001).

Some Psychological traits have been related to entrepreneurial cognitions. Sitkin and Pablo (1992) predicted that an individual's history outcomes influence risk propensities, which become activated chronically, independent of the situation. Sitkin and Weingart (1995) tested empirically that risk propensities have an effect on risk behaviors and also have an indirect effect through risk perceptions. Given the importance of psychological traits and their impact on risk perceptions and risk propensities, they can be viewed as important antecedents of explorative behaviors by main founders.

In entrepreneurship research, many psychological characteristics have been studied such as risk taking propensity (Begley & Boyd, 1987), attitudes (Fraboni & Saltstone, 1990), and personality (Roberts, 1989), Need for Achievement (McClelland, 1990) and Locus of Control of Reinforcement (Rotter, 1966). From all these traits Need of Achievement and Internal Locus of

Control have been shown to have a significant value across several studies in predicting entrepreneurial behaviors (Johnson, 1990; Venkatapathy, 1984). Tang (2009), applying Regulation Focus Theory to entrepreneurial settings, found that for entrepreneurs in a promotion focus there was a significant empirical association between both achievement motivation and internal locus of control with Entrepreneurial Alertness -the ability to recognize opportunities that have yet to be recognized (Kirzner, 1973). This is consistent with studies about the importance of both constructs in opportunity recognition process, as shown by meta-analysis performed by Collins, Hanges and Locke (2004) regarding achievement motivations, and recent studies on locus of control performed by Kroeck, Reynolds and Bullough (2005).

In entrepreneurial literature, McClelland (1961, 1965) was the first to suggest that the need of achievement promotes entrepreneurship and economic growth. After that, many researchers have studied the relationship of achievement motivation and entrepreneurial behaviors. A recent metanalysis suggests that there is in fact a positive association of achievement motivation and entrepreneurial behaviors (Collins et al 2004). Similarly, locus of Control has also been related to entrepreneurial behaviors. In particular, more internality in the scale of locus of control, or internal locus of control orientation, has been recently related to entrepreneurial behaviors (Hansmark, 2003; Pandey & Tewary, 2011). Shapero (1975) was the first to propose that internals, or individuals who feel that they have some influence on the course of events in their life, are more likely to perceive that they have control over their destiny. Internals are also more self-reliant, independent, and compatible with entrepreneurial orientation (Pandey & Tewary, 2011) and new venture creation (Hansemark, 2003).

This study suggests that a promotion regulation focus is likely to be activated by psychological attributes or traits that affect cognitive processes that maintain individuals' goal-directed behaviors (i.e. achievement motivation) and the belief that individuals can have control over events in their life (i.e. internal locus of control orientation). Psychological traits are not fixed and depend on an individual's previous history outcomes from life experiences, which become

schemas or mental models that are further activated by external situations (Higgins et al., 2001; Gaglio & Katz, 2001).

Using Regulatory Focus Theory, it is argued that both achievement motivation and internal locus of control provide a chronic promotion related to the main founder's individual characteristics. These individual characteristics refer to psychological traits of entrepreneurs related to both achievement motivation and internal locus of control. These psychological traits prompt cognitive biases in entrepreneurs. Several experiments suggest that a chronic promotion focus leads to risk-seeking behaviors and variability in actions (Crowe and Higgins, 1997; Sitkin & Weigart; 1995, Friedman & Foster (2001); Liberman, Idson, Camacho & Higgins, 1999; Levine, Higgins & Choi, 2000; Hmieleski & Baron, 2008), which are also associated with internal locus of control and achievement motivations. It is proposed, therefore, that both achievement motivation and internal locus of control prompt a promotion regulation focus of the main founder, which, in turn, leads to variability in actions consistent with explorative orientations.

Explorative Orientation Model

In sum, applying Regulatory focus theory, a model is proposed in which both social context present in family ties and the cognitions of the main founder have an effect on explorative orientation.

On the one hand, it is proposed that a preventive regulation focus can be activated by situational factors such as the SEW present in family ties, which prompts family owners to perceive more risks in losing their source of identification with the business and the family. This source of identification results in non-economic benefits related to positive affect such as altruism, control, belongingness, and a sense of purpose (Berrone et al., 2012), which Gomez-Mejia et al. (2007) labeled Socio-emotional Wealth or "affective endowments". Therefore, the social context of family ties among founders should foster a situational regulation focus consistent with a preventive regulation focus in order to protect the loss of these endowments, which in turn reduces family

startups' explorative orientation as compared with startups that lack these family ties (e.g. lone founder startups).

On the other hand, personality traits of the main founder such as achievement motivation and internal locus of control tend to foster a chronic regulation consistent with a promotion focus. This promotion focus leads to increased risk propensities and to perception of fewer risks in a given situation (Sitkin & Pablo 1992, Sitkin & Weingart, 1995) consistent with explorative orientation. Moreover, it is expected that Achievement Motivation and Internal Locus of Control should moderate the relationship between family ties and Explorative Orientation. For high levels of those traits the gap in explorative orientation of family startups compared to lone founder startups should be reduced.

Moreover, this study uses the previous propositions and a regulatory focus framework as springboard to make predictions about ambidextrous orientation and survival hazards during startup.

Ambidextrous Orientation and Regulatory Focus Theory

An ambidextrous firm has the ability to be able to exploit and explore simultaneously (He & Wong, 2004, Tushman & O'Reilly, 1996). Given that family startups are more challenged with exploration as compared to lone founder startups, this study poses the following research questions: Are family startups more or less ambidextrous than lone founder startups and if so, on what does it depend? Similar to the previous explorative orientation propositions, and according to Regulatory focus theory, it is suggested that the answer lies both in the social context and the psychological traits of the main founder.

Organizational scholars have increasingly recognized the importance of simultaneously balancing seemingly contradictory tensions between exploration and exploitation, shifting from trade-off (either/or) to paradoxical (both/and) thinking (Bouchikhi, 1998; Earley & Gibson, 2002; Gresov &

Drazin, 1997; Koot, Sabelis, & Ybema, 1996; Lewis, 2000; Morgeson & Hoffman, 1999).

Paradoxical thinking involves conceptualizing ambidextrous orientation as two interdependent constructs which can be simultaneously deployed in order to effectively respond to environmental changes.

In this study, exploration and exploitation refer to orientations rather than actual behaviors as they may not be yet observable or completely deployed at startup. As previously mentioned, exploration orientation refers to variability in actions and performance as reflected in the founder's assessment of the importance of explorative behaviors and actions. In this study, it is also conceptualized that exploitative orientation, in turn, refers to the motivational strength that a main founder puts forward to commit to current courses of action. It refers to the effort and perseverance required to continue exploiting current courses of action such as exploiting current market domains, using existing technologies, improving existing products, and focusing on promotion and sales of existing products (Beckman, 2006; Miles & Snow, 1978).

Since exploitation and exploration are two paradoxical constructs, it is possible to have all possible combinations of exploration and exploitation at any given moment. This means that if a firm is low in exploration (e.g. low variability in actions and outcomes) it can also be low in exploitation (e.g. low motivational strength). Moreover, as further discussed, exploitative orientation, conceptualized as motivational strength, can be related to accomplishment, aspirations and hopes to achieve gains (promotion focus), or to safety and responsibility to avoid a painful loss (preventive focus) (Higgins, 2000). Therefore, it is argued that exploitative orientation can be associated with either family startups or lone founder startups and no significant difference in exploitative orientation between them should be expected a priori.

Following the logic of Regulatory Focus Theory, if family startups are less explorative than lone founder startups, and family and lone founder startups do not differ in exploitative orientation, it follows that the social context of family ties among founders should lead family startups to be less

explorative than lone founder startups. In sum, it is proposed that family startups would be less likely to be high in either exploitative or explorative orientation (i.e. ambidextrous orientation) than lone founder startups.

Furthermore, under the tenets of Regulatory focus Theory, it is proposed that internal locus of control should lead to more ambidextrous orientation. Although achievement motivation is related to regulatory focus, classical theorists in achievement motivation (McClelland, Atkinson, Clark, & Lowell, 1953; Murray, 1938; Lewin, Dembo, Festinger & Sears, 1944) argue achievement motivation may be oriented toward the attainment of success (e.g. promotion focus) or the avoiding of failure (e.g. prevention focus). Therefore, achievement motivation will not be included as predictor of ambidexterity as it can act hindering or fostering either exploration or exploitation depending on the reference point (e.g. gain or loss) and the regulatory focus activated.

It is also proposed an interaction effect between the social context and the internal locus of control orientation of the main founder, such that high levels of internal locus of control orientation will reduce the difference in ambidextrous orientation as compared to lone founder startups.

The previous antecedents of ambidextrous orientation are analyzed in relation to Survival Hazards in family startups

Survival Hazards in Family Startups

According to previous arguments, factors that influence survival hazards in family startups are analyzed in relation to survival hazards, that is, the probability that a family startup discontinue their attempts to startup a new firm. This study extends these findings to family startups analyzing the social cognitive effects on survival hazards. Specifically, this study uses Regulatory focus to analyze the effect of an ambidextrous organizational context and the internal locus of control of the main founder, on survival hazards on family startups.

Previous research on ambidexterity suggests that firms that are able to develop this dynamic capability earlier in time (Eisenhardt & Martin 2000) are more likely to have better performance (e.g. March, 1991). Studies on survival hazards on family business are just a few (exception being Gomez-Mejia et al., 2007) with all the emphasis being placed on survival hazards in large public corporations. Gomez-Mejia et al. (2007) found that family businesses increased their performance hazards, by accepting a greater probability of failure (i.e. survival hazards) in order to protect the loss of their SEW. This study extends these findings to family startups and it is the first to propose a direct relationship between ambidexterity and the reduction in survival hazards in family startups. Specifically, it is suggested that family startups that have an ambidextrous orientation, that is, are willing to explore and exploit more simultaneously from inception, can be able to display the proper response according to environmental demands and decrease their survival hazards.

Finally, the variables involved in ambidexterity hypotheses are proposed to also affect the probability of business failure, or survival hazard. In particular, according the social cognitive perspective of Regulatory Focus Theory, it is predicted that a main founder's internal locus of control and the firm's ambidextrous orientation, reduce survival hazards in family startups.

Contributions

As pointed out by De Carolis and Saporito (2006) the social context and the cognitions of decision makers have an important role in recognizing entrepreneurial opportunities in new ventures. Moreover, the sole focus on the individual entrepreneur as a determinant of entrepreneurial success has been criticized for over-personalizing, and has fallen out of favor (Low & MacMillan, 1988). Scholars have called for revisiting the psychology of the entrepreneur, and ask why, when faced with the same pieces of information, some entrepreneurs see opportunities whereas others do not (Venkataraman, 1997). Regulatory Focus Theory is consistent with this current trend in entrepreneurship research in emphasizing more process-

oriented and contextual examinations of entrepreneurial processes by highlighting not only the role of psychological factors, but also the role of social factors on innovative activities.

In all, this study attempts to contribute to answer what Shaver and Scott (1991) posed as salient psychological questions: how are market environments represented and interpreted in the mind of the entrepreneur such that opportunity identification occurs? How do these representations and interpretations differ from those of other market actors?

In the following section a more detailed review of the literature on risk perception and its relationship with Regulatory Focus Theory is outlined. Then, the relationship between SEW and Regulatory focus Theory is discussed to further explain the effect of SEW on exploration. In the next section, the effects of the psychological traits of the main founder (i.e. internal locus of control orientation and achievement motivation) on explorative orientation are proposed. The following part uses the previous findings on explorative orientation to draw hypotheses about the effect of the social context and the internal locus of control orientation of the main founder on the ambidextrous orientation at the startup level. Finally, hypotheses are drawn related to the effect of ambidextrous orientation and internal locus of control orientation of the main founder on the survival hazards of family startups. Results are discussed and implications for practitioners are derived.

CHAPTER 2: LITERATURE REVIEW AND HYPOTHESES

Identifying and selecting opportunities for new businesses are among the most important abilities of a successful entrepreneur (Stevenson et al., 1985). However, deciding whether an idea is an opportunity involves judgments made under conditions of uncertainty and complexity (Das & Teng, 1997; Allinson, Chell, & Hayes, 2000). These judgments have important consequences for

entrepreneurs because they can make the difference between successfully exploiting an opportunity, missing an opportunity that may have led to success or wasting resources in opportunities that lead to failure. Entrepreneurs, in order to make these judgments, have to make the best decision between exploiting an existing opportunity and continuing to explore different ideas. Risk perception, or the perception of whether an opportunity will turn into success, is at the core of this judgment.

Startup firms face high environmental uncertainty and complexity which forces decision makers to use their perception to economize on bounded rationality (Simon, 1955, 1979). In this context an entrepreneur's exhaustive decision making process is not likely to give any benefits compared with the costs of delaying a decision when entrepreneurs need to act quickly in order to exploit a brief window of opportunity (Busenitz & Lau, 1996). Moreover, in these conditions entrepreneurs do not have the cognitive capacity to process and remember large amount of information and they find themselves in new and unpredictable situations in which they lack historic trends, past performance or any other information that can reduce uncertainty at low costs (Busenitz & Barney, 1997). Therefore, in an attempt to minimize cognitive effort, entrepreneurs use mental shortcuts or heuristics in conditions of uncertainty and complexity.

It follows that entrepreneurs' use of subjective perceptions should help them by simplifying their decision making process, (Tversky & Kahneman, 1974; Hambrick & Crozier, 1985; Stevenson & Gumpert, 1985), act quickly, and be able to exploit a brief window of opportunities. This study argues that these perceptions are anchored in the way entrepreneurs motivate themselves to achieve certain goals or end states that are important for them, given their previous experiences and the situation that they face. The following section will describe in more detail how Regulatory Focus Theory fits as a theoretical framework with risk behaviors and explorative orientation propositions.

Regulatory Focus Theory and Risk Behaviors

Regulatory Focus Theory has been proposed as a promising framework for entrepreneurship (Brockner, Higgins & Low, 2004) and used to predict risk perceptions and risk propensities in risky decision making (Bryant & Dunford, 2008). Previous research suggests that regulatory focus has an impact on risky decision-making (Higgins, 2002), risky bias to saying “yes” or “no” (Förster, Higgins, & Bianco, 2003), and a bias to overestimate or underestimate the probability of occurrence of an event (Kluger, Stephan, Ganzach, & HersHKovitz, 2004). This study is the first to suggest that regulatory focus should also have an effect on the actual processing of information in terms of exploitation and ambidextrous orientation.

Recently, the field of risk research has been redrawn by including concepts related to limited information and bounded rationality (Camerer & Loewenstein, 2004; Schwartz, 2002) rather than models based on rationality and expected probability outcome. Scholars, therefore, increasingly incorporate psychological and sociological factors into models of decision-making (Slovic, 2000a). Although previous studies have been prolific in analyzing the importance of risk perceptions for opportunity identification (e.g. Gaglio & Katz 2001), opportunity evaluation (e.g. Keh, Foo & Lim, 2002) and new venture decisions (e.g. Forlani & Mullins, 2000), few studies have looked at the social cognitive antecedents of risk behaviors. This is surprising because risk behaviors depend on the dispositions and biases of the individual decision makers, the characteristics of the organizational context and the nature of the decision problem itself (Beach & Connolly, 2005, Sitkin & Pablo, 1992).

Regulation focus theory is concerned with both the social and the cognitive aspects in decision making processes as it relates to the fundamental concerns and motivations that guide self-regulation, or the systematic process of thought and behaviors that guide individuals to set up their goals and steer toward the achievement of those goals (Boekaerts, Maes, & Karoly, 2005). Regulatory focus influences goal-directed thought and behavior through a promotion or a

preventive focus. The former motivation is on attaining gains whereas the latter motivation is on avoiding losses (Higgins, 1997).

More fundamentally, Regulatory Focus Theory proposes that people regulate their behaviors to aim two distinct survival needs, such as nurturance (e.g. nourishment) and security needs (e.g. protection). A nurturing social regulation is concerned with promotion focus, which self-regulates in order to attain the presence and avoid the absence of positive outcomes and is concerned with advancements, aspirations, and accomplishments. A security social regulation is concerned with prevention focus which self-regulates in order to avoid the presence or absence of negative outcomes and is concerned with protection, safety and responsibilities (Higgins, 1997, 1998).

At any given point in time, people can engage in self-regulation of their behaviors with a promotion or a prevention focus. In a prevention focus people's security and safety needs motivates them to be in alignment with their ought-selves related to their sense of duty and responsibility, heightening the salience of potential losses rather than gains. In a promotion focus, instead, people's advancement and growth needs motivates them to be in alignment with their ideal-selves related to accomplishments, wishes and hopes, heightening the salience of potential gains rather than losses. Therefore, Regulation Focus Theory, in bringing oneself into alignment with one's desired end-states, highlights the salience of outcomes, increasing their felt presence over available stimuli.

This study proposes that follows that entrepreneurs would be likely to frame a situation according to their motivation to achieve end states based on their future subjective image of the outcomes. It is expected that decision makers will make idiosyncratic trade-offs between perceived risk and rewards in their decision making process (Bazerman, 2001), which depend on how those decisions would make them feel in terms of the future image of the outcome or end states (e.g. pleasure or pain).

Kahneman and Tversky (1979), in their influential paper, formulated Prospect Theory to explain the effect of problem framing on risk behaviors. Prospect theory predicts that decision makers' risk behaviors will vary depending on the framing of a situation in such a way that a positively framed situation (when the actual situation is preferred compared to other alternatives) leads to risk averse behaviors, whereas negatively framed situation (when the other alternatives are preferred compared to existing situation) leads to risk seeking behaviors. Although Prospect Theory doesn't mention explicitly risk perception, framing depends on perceptions of reality. Sitkin and Pablo (1992), extending Prospect theory propositions, suggested that decision makers who are in favorable circumstances (positively framed situations) will perceive higher risk than is normatively appropriate (e.g. risk averse) because their focus is on potential losses rather than gains. Similarly, decision makers who are in unfavorable conditions (negatively framed situation) will perceive lower risk than is normatively appropriate (e.g. risk seeking) because their focus is on potential gains rather than losses (Kahneman & Tversky, 1979; Sitkin & Pablo, 1992).

Sitkin and Pablo (1992) not only highlighted the role of the framing of situations in risk perception, but also included risk propensities at the individual level as an antecedent of both risk perception and risk behaviors. Sitkin and Pablo's (1992) propositions were further tested empirically by Sitkin and Weingart (1995) and found overwhelming support for the effect of both risk perception and risk propensity on risky decision making behaviors. However, Sitkin and Weingart (1995) tested their hypotheses on a group of MBA students which may compromise the validity of the study to other populations such as entrepreneurs. Moreover, they manipulated problem framing by reading the subjects a passage highlighting the potential losses and gains of a case assignment, however, no attention was paid to which environmental conditions or which psychological characteristics of the main founder influenced the problem framing of the subjects. This study attempts to make a contribution to risky decision making literature by applying the regulatory focus framework to analyze how the social context among founders, the psychological characteristics of the main founder and their interaction, influence explorative orientation, ambidextrous orientation and survival hazards. In the following section the social context

embedded in family ties among owners is analyzed using literature on SEW preservation (see Gomez-Mejia et al., 2011 for a review), and its relations to regulatory focus framework.

Socio-Emotional Wealth in family startups and Preventive Regulation Strategy.

Regulation strategies differ in 3 dimensions: 1) their underlying motives that individuals try to satisfy (achievement vs. safety needs) 2) the nature of the goals or end states that are important to people (oughts' vs. ideal selves) and 3) the types of outcomes that are salient to people (Brockner, Higgins & Low, 2004). For example, for a person with a promotion regulation, the underlying motives are growth and advancement needs, the nature of the goals is to be able to align with the ideal self-guides and what is salient to them are the potential gains to be attained (Crowe & Higgins, 1997). For a person with a prevention regulation, the underlying motives are security and safety needs, the nature of the goals is to be aligned with their own ought self-guides and what is salient to them are the potential losses to be avoided (Crowe & Higgins, 1997).

Hence, a prevention regulation strategy will help decision makers to attain safety and security whenever goals are consistent with ought-self guides and whenever those goals are salient for decision makers. Likewise, a promotion regulation strategy will help decision makers to achieve aspirations whenever goals are consistent with advancement and growth and whenever those goals are salient for decision makers. This study proposes that family startups are more likely to use a preventive regulation strategy than lone founder startups due to the presence of socio-emotional wealth within the family founders.

Recently, family business research points out that non-economic factors embedded in family ties is pivotal to differentiate family from non-family business, and their differences in processes and outcomes (Gomez-Mejia et al., 2011). Gomez-Mejia et al. (2007) labeled these factors "socio-emotional wealth" (SEW), or "affective endowments", to refer to the non-economic factors embedded in family relationships among the owners such as altruism, sense of belongingness,

identification and control (see Berrone et al., 2012 for a review). These affective endowments represent a non-economic welfare, which is not reflected in economic value, and represent a source of satisfaction of affective needs (Gomez-Mejia et al., 2007).

Gomez-Mejia et al (2007) proposed a SEW model to test the impact of SEW in family businesses' risk behaviors and survival hazards. In their empirical study, family businesses were three times more likely to refuse to join a cooperative of Spanish oil mills than non-family businesses, even if joining the cooperative reduced performance hazards and the probability of failure. The authors reasoned that these firms refused to join the cooperative to avoid losing their source of affective satisfaction represented by their involvement in their family business. These findings suggest that family startups may be constrained by the presence of affective endowments because family ties are salient for founders and thus need to be protected, which may lead them to be less explorative in order to avoid losing those endowments.

Gomez-Mejia et al (2007) applied March and Shapira's (1987) propositions regarding "critical performance targets" or the targets that are salient and require decision makers' attention. March and Shapira's study suggested that managers are quite insensitive to estimates of probable outcome, and rely, instead, on targets that are important or salient for them under conditions of uncertainty: survival targets and/or performance targets. Gomez-Mejia et al. (2007) argued that in family businesses, survival targets are more prevalent than performance targets because the operation of the family business already represents a non-economic utility already accrued and that they can count on, which represent an "affective endowment" for the family owners. These endowments gives family founders a sense of purpose, continuity and socio-emotional wealth (Gomez-Mejia et al., 2007). Therefore, losing those already accrued endowments would prompt decision makers to focus their attention on potential losses rather than potential gains. For non-family businesses, which lack affective endowments, in turn, the pursuit of performance targets would be more salient than the concern with survival and losing affective endowments.

Regulatory Focus Theory shares many similarities with March and Shapira's (1987) and Gomez-Mejia et al.'s (2007) studies. A promotion focus is consistent with aiming a performance target, and a preventive focus is consistent with aiming a survival target. A salient performance target is perceived as important for decision makers with a promotion regulation because performance targets motivate them to use eagerness to attain achievement and aspirations (Higgins 1997). Conversely, a salient survival target is perceived as important for decision makers when survival targets motivate them to use vigilance to avoid a painful state (Higgins, 1997). Therefore, Socio-emotional wealth (Gomez-Mejia et al., 2007) can help family founders to frame a situation as a potential loss (positively framed situation) rather than a potential gain (negatively framed situation), prompting them to use preventive rather than promotion regulation focus.

Signal detection framework has been used in Regulatory Focus Theory to explain explorative behaviors associated with a preventive and a promotion regulation strategy (Brockner et al., 2004, Tang 2009).

Signal Detection and Regulatory Focus theory

Regulatory Focus Theory proposes that the promotion focus and the prevention focus should differ in terms of the strategies chosen to achieve end states. For example, a promotion regulation strategy uses eagerness to attain matches in end states (i.e. aspirations, hopes) whereas a preventive regulation strategy uses vigilance to avoid mismatch in end states (i.e. safety and security). A signal detection framework (e.g. Tanner & Swets, 1954; see also Trope & Liberman, 1996) can help to understand the behaviors and actions that are preferred for each of these strategies in order to achieve end states. Regulatory focus theory can be described in signal detection terminology. Decision makers have to make a decision whether a stimulus or signal is present or not. In the context of this study a signal is represented by an opportunity. An entrepreneur, who is in a promotion focus, would be motivated to detect opportunities when they are present. However, in order to do this, an entrepreneur can decide to exploit what he/she believes is an opportunity when it was present (i.e. "hit" in signal detection terms) or he/she can

decide to exploit what he/she believes is an opportunity when in fact it was not present (i.e. “false alarm” in signal detection terms). Similarly, an entrepreneur who is in a preventive focus would be motivated to avoid making the mistake to exploit an opportunity when in fact it was not present. In order to do this, an entrepreneur can either decide to correctly avoid exploiting an opportunity when in fact it was not present (i.e. “correct rejection” in signal detection terms) or he/she can fail to exploit an opportunity when in fact it was present (i.e. “misses” in signal detection terms).

A promotion focus uses eagerness to increase the probability to successfully detect an opportunity (Crowe & Higgins, 1997; Higgins, 1997, 1998). In order to do this a wide arrange of alternatives need to be considered to increase the chances in order to be able to detect an opportunity when it is present and to avoid failing to detect one (Baron, 2004, Brockner et al., 2004). Put differently, a promotion regulation strategy uses eagerness to increase the probability to successfully detect an opportunity , which results in actions that increase variability in outcomes and actions in order to attain “hits” and minimize the chances to fail to detect an opportunity when it is present (i.e. error of omission). It follows that a promotion regulation strategy is consistent with explorative behaviors which increase variance in actions and performance (March, 1991).

A preventive regulation strategy uses vigilance avoidance to reduce the probability to mistakenly exploit and opportunity when it is not present (Crowe & Higgins, 1997; Higgins, 1997, 1998). In order to do this a narrower range of actions and a more thorough and careful screening of information need to be performed to ensure correctly rejecting opportunities that lead to failure and minimize the chances to exploit an opportunity that leads to failure (Baron, 2004, Brockner et al., 2004). Put differently, a preventive regulation strategy uses vigilance avoidance, which results in actions that reduce variability in outcomes and actions in order to increase the probability to successfully reject an opportunity that is not present (i.e. correct rejection) and minimize the chances to detect an opportunity when in fact it was not present at all (i.e. error of commission).

Therefore, a preventive regulation strategy is consistent with less explorative behaviors which reduce variance in actions and performance (March, 1991).

This pattern of behavior has been replicated in several experiments. Crowe and Higgins (1997), in study 1, found that participants in a promotion focus were able to come out with a greater range of solutions compared to participants in a prevention focus, even after having experienced failure in an unsolvable anagram. Also, they found that when individuals were in a task where generating any number of alternatives is correct, those in a prevention focus tried to avoid errors of commission by generating as few alternatives as possible and repeating the ones already used. Crowe and Higgins (1997) indirectly suggested that there is a relationship between promotion focus and creativity as compared to a prevention focus. In their study, they experimentally manipulated regulatory focus of participants and then administered a sorted task aimed to measure the ability to generate alternatives in a sorting task. Promotion regulatory focus was manipulated by task framing in which participants were told that the quality of their sorting task performance would determine whether they will participate in a desirable task in the future. Contrarily, in the manipulation of preventive regulatory focus, participants were told that the quality of their performance would determine whether they are not going to be assigned an undesirable task. The sorting task was simple and involved subgrouping exemplars according to freely chosen criteria. As expected, participants with a promotion focus generated more groups than those in a preventive focus. They also found that participants in a preventive focus were more concrete and perseverant in a particular selection criteria, showing also more repetitions of a simple pattern, which they applied across categories. The findings were also independent of transient affects.

Crowe and Higgins (1997), in a second experiment, tested whether promotion and prevention focus differentiate in terms of risk aversion and risk seeking processing styles, which were also proposed to mediate the effect of regulatory focus on creativity (Higgins, 1997). Similar to the previous experiment, the manipulation in this experiment was contingent in performance and the

task consisted in memorizing a list of words (memory signal detection task). After 20 seconds participants performed a filler activity and then they looked at another list, half of which contained the words they had memorized previously. The participants' job was to determine whether the object in the second list were present or not in the previous list (e.g. "old" or "new"). The authors analyzed this experiment in signal detection theory terms by using response biased scores, that is, the bias that respondents have to answer yes (i.e. low threshold to say yes) in order to achieve a hit (successfully remembering a word present in the previous list) at the risk of a "false alarm" (failure to reject a distractive word). Contrarily, they used a lower response biased score or "conservative bias" (i.e. high threshold to say yes), in order to attain a correct rejection (successfully rejecting a distractive word) at the risk of a "miss" (failure to recognize a distractive word). The findings strongly supported the hypotheses that a higher response bias was associated with a risky behavior and a promotion regulation focus, and that conservative bias was associated with risk-averse behaviors and a prevention focus. These findings confirm Higgins' (1997) hypotheses that promotion and prevention regulation is associated with processing styles associated with risk- seeking and risk-averse behaviors respectively.

Moreover, previous manipulation of regulatory focus has been made in such a way that participants were instructed that gains/non-gains or losses/non-losses were contingent upon performance. However, Friedman and Foster (2001) demonstrated that those manipulations of regulatory focus does not necessarily elicit activation of cognitive processing directly, and can be elicited by external cues on regulatory focus. Friedman and Foster (2001) also tested the effect of promotion and preventive regulatory concerns on creative insight and found that a promotion concern would differentially lead to more creative insights and to greater risk behaviors than a preventive concern more concerned with risk-averse behaviors.

Family ties and explorative orientation

According to Regulatory focus theory, a situational preventive regulation stems from the way decision makers perceive their social context (Higgins, 1997, 1998). This study argues that a

situational preventive regulation can be activated by the social context present in family ties. Simply put, family owner not only consider the profit motives of the family business, but also considers what he/she can lose in terms of non-economic motives. This study incorporates SEW as the source of these motives for family owners. SEW is an “affective endowment” for family owners, that is, something of value related to positive affective states such as belongingness, altruism to other family members, family control over the outcomes, identity associated to their family names in the business (see Gomez-Mejia et al.,2011 for a review). Therefore, family owners are less inclined to choose uncertain actions that may or may not lead to positive performance outcomes, than to continue with previous courses of action which at least allows them to continuing perceiving the benefits of SEW and avoiding challenging the loss of those affective endowments.

As pointed out by March and Shapira (1987), both survival and performance target coexist, but their relative importance in the decision maker’s mind determines risk behaviors. In the case of family startups, the loss of SEW is more salient for family founders than profit motives, which leads them to positively frame their current situation and perceive they have more to lose than to gain.

This study argues that this positive framing also leads to perceive more risks (Sitkin & Pablo, 1992; Sitkin & Weingart, 1995) consistent with a situational preventive regulation strategy concerned with aiming “correct rejection” and avoiding “false alarms” (Crowe & Higgins, 1997). Therefore, it is argued that SEW in family startups will lead family founders to use more vigilance avoidance and thus, narrow their range of alternatives in order to ensure being able to avoid exploiting opportunities that lead to failure. This is consistent with less explorative orientation. On the other hand, this study proposes that the lack of socio-emotional wealth in lone founder startups would reduce the felt presence of losses over gains. This, in turn, leads a lone founder to frame the existing situation less positively, which lead to perceive less risks consistent with a situational promotion regulation strategy concerned with attain hits and avoid misses (Crowe &

Higgins, 1997). Therefore, a lack of SEW in lone founder startups will lead lone founders to use more eagerness and thus, a broader range of alternatives in order to be able to detect more opportunities. This is consistent with more explorative orientation.

In sum, comparing family startups to lone founder startups, it is expected that family startups would tend to behave in a less opportunity-seeking manner, avoiding deviating from previous business opportunity and challenge their SEW. Lone founders, in turn, who lack SEW, will behave in a more opportunity-seeking manner by promptly deviating from current courses of action to avoid losing a business opportunity, and paying much attention to what they can lose if they fail to change their current courses of action (Pennington & Roese, 2003). Hence,

Hypothesis 1

Family startups would have less explorative orientation than lone founder startups.

Main Founder's Psychological traits and Regulatory Focus

This study analyzes, in addition to situational variables due to socio-emotional wealth previously discussed, the effect of the psychological characteristics of the main founder on explorative and ambidextrous orientations.

Kirzner's view of entrepreneurial alertness as the entrepreneur's ability to detect opportunities that others have not yet identified, has motivated researchers to look for ways in which entrepreneurial alertness can be fostered. However, being alert to opportunities does not only occur as a "deliberate search", but also can be unconsciously deployed by the decision maker. This study argues that Psychological traits of the main founders stem from cognitions associated to previous successful experiences associated with a promotion focus, which prompt them be more explorative without a deliberate effort (Gaglio & Katz, 199).

Psychological theories for explaining the discovery of entrepreneurial opportunities have been proposed (e.g., Begley & Boyd 1987; McClelland, 1961). These theories predict that entrepreneurship is a function of stable individual characteristics, such as willingness to bear risk (Brockhaus & Horowitz, 1986), self-efficacy (Chen et al., 1998) and tolerance for ambiguity (Begley & Boyd, 1987). The problem with this approach is that the psychological framework studies have focused on the decision to exploit opportunities once the opportunity has already been exploited rather than on the discovery of the opportunity ex-ante (Venkatraman, 1997).

In contrast, Austrian school sees opportunity recognition as a spontaneous process that takes little effort from entrepreneurs. Previous experiences, education or the person's idiosyncratic prior knowledge, facilitate the opportunity recognition by creating a knowledge corridor, which allows him/her to recognize certain opportunities, which are not easily recognized by others (Venkataraman, 1997). These prior experiences include "...prior information, whether developed from work experience, education, or other means..." which "...influences the entrepreneur's ability to comprehend, extrapolate, interpret, and apply new information in ways that those lacking that prior information cannot replicate" (Shane, 2000, p. 452).

Yu (2001) proposed that psychological theories and Austrian school, although seemingly different views on their predictions of opportunity discovery, are not necessarily at odds. To reconcile both views, Yu (2001) proposed that discovery can be conceptualized as a forward looking or "extraordinary discovery" or a backward looking or "ordinary discovery". Yu argued that previous experiences can have be forward looking when opportunities are created as actions are enacted in the present (Austrian school), or backward looking when previous experiences creates a knowledge corridor that help entrepreneurs to discover opportunities that already existed (Yu, 2001). However, the author didn't mention specifically which factor leads to each of these types of discovery. Similar to Yu's (2001) suggestions, this study argues that some distinct psychological traits subsume an entrepreneur's previous outcome history and, therefore, provide the cognitions to be constantly looking forward for new opportunities. These traits depend on previous outcome

history and previous life experiences which become part of a schema related to successful previous outcomes. These schemas are persistent cognitions based on outcome history, and provide the basis to make decisions involving risk and uncertainty.

Although disregarded, outcome history has been proposed as an important determinant of risk propensities. Osborn and Jackson (1988) and Thaler and Johnson (1990) found that decision makers will seek risks in the domain of gains if prior risk-seeking actions were successful. Sitkin and Pablo (1992) proposed that previous outcome history should have an effect on risk propensities through the founder's idiosyncratic history of success or failure. For firm strategies that lead to success in the past, decision makers would tend to be fixated on that strategy. Contrarily, a strategy that repeatedly led to failure would lead a founder to be constantly shifting to other strategies (March, 1988).

In this study, rather than outcome history at the firm level, it is proposed that the personal subjective outcome history at the individual level should have an effect in the expectancies of the future outcomes. Specifically, individuals with successful history of success should accumulate a promotion regulation focus which prompts them to look for opportunities in order to achieve accomplishments, hopes and aspirations (Higgins et al., 2001). According to McClelland and Atkinson's classic theory of achievement motivation (e.g. Atkinson, 1964; McClelland, 1951, 1961; McClelland, Atkinson, Clark, & Lowell, 1953), in time, a new achievement task evokes the feelings associated with past task experiences. Higgins et al. (2001) applied this concept to Regulatory focus theory and argued that previous subjective histories of success with a promotion regulation strategy should produce an achievement pride, which energizes and direct efforts to achieve a new task goal. Similarly, previous subjective histories of success with a preventive regulation strategy should produce an achievement shame which energizes and direct efforts to avoid the new task goals. Higgins et al. (2001) showed in 5 studies that individuals with subjective success in previous promotion tasks that required eagerness, used eagerness in new tasks, whereas individuals with subjective success in previous prevention tasks that required

vigilance, used vigilance in new tasks. These findings were valid for both a chronic or situational regulatory focus.

In all, this study proposes that some psychological traits can be stable but evolving dispositions of how well an entrepreneur perceives that his/her previous stock of knowledge fits an opportunity, which depends not only of a fixed disposition inherited from childhood, but also on the previous experiences that shaped their motivations and dispositions to act (i.e. regulatory focus). These psychological traits, in turn, become chronic propensities, and act like schemas or mental models, as described in the following section (Sitkin & Weingart 1995; Gaglio & Katz, 2001).

Schemas and Regulatory Focus

Choi (1993) argued that under uncertain environments decision makers tend to derive a set of paradigms resulting from their previous experiences, which they use as a way to cope with external world. These experiences lead them to construct a representation in their minds or templates, which in turn motivate decision makers to test whether these templates fit with the external world. Templates or schemas are “dynamic, evolving mental models that represent an individual’s knowledge and beliefs about how physical and social worlds work” (Kaish & Gillad, 1991, p. 97). These schemas are important elements in how decision makers represent the external environment in their minds. According to the cognitive interpretation of Lane et al. (1996), whenever actors are confronted with environmental changes requiring actions, they categorize these situations according to previous patterns observed in similar situations.

Therefore, if previous experiences are valuable then the association to that category is stronger and the easier it is its activation with external stimuli. The activation of these categories depends on many factors such as information primacy, schema accessibility, or personal motives (Gaglio & Katz 2001) and it acts like a heuristics in environments where uncertainty is high.

Perceptions and interpretations vary as part of a particular schema called upon in response to stimulus to real or imaginary events. Regulatory focus theory suggests that external stimuli as well as previous experiences can affect the perception and interpretation of events by activating a promotion or a prevention focus (Higgins, 1997). Therefore, a promotion or prevention focus can be conceptualized as a schema. A promotion schema is concerned with advancements and accomplishments, whereas a prevention schema is concerned with safety and security (Higgins, 1997). Psychologists have observed that some people have a chronic schema which they habitually activate regardless of its appropriateness for the moment (Fiske & Taylor, 1991; Higgins & King, 1981). Similarly, Regulatory Focus Theory predicts that some people are more likely to activate a regulatory focus related to promotion or prevention regardless of the situation that they face (Higgins, 1997).

Studies show that a chronic promotion focus entails a propensity to take greater risks, whereas a chronic prevention focus entails greater risk aversion (Grant & Higgins, 2003). Liberman et al. (1999) suggest that the stronger the chronic promotions focus, the stronger the risk propensity defined as the willingness to deal with uncertainties and the readiness to bear it (Liberman et al., 1999). In signal detection terms, a person with a chronic promotion focus would activate schemas related to previous successful experiences with accomplishments, which in turn lead them to associate events with those categories and be biased towards attaining hits and avoiding misses (Crowe & Higgins, 1997). Therefore, previous successful experiences leads entrepreneurs to be willing to accept more risk than what is normatively appropriate in order to detect an opportunity, but at the expense of increasing the probability of exploiting an opportunity that leads to failure (commission risks). These behaviors are consistent with an explorative orientation in which a broader arrange of alternatives are explored.

However, most studies have manipulated the promotion and prevention focus, and only a few studies have analyzed what psychological traits of the decision maker lead to activate this

regulation systems (exception being Tang, 2009). In the following section a review of the literature regarding the effects of psychological traits on exploration of opportunities is outlined.

Psychological Traits and Explorative Orientation

This study focuses on social cognitive self-regulation as suggested by scholars (Higgins, 2002; Mischel & Shoda, 1998; Sitkin & Weingart, 1995). Regulatory focus is one of the theories of self-regulation that offers a comprehensive framework for integrating both cognitive and social components, which offers great potential for entrepreneurship field (Brockner et al., 2008). Regulatory focus consists of both a chronic individual variable and a situational variable (Shah, Higgins, & Friedman, 1998; Van-Dijk & Kluger, 2004). The chronic component derives from a person's accumulated experience and achievement history (Higgins et al., 2001; Higgins & Silberman, 1998).

Social and cognitive psychology has given special attention to the fact that people tend to process the same 'objective' stimulus differently according to their personal subjective meanings (see, e.g., Cantor, 1976; Shrauger & Altrocchi, 1964; Tagiuri, 1969). This literature suggests that meanings are shaped by personal past idiosyncratic experiences (Higgins, King & Mavin, 1980). Put differently, interpretation of social events is much more related to a subjective interpretation rather than the event itself (e.g. Kelly 1955, Lewin, 1935; Mischel, 1981).

Models of social-construct accessibility (Higgins & King, 1981; Wyer & Srull, 1981) suggest that the more frequency by which constructs are activated, the more accessible they become and the longer that accessibility should persist. Liles (1974) suggested that entrepreneurs in new ventures take several individual risks such as financial well-being, career opportunities, family relations, and psychic well-being. Therefore, to the extent that entrepreneurs activate their promotion focus by previous life experiences that reinforce promotion focus (e.g. successful previous stories of accomplishments), they should be more likely to associate external stimuli with those categories or schemas and be more willing to take more risks in their decision making process.

Moreover, previous outcome experiences should have an effect on risk perception through risk propensity (Sitkin & Pablo, 1992; Sitkin and Weingart, 1995). Previous outcome history can affect psychological traits of entrepreneurs (Sitkin and Weingart, 1995). For example, the accumulated positive experiences can result in a greater sense of confidence in achieving goals (i.e. achievement motivation) or in more confidence in controlling outcomes with one's characteristics or actions (i.e. internal locus of control orientation). This study attempts to incorporate these two psychological traits to predict explorative behaviors using Regulatory focus theory.

Effect of Achievement Motivation and Locus of Control on Promotion focus

In entrepreneurship research many psychological traits have been studied, for example, risk taking propensity (Begley & Boyd, 1987), attitudes (Fraboni & Saltstone, 1990), and Jung's typology (Roberts, 1989). However, only Need for Achievement (McClelland, 1990) and Locus of Control of Reinforcement (Rotter, 1966) could be considered as having significant value, across several studies (Johnson, 1990; Venkatapathy, 1984).

Previous outcome history can also affect psychological traits of entrepreneurs. For example, the accumulated positive experiences can result in a greater sense of confidence in achieving goals (i.e. achievement motivation) or in more confidence in controlling events with one's characteristics or actions (i.e. internal locus of control orientation).

Tang (2009) recently looked at the effects of two important psychological traits on entrepreneurial alertness: achievement motivation (e.g. McClelland, 1961) and locus of control (e.g. Rotter, 1966). The author argued that these two psychological traits should be a beacon of incentive for decision makers with a promotion focus because they will activate cognitive processes associated with identifying opportunities, such as entrepreneurial alertness (Kirzner, 1973).

This study argues that previous outcomes history would be incorporated in these psychological traits, which are cognitive in nature, and depend on both the previous outcome history and the inherited dispositions of individuals. More specifically, it is proposed that these traits would be associated with stable mental representations, or schemas, that will prompt decision makers to act in a chronic promotion focus.

Achievement Motivation and Explorative orientation

Following Tang's (2009) study and the efforts of scholars like Shane (2003) and Klein (1990), this study defines "achievement motivation" in the context of new ventures as a cognitive and affective process that energizes, directs and maintains goal-directed behaviors of establishing new businesses.

The concept of need of achievement was formulated in the 1950s (McClelland, Clark, Roby, & Atkinson, 1958) and basically argues that high- need of achievement people are more likely than low- need of achievement people to engage in energetic and innovative activities that require planning for the future and entail an individual's responsibility for task outcomes. This is similar to Holland's (1985) work on vocation choice, which suggests that individuals will be most attracted to careers that offer a fit between their environmental characteristics and their personality. McClelland's (1961, 1965) various empirical studies suggest that high need of achievement foster entrepreneurial activities and, therefore, economic growth. McClelland found that individuals high in need of achievement would be more likely to take more responsibility, assume moderate risks, look for performance feedback indicators, and require individual skill and effort. Other studies have found that need of achievement is an important differentiating variable that predicts entrepreneurial activities at the group level between entrepreneurs and people from the general population, independent of the measurement method, samples, and entrepreneurship definitions (Johnson, 1990). Moreover, Collins et al. (2004) confirmed these results in their meta-analysis, and found that achievement motivation is associated with groups of entrepreneurs rather than the general population or non-successful founders in terms of both choice of an entrepreneurial career and entrepreneurial performance. Therefore, it is reasonable to expect that achievement motivation in entrepreneurs is likely to foster entrepreneurial activities, which entails a persistent strategic orientation towards means that involve eagerness, or chronic promotion focus, in order to attain ends such as accomplishments, hopes and aspirations (Levine et al., 2000).

Regulatory Focus Theory in signal detection terms predict that entrepreneurs with a promotion focus would tend to explore opportunities in order to increase the probability to aim a “hit” (successful opportunity) and reduce the probability of an error of omission (not detecting a successful opportunity). Put differently, a founder high in achievement motivation should increase the propensity toward a chronic promotion regulation strategy (Higgins 1997, 1998) which leads decision makers to increase risk propensity in order to attain accomplishments, hopes and aspirations (Crowe & Higgins, 1997). Moreover, risk propensity has been proposed to be directly related to risk perception and risk behavior (Sitkin & Pablo, 1992). Sitkin and Weingart (1995) empirically tested that risk propensity was directly related to risky decision making and to risk perceptions. Sitkin and Weingart also found that risk propensity was strongly predicted by previous outcomes history, which suggests that a chronic regulatory focus was activated leading decision makers to be willing to take more or less risks depending on their subjective experiences of success. Previous outcomes that had a subjective experience of success related to promotion-related tasks aimed to attain accomplishments and aspirations should lead to activate a chronic promotion focus which energize and direct behaviors to approach a new task goal (Higgins et al., 2001). It follows that a main founder strong in achievement motivation is more likely to have had subjective success experiences on previous outcomes related to a promotion focus, which in turn become a stable mental representation related to a chronic promotion focus consistent with an explorative orientation.

Furthermore, the main founder is not alone in making a decision related to exploration. Other family owners present are also important in the final decision. However, many scholars have suggested that an individual's experience of reality depends strongly on verification from others (e.g., Asch, 1952; Cooley, 1902; Festinger, 1950; Lewin, 1931; Mead, 1956). Hardin and Higgins (1996) argued that social verification, or shared reality, is essential for confidence and predictability in potentially all knowledge domains (cf. Hogg & Abrams, 1988; Moscovici, 1976). Similarly, Levine, Higgins and Choi (2000), relying on Sherif's (1937) proposition that group members tend to converge on their individual's judgment of ambiguous stimulus, analyzed the

effect of promotion and prevention focus on strategic orientations at the group level. In the case of family owners, their social verification is greater than that of non-family owners because family values tend to coalesce all family members identity into one (Tajfel & Turner, 1986). Most importantly for the purpose of this study, the authors found, using Regulatory Focus Theory, that group members converged in their strategic orientations regarding solving problems through risky or conservatism behaviors. Specifically, they found that promotion groups were riskier than prevention groups. Therefore, it is expected that a main founder with a high need of achievement will tend to overlap with mental models related to a chronic promotion focus at the founding team level. Therefore, a chronic promotion focus, triggered by a main founder with strong achievement motivation, should increase risk propensity and lead to a promotion regulation strategy consistent with explorative behaviors that are variance-increasing in outcomes and actions at the startup level (March, 1991). It follows,

Hypotheses 2

Startups with main founders with more achievement motivation are associated with more explorative orientations

Internal Locus of Control and Explorative orientation

Internal Locus of control orientation is anchored on Social learning theory (e.g. Rotter; 1954, 1955, 1960) from which Rotter drew from to derive the concept of locus of control. The basic theoretical argument is that whenever individuals perceive that a reinforcement (i.e. positive outcome) is contingent on his/her own behaviors, they are more likely to increase their expectancy than when they perceive that their behaviors were not the cause of the outcomes but rather it was due to luck or powerful others. For example, as infants gain experience they start differentiating causal relations between events and preceding events. To the extent that they attribute those successful events to themselves (i.e. internal locus of control) they will be able to improve their expectancy, that is, next time they would expect to perform as good as before.

Internal locus of control orientation makes this attribution across different situations, that is, they have a generalized expectancy that one's behaviors caused the events in one's life.

Previous studies have reported a positive relationship between internal locus of control and entrepreneurial activities. Shapero (1975) found that "internals" or individuals high in internal locus of control orientation, tended to be more self-reliant and independent. Studies by Liles (1974), Brockhaus (1975), Ahmed (1985) and more recently Pandey and Tawary (2011) and Hansenmark (2003), have reported a positive relationship between internality in locus of control and entrepreneurial entry. Tang (2009) found that entrepreneurs with a higher internal locus of control orientation tended to identify cues in the environments that might lead to opportunities, and thus increase their entrepreneurial alertness. Moreover, previous research points out that internals are more likely to exhibit more entrepreneurial qualities than externals. Brockhaus (1975), Durand & Shea (1974), Shapero (1975) found that executives who have an internal locus of control orientation are expected to engage in much more innovation and introduced new products and services more frequently, while Miller, Kets de Vries and Toulouse (1982) found that top chief executives with strong internal locus of control orientation influence corporate strategies towards more product-market innovation, greater risks, and to lead rather than follow competitors. Although the difference in locus of control between entrepreneurs and managers is not yet clear, previous research suggests that there are individual differences between entrepreneurs and the general public (Babb and Babb, 1992; Brockhaus, 1980; Hull, Bosley and Udell, 1980; Begley, 1995; Begley & Boyd, 1987).

Therefore, it is expected that individuals high in internal locus of control orientation would be likely to select actions over which they can have a direct impact on performance, such as entrepreneurial activities. Given the generalized expectancy of entrepreneurs with high internal locus of control orientation, individuals would have an incentive in using eagerness as means to attain accomplishments and aspirations, stemming from a promotion focus. Entrepreneurs high in internal locus of control orientation are also more likely to have had positive outcomes

experiences in the past (probably in other startups experiences or mastery experiences) which predispose them to activate schemas related to a chronic promotion focus. Put differently, they would feel more confident in putting effort in activities they feel they have control over the outcomes, which in turn prompts them to attain accomplishments and aspirations. Moreover, it is expected that main founders with internal locus of control orientation would tend to overlap mental models related to a promotion focus in the startup team (Levine et al., 2000). This chronic promotion focus, in turn, leads to increased risk propensity and to strategic orientation toward explorative behaviors that are variance-increasing in outcomes and actions (March, 1991). It follows,

Hypotheses 3

Startups with main founders with more internal locus of control orientation are associated with more explorative orientations

Interaction of Psychological Traits and Situational variables

So far the analysis of this study have dealt with the effect of situational variables related to the social context of family founders' ties composition (family versus lone founder startup) and the effect of psychological traits such as achievement motivation and internal locus of control orientation, on explorative orientation.

Although previous research has analyzed these two effects in relation to risk behaviors (Sitkin and Pablo, 1992, Sitkin & Weingart, 1995, Tang, 2009, Hmielesky & Baron, 2008), their interaction has been largely disregarded. This is surprising because Shane and Venkatraman (2000) suggested that research on entrepreneurship will benefit from exploring the interaction of the individual with the situation and their impact on entrepreneurial performance and entrepreneurial behaviors. Moreover, research on opportunity recognition has recognized the impact of this interaction perspective on organizational creativity which is closely related to exploration of new possibilities (Woodman, Sawyer & Griffin, 1993).

Regulatory focus theory and person-situation interaction effect on explorative orientation

Woodman, Sawyer, and Griffin, (1993) analyzed the antecedents of creative behaviors at the organizational level as a function of many components such as individual characteristics, groups and contextual influences, and the behaviors resulting from influential salient situations at different organizational levels. Woodman et al (1993) defined organizational creativity as “the creation of a valuable, useful new product, service, idea, procedure, or process by individuals working together in a complex social system” (p. 293).

Woodman and Schoenfeldt (1990) proposed an interaction model for creative behaviors at the individual level. Woodman et al (1993) applied this model at the organizational level and argued that “...the creative behavior of organizational participants is a complex person-situation interaction influenced by events of the past as well as salient aspects of the current situation” (p. 294). In particular, they proposed that social interaction and individual characteristics can facilitate or hinder creativity accomplishment either by affecting the continuous innovation based on current competencies and experiences, or the radical innovations that allows for a “creative destruction” (Schumpeter, 1961). Therefore, the interaction model provides an integrating framework that combines elements of the personality (e.g., Woodman, 1981), cognitive (e.g., Hayes, 1989), and social psychology (e.g., Amabile, 1983) to explain creative behaviors related to explorative orientation.

Regulatory Focus Theory offers a comprehensive explanation of the personal dimension and the situational variables in one comprehensive model. As previously mentioned, an individual's regulatory focus can be activated by external situations -situational regulation, or due to individual characteristics such as learned behaviors from caregivers since early childhood or past experiences – chronic regulation (Shah, Higgins, & Friedman, 1998; Van-Dijk & Kluger, 2004).

Using the regulatory focus framework, Tang (2009) identified achievement motivation and internal locus of control orientation as predictors of Entrepreneurial alertness (Kirzner, 1973), or the capacity of entrepreneurs to discover opportunities hitherto unnoticed. Tang suggested that a person high in achievement motivation and/or internal locus of control orientation is more likely to activate his/her promotion focus whenever an opportunity arises with a promise of accomplishment of future expectations. A person high in achievement motivation and/or locus of control is more likely to have succeeded in previous experiences, which allows him/her to have a chronic promotion focus. This chronic promotion focus corresponds to cognitive schemas that allow individuals to recognize patterns, or exemplars (Yu, 2001). These schemas help entrepreneurs to “connect the dots” (Baron, 2006), which allow them to recognize opportunities better than people without such schemas.

On the other hand, the situational prevention regulation focus of family startups over lone founder startups coexists with the chronic promotion regulation strategy for main founders with strong internal locus of control or achievement motivation. Lieberman, Idson, Camacho and Higgins (1999) found evidence in 5 studies that individuals in prevention focus preferred stability by keeping an object they have already endowed or owned than an alternative object. However, when they were induced in a promotion focus they were more likely to interrupt an activity and interrupt it with different activity, or change their preferences towards external objects outside their familiar endowments. This suggests that family startups will be able to be less motivated to prevent the loss of their SEW by either exploiting current courses of actions or avoiding new opportunities that may challenge their SEW. New opportunities involve behaviors related to creativity and openness to change, and are consistent with psychological traits of the main founder related to a promotion focus such as achievement motivation and internal locus of control orientation.

From the previous arguments, it follows that the presence of main founders with strong achievement motivation and/or internal locus of control orientation should reduce the difference in

explorative orientation between family startups and lone founder startups. The reason for this is that family founders would be more aware not only of what they can lose (SEW) but also what they can gain by taking riskier courses of action. Given that a promotion focus associated with higher levels of these traits would be an incentive to attain hits and avoid misses (Crowe & Higgins, 1997), it is expected that a broader consideration of alternatives should occur (Brockner et al., 2004) along with a greater variability in outcomes and behaviors consistent with an explorative orientation (March, 1991). This suggests a moderation effect of these traits on the effect of family/lone founder status on explorative orientation as follows,

Hypothesis 4a

In family startups, achievement motivation of the main founder will moderate the difference in explorative orientation between family and lone founder startups, such that this difference is significantly reduced when achievement motivation of the main founder is strong than when it is weak.

Hypothesis 4b

In family startups, internal locus of control orientation of the main founder will moderate the difference in explorative orientation between family and lone founder startups, such that this difference is significantly reduced when internal locus of control orientation of the main founder is strong than when it is weak

Figure 1 shows the previous hypotheses in a socio-cognitive model predicting explorative orientation in family startups versus lone founder startup

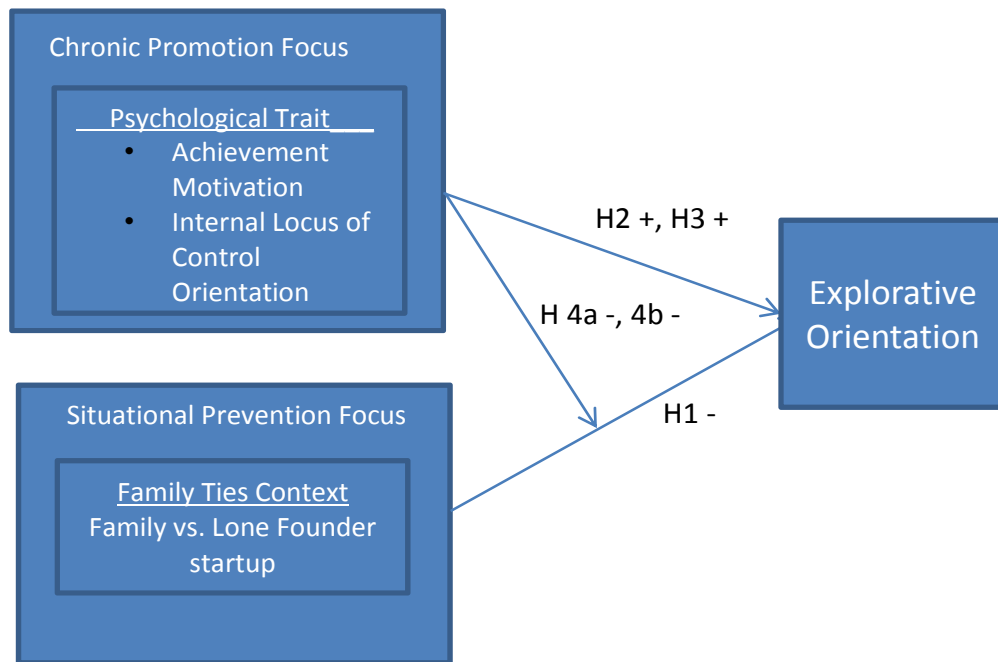


Figure 1: Conceptual Model for Explorative Orientation in Family Startups

Ambidexterity and Social Cognitive approach

Some scholars don't agree that ambidexterity- the ability to explore and exploit simultaneously- can be achieved simultaneously because they are two fundamentally different path dependent processes that compete for the same organizational resources (Floyd & Lane, 2000). This view regards ambidexterity as determined by organizational design in which an organization puts in place "dual structures" to cope with conflicting forces" (Duncan, 1976). However, researchers have recently begun to recognize the importance of managing this tension and shift the focus from tradeoff (either or) to paradoxical (both/and) thinking (Earley & Gibson, 2002; Lewis, 2000; Morgeson & Hoffman, 1999).

Exploitation and exploration at the startup level are less likely to be either/or processes. Large established firms have their own organizational inertia (Hannan & Freeman, 1984). These firms

have pre-established routines which constrain their future actions and strategies developing 'core rigidities' and 'competency traps' (Leonard-Barton, 1992, Levinthal & March, 1993). Startups, in turn, lacking previous outcome history, are more likely to try new alternatives because they are less constrained by organizational inertia and large size (Hannan & Freeman, 1984). It is reasonable to expect, therefore, that startups will be more likely to balance exploration and exploitation simultaneously (both/and) than large established business.

Literature on ambidexterity has focused on three major approaches. A structural approach based on the assumption that exploitation and exploration should be performed one at a time facilitated by different organizational units that deal with these processes separately, a contextual approach, in which in which both exploration and exploitation are performed within one organizational unit, and a leadership approach which assumes that top-management teams are responsible for balancing the tensions between exploration and exploitation (see Raisch & Birkinshaw, 2008 for a review). This study uses a contextual approach and it assumes that exploitation and exploration are two paradoxical and independent processes (Floyd and Lane, 2000) which can be deployed simultaneously at the startup level.

Contextual ambidexterity was defined by Gibson and Birkinshaw (2004) as "the behavioral capacity to simultaneously demonstrate alignment and adaptability across an entire business unit" (p. 209). Gibson and Birkinshaw argued that organizational ambidexterity depend on how organizations combine systems, processes, and beliefs that shape individual's organizational behaviors (Ghoshal & Bartlett, 1994). A contextual ambidexterity approach is based on the paradoxical view and proposes that individuals can simultaneously deploy seemingly contradictory processes associated with exploitation versus exploration such as alignment versus adaptability, efficiency versus flexibility, short term orientation versus long term orientation (Gibson & Birkinshaw, 2004). Contextual ambidexterity highlights the importance of achieving this balance by adequate processes and systems that help to resolve this paradox. Moreover, Gibson and Birkinshaw proposed that contextual ambidexterity helps to develop a dynamic

capability (Eisenhardt & Martin, 2000) which helps to manage paradoxical processes and attain a sustainable competitive advantage.

Previous research has looked at different contextual factors that support ambidexterity, such as job enrichment schemes (Adler, Goldoftas & Levine., 1999), the use of leaders with complex behavioral repertoires (Denison et al., 1995; Lewis, 2000), and the creation of a shared vision (Bartlett & Ghoshal, 1989). However, Gibson and Birkinshaw (2004) suggested that these factors can be subsumed in stretch, discipline, support, and trust. More specifically, they argued that ambidextrous organizations are expected to balance the hard elements (discipline and stretch) with the soft elements (support and trust) in their organizational contexts (Raisch & Birkinshaw, 2008). Following this line of research, scholars have recently focused on analyzing the characteristics and processes that enable top management teams to simultaneously pursue exploitation and exploration. Beckman (2006) showed empirical evidence that founding team composition in terms of prior company affiliations of the founders is an important antecedent of exploitative and explorative behavior. Specifically, they found that a firm whose founders have diverse companies' affiliations tend to explore more, founders with common company affiliation tend to exploit more, and firms who do both had more ambidextrous orientation. Similarly, Peretti and Negro (2006) found evidence that a mix between "newcomers" and "old timers" is conducive to ambidexterity. Lubatkin et al. (2006) used the term "behavioral integration" to capture both the wholeness and the unity of efforts of top management teams. They found evidence that top management teams that are able to balance their social and task interactions which include - collaborative behavior, the quantity and quality of information exchanged, and the emphasis of joint decision making- improve organizational ambidexterity.

In sum, in order to contribute to shed light on this unexplored area of research, this study analyzes the antecedents of ambidextrous orientation at the startup level, taking a contextual ambidexterity view. As previously mentioned, both the social and the cognitive context affect ambidextrous orientation (e.g. Lubatkin et al., 2006; Beckman, 2006; Gibson & Birkinshaw, 2004;

Peretti & Negro, 2006). Therefore, the social cognitive approach of Regulatory focus theory is a useful theoretical framework to predict ambidextrous orientation by introducing the social context and the psychological traits of individuals. Put differently, it is proposed that an ambidextrous orientation stems from the cognitive processes of the founders at the individual level and the social context at the firm level, which in turn should influence the systems, processes and beliefs that lead to a balance exploitation and exploration. More specifically, it is argued that three factors are likely to influence the context that fosters ambidexterity: 1) the social context of family ties, 2) internal locus of control of the main founder, 3) the interaction between family ties and internal locus of control of the main founder.

Ambidexterity in Family Startups

In this study, exploration and exploitation are two independent constructs that refer to an orientation, rather than actual behaviors, which may not be yet observable at the startup level. Explorative orientation refers to a predisposition towards explorative behaviors related to variability in actions and performance (March, 1991). In this study, Explorative orientation is conceptualized by assessing the founders' relative importance of explorative behaviors and actions, such as targeting new markets, developing new product, be the first to achieve a competitive advantage, new technology development, and the importance of patents (Benner & Tushman, 2003; He & Wong, 2004). Exploitative orientation, in turn, refers to the motivational strength that the main founder put forward and that reflects the commitment to previous courses of action. This motivational force provides the orientation to put the effort and perseverance required to continue exploiting current paths. In this study, Exploitative orientation is conceptualized by assessing the founders' propensity to exploiting current market domains, developing existing products and focusing on promotion and sales of existing products (Beckman, 2006; Miles & Snow, 1978).

Since both constructs are independent of each other, it is possible to have all possible combinations of exploration and exploitation at any given moment. This means that if a firm is low

in exploration (i.e. low variability in actions and outcomes) it can also be low in exploitation (i.e. low motivational force).

As previously proposed, SEW in family startups leads family owners to be constantly aware of avoiding actions that may lead them to lose their affective endowments (i.e. threat to survival), heightening the saliency of survival targets over aspiration targets (March & Shapira, 1987). This study proposes that the less explorative orientation in family startups due to SEW compared to lone founder startups also affects the balance of exploitation and exploration, or ambidextrous orientation.

On the other hand, as previously mentioned, main founders with strong psychological traits, such as internal locus of control and achievement motivation, will be more likely to have a promotion focus, which leads founders to see opportunities as a gain (i.e. negatively framed situation) and thus, are more motivated to experiment with alternative options, increasing their explorative orientation.

This study proposes a social cognitive model based on Regulatory Focus Theory to predict the effect of SEW and internal locus of control orientation of the main founder, on ambidextrous orientation.

The effect of achievement motivation on ambidexterity was not analyzed in this section because classic motivation theory has suggested that achievement motivation can be driven by approach or avoidance motives (Elliot & Church, 1997). Put differently the motivation to achieve goals depends on the regulatory focus activated: a promotion regulation aimed to achieve success or a preventive regulation aimed to avoid failure (McClelland, Atkinson, Clark, & Lowell, 1953; Murray, 1938; Lewin, Dembo, Festinger & Sears, 1944). Moreover, recent findings suggest that achievement motivation is not related to initiation of entrepreneurial activities, which relates to the aims of this study (Hansemark, 2003). Therefore, it is reasonable not to include achievement

motivation as a determinant of ambidextrous orientation. Figure 2 shows the Social Cognitive Model for Ambidextrous Orientation which will be discussed in the following section.

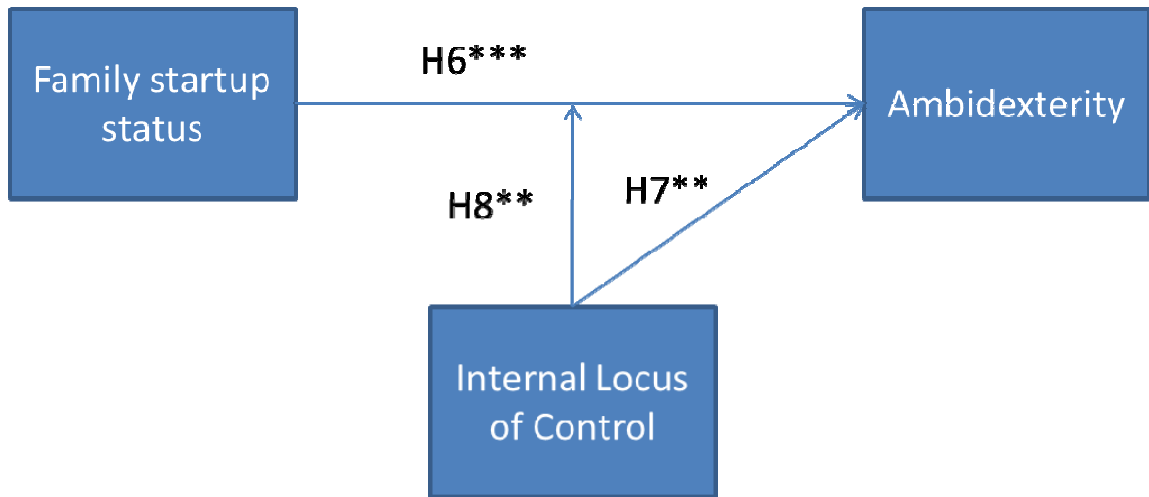


Figure 2: Family status and Locus of Control effects on Ambidextrous Orientation

Direct effect of Family Ties on Ambidextrous Orientation

As previously stated, in family startups SEW leads to reduced level of explorative orientation compared to lone founder startups (see hypotheses 1). However, in order to predict how the balance of exploitation and exploration differ in family startups compared to lone founder startups, a comparative analysis of exploitative orientation in family startups compared to lone founder startups is needed .

Exploitative orientation and Regulatory Focus

Exploitative behaviors involve motivational strength to persevere on previous actions, and can be driven by subjective experiences of success in promotion related tasks-- which foster promotion regulation in new tasks, or subjective experiences of success in prevention related task --which foster preventive regulation in new tasks (Higgins et al, 2001). Higgins (2000) proposed that motivational strength will be enhanced when the manner in which people work toward a goal sustains (rather than disrupts) their current regulatory orientation, or regulatory fit. Their basic

argument was that people experience a subjective sense of importance of a task when their means to achieve goals fit with their regulatory focus, which further motivates them to put more effort, commitment and perseverance on the task. For example, if a person had previously experienced success (avoid failure) in tasks that involve eagerness (vigilance) to achieve goals, he/she would be more likely to have a subjective sense of importance on new task. Simply put, this person would have the feeling that what they did was the right thing to do and thus, show more commitment to the task, and put more effort and perseverance to achieve that goal.

Spiegel, Grant-Pillow and Higgins (2004) tested the previous proposition of regulatory fit by Higgins (2000). They found, in two different studies, that the performance (e.g. the number of anagrams solved) improved when the task means were aligned with their regulatory focus orientation. Shah, Higgins, and Friedman (1998), study 1, found evidence that, when strength of ideals and oughts of participants fitted a promotion or prevention regulatory focus respectively, their performance increased. As expected, individuals with higher ideal strength performed better when they were in a promotion regulation focus but not in a prevention focus. Similarly, individuals with a higher ought strength performed better when they were in a preventive regulation focus, but not in a promotion focus.

Forster et al. (1998) manipulated the means by which the activity approaches the goal by using arm flexion and arm extension respectively, as proposed by Cacioppo, Priester, and Berntson (1993). Arm flexion has been associated with the means to approach a goal consistent with eagerness (promotion focus), and arm extension has been associated with the means to approach a goals consistent with vigilance avoidance (preventive focus). Forster and colleagues found that participants in a promotion regulatory fit (participants in a promotion focus who used arm flexion) and participants in a preventive regulatory fit (participants in a preventive regulatory focus who used arm extension) solved more anagrams than otherwise. Moreover, Forster et al. (1998) in his last study operationalized motivational strength as persistence in a task. The task consisted in finding all the possible solutions for green and red anagrams. Participants were

framed in a promotion focus by telling them that they would earn a point for each green anagram they solved completely, and framed in a prevention focus by telling them that they would lose a point for each red anagram they didn't solve completely. The participants were also measured the strength of their ideals and oughts to determine whether they had a chronic promotion regulation (e.g. high strength of ideals), or a chronic preventive regulation (e.g. high ought ideals). They found that, as participants were closer to achieve their goals--in this case solving green anagrams for gaining points--individuals in a promotion focus persevered more in the task by taking more time in solving later anagrams, than individuals in a preventive focus. Similarly, as participants were closer to achieve their goals-in this case solving red anagrams to avoid missing points- individuals in a prevention focus persevered more by taking more time in solving later anagrams, than individuals in a promotion focus. This suggests not only that regulatory focus fit is important for motivational strength, but also the importance of the distance to achieve the goal. The latter is congruent with the classical "the goal loom larger" effect, which argues that the motivational strength increases as distance from the goal decreases as one is closer to it (Lewin, 1935; Miller, 1944, 1959).

In sum, either family startups or lone founder startups can have an exploitative orientation due to a promotion focus or to a prevention focus, depending of the regulatory fit and the distance to the goal. There are other factors that also influence motivational strength such as self-efficacy (Bandura, 1986), anticipated reaction and attribution (Weiner, 1986), expectancy value theory (see Feather, 1982), as well as mindsets, intentions, and control strategies (see Spiegel et al, 2004 for a review). However, these motivational strength factors do not relate to the context of family businesses, which is the purpose of this study. It follows that there is no particular reason to assume that exploitation in family startups would differ from a lone founder startups. Hence,

Hypotheses 5

Family startups and lone founder startups do not differ in exploitative orientation

In sum, given that family startups explore less than lone founder startups, and that exploitative orientation is not related to whether it is a family startup or a lone founder startup, it follows that family startups will have a lower level of exploration for the same level of exploitative orientation. In other words, family startups would be less likely to be high in both exploitation and exploration (i.e. ambidextrous) than lone founder startups. Hence,

Hypothesis 6

Family-owned startups will be less likely to be ambidextrous (high in exploration and exploitation) than Lone founder startups.

Direct effect of Locus of Control and Ambidextrous Orientation

As previously proposed, internal locus of control orientation in individuals is consistent with a promotion focus, and the means to attain the goals are driven by eagerness. Evidence suggests that executives who have an internal locus of control, are expected to engage in more innovation, will frequently introduce new products and services and invent new production technologies (Brockhaus, 1975; Durand & Shea, 1974; Shapero, 1975). Miller, Kets de Vries and Toulouse (1982) found that top chief executives with strong internal locus of control, influence corporate strategies by engaging in more product innovation, taking greater risks, and leading rather than following competitors. A person with internal locus of control orientation has confidence that he or she can control the outcomes of a situation before he/she attempts to take action, due to his/her generalized self-efficacy (Rotter, 1966). Moreover, an individual with internal locus of control orientation and a positive outcome feedback of his/her actions will tend to use the same promotion focus that lead to good results in the past (Higgins et al., 2001), which leads to further experimentation in order to attain achievements and hopes. However, if the exploration of alternatives doesn't lead to expected results, internals are willing to be more alert or preventive in order to avoid losing control over the situation (Tang, 2009). In other words, it is proposed that internals are able to balance over-exploration with more exploitation of available resources.

On the other hand, in case of failure feedback, entrepreneurs with strong locus of control would be confident that they can pull out a “victory out of a defeat” and thus, will discount evidence that doesn’t reinforce their beliefs in order to prove their assumptions. This is similar to the “rigidity-threat” effect (Staw et al., 1981), which suggests that, under threat conditions, restrictions in information processing and concentration of control should occur. Staw and colleagues argued that at the individual level there is substantive support that people respond to threat situations by restricting their information processing and by constricting control. This, in turn, has an effect both on cognitions and motivations. For example, restricting information allows to focus on internal hypotheses and prior expectations as well as focusing on cues that reinforce the dominant logic of previous mental models while ignoring those cues that don’t match that dominant logic (Staw et al., 1981). Constricting control allows to “...emit dominant well learned, habituated responses “ (Staw et al., 1981, p. 506). A person with a strong internal locus of control would be motivated to prove that his/her own assumption was correct in an attempt to justify their attribution that the cause of the events are due to themselves and not to external conditions. This rigidity threat leads, therefore, to a pattern of actions consistent with exploitative orientation, that is, actions that are based on previous paths over which decision makers persevere. This rigidity can lead to a competitive advantage if the exploitation of current competencies lead to a successful outcome in the future by outcompeting competitors who quit under challenging conditions or by gaining a first leader advantage in a market nobody else has ventured before.

Moreover, literature on escalation of commitment (see Brockner 1992 for a review) suggests that, in conditions of uncertainty and when facing a negative feedback, decision makers tend to escalate their commitment to failing courses of actions (Arkes & Blumer, 1985; Brockner & Rubin, 1985; Northcraft & Wolf, 1984; Staw, 1981; Teger, 1980; Thaler, 1980). One of the most accepted explanations of escalation of commitment is self-justification (Brockner, 1992), that is, individuals are willing to escalate commitment to prove to themselves and others that the resources invested were not in vain. This problem is aggravated when the goals pursued are

relatively high in value (Brockner, 1992). Scholars seem to suggest that this is the case of entrepreneurs. Cooper, Woo and Dunkelberg (1988) support this claim by showing that optimistic entrepreneurs are optimistic regardless of how prepared they are to lead their firms. Busenitz and Barney (1997) also demonstrated that entrepreneurs tend to overestimate the probability of success and tend to generalize more from specific cases to the general population, than managers of large established firms. It follows that entrepreneur would be likely to invest their money and themselves in relatively challenging goals. Therefore, in conditions of uncertainty, and facing a negative feedback, entrepreneurs with strong internal locus of control orientation would be likely to escalate commitment following their previous commitments in order to prove to themselves that events were due to themselves rather than to external events or powerful others (Rotter, 1966). These behaviors are consistent with exploitative orientation.

However, in the event that escalating commitment on previous courses of action does not result in success, it is argued that main founders with a strong locus of control are willing to reconsider the adequacy of previous decisions in order to improve their perceived control over the outcomes and triumph the situation. Tang (2009) empirically found that internals are more likely to detect opportunities that others can't detect, or entrepreneurial alertness. Tang (2009) also found that in low munificence environment, that is, environments in which entrepreneurial activities are not conducive to entrepreneurship, internals have a stronger association with entrepreneurial alertness than in environments with high entrepreneurial munificence. The interpretation of these findings suggests that internals are more willing to triumph the situation in environments that are challenging. In other words, a person with strong internal locus of control orientation would be willing to change exploitation of current competencies to other alternatives if the current path does not result in success. It follows that main founders with high internal locus of control would be willing to use a balance of a preventive and a promotion focus because it allows them to balance exploitation with exploration in order to increase their control over the situation (e.g. avoid failure if a change is needed).

In sum, taking the previous arguments together, founders with internal locus of control are more likely to balance exploitation and exploration, that is, are more likely to counterbalance over-exploration with more exploitation and over-exploitation with more exploration. Hence,

Hypotheses 7

Main founders with internal locus of control orientation will be more likely to found ambidextrous startups.

Interaction of Locus of Control and Family startup status on Ambidextrous Orientation

Previously, internal locus of control orientation of the main founder was associated with more likelihood to have an ambidextrous orientation. Similarly, it was hypothesized that family startups should be less ambidextrous than lone founder startups (see hypothesis 6). Further, based on Regulatory focus theory, a high level of internal locus of control orientation of the main founder (i.e. internal founder) in a family startup would make more salient an explorative orientation than an exploitative orientation because new courses of action that differ from previous ones provide new opportunities to attain “hits”, that is, hopes and aspirations (promotion focus). If exploitative orientation is not likely to depend on whether the startups include family members or lone founders, it follows that, for a given level of exploitative orientation, internal main founders are more likely to become more explorative. This suggests a moderation effect of internal locus of control orientation on the difference in ambidextrous orientation between family and lone founder startups as follows,

Hypothesis 8

In family startups, internal locus of control orientation of the main founder will moderate the difference in ambidextrous orientation between family and lone founder startups,

such that this difference is significantly reduced when internal locus of control orientation of the main founder is strong than when it is weak

Survival Hazards in Family Startups

In the previous section a justification and a proposed relationship was drawn for ambidextrous orientation and internal locus of control based on Regulatory Focus Theory. In this section, it is proposed that that these variables would have an effect survival hazard in family startups, that is, the probability that a startup disengage from business activities. Figure 3 shows the model proposed, described in the following section.

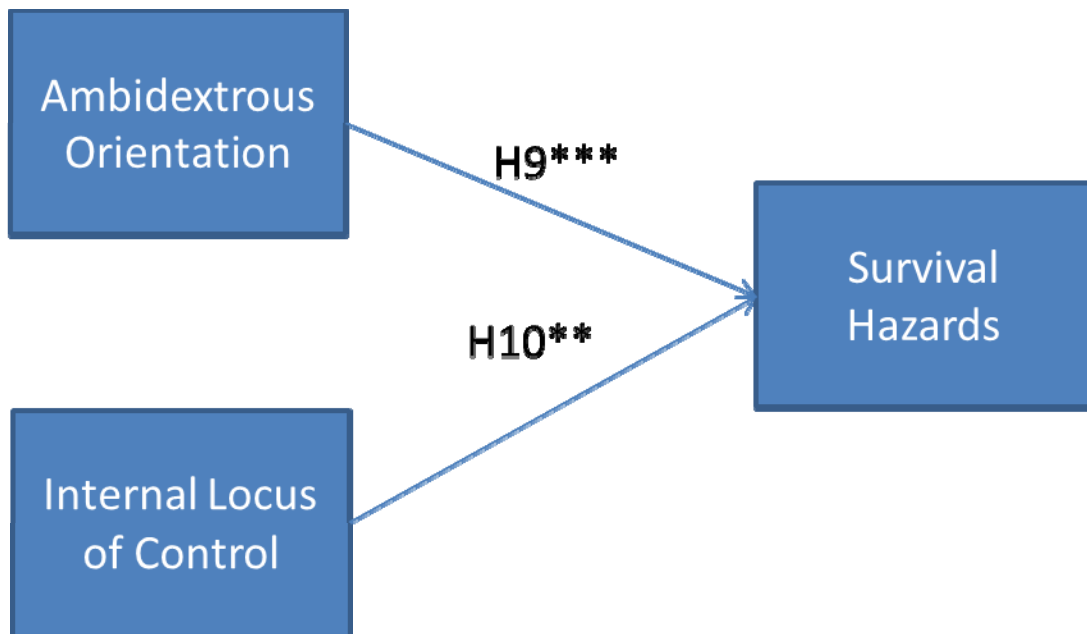


Figure 3: Ambidextrous Orientation, Internal Locus of Control and Survival Hazards in Family startups

Internal Locus of Control and Survival Hazards

Previous studies have pointed out that founders of new ventures have a stronger internal locus of control than non-founders (Ahmed, 1985; Begley & Boyd, 1987; Mescon & Monanari, 1981). Hansemark (2003) found that entrepreneurs with strong internal locus of control orientation are more likely to startup new businesses. Internal locus of control orientation refers to the confidence that events are the result of one's will, regardless of external factors (Rotter, 1966), which can be the result of an optimistic bias. Moreover, according to Hmielesly and Baron (2008), entrepreneurs tend to be more optimistic because they suffer from more confirmation bias (Klayman & Ha, 1987), largely ignoring information that doesn't confirm their beliefs (Gibson & Sanbonmatsu, 2004). Therefore, it is reasonable to expect that entrepreneurs with strong internal locus of control should be more optimistic about their capacity to control outcomes in order to confirm their beliefs that events were caused by their actions rather than by external circumstances.

Although internal locus of control of the main founder can lead them to be more promotion focused, optimistic and explorative, it can also lead to a preventive focus. Tang (2009), based on Brockner, Higgins and Low's (2004) study, proposed and empirically found that low munificence (the scarcity of critical resources for the operation of a firm within a given context) would lead founders with strong internal locus of control orientation to use both promotion and preventive regulation focus because this will lead them to triumph the situation. Put differently, main founders with a strong internal locus of control orientation will be careful to make an error of commission (false alarm) because it will be fatal in a situation of scarcity, while at the same time they will be more alert to any opportunity that may be present in order to overcome the environmental constraints.

Moreover, family startups incorporate both the preventive focus stemming from SEW and the promotion focus stemming from the internal locus of control orientation. Therefore, family founders with strong internal locus of control orientation in a family startup will be more likely to

deploy simultaneously a preventive and a promotion focus because they can complement their promotion focus with a preventive focus stemming from SEW preservation arguments.

Brockner, Higgins and Low (2004) applied Regulatory focus theory as a framework to understand in what conditions entrepreneurial success occurs. Brockner and colleagues argued that entrepreneurial success requires both prevention and a promotion focus. Rather than stating that the entrepreneurial process depends on only a promotion component, the authors argued that they are both equally important. For example, for certain aspects of the entrepreneurial process (e.g., generating ideas with the potential to be successful), greater promotion focus is necessary. For other aspects of the entrepreneurial process (e.g., doing the “due diligence” when screening ideas), greater prevention focus is necessary. This is important because firms that are aware of their resources and industry attributes are able to deploy their capabilities in response to environmental changes accordingly (Wang & Li, 2008).

From the perspective of regulatory focus theory in signal detection terms, it is also suggested that ambidextrous family startups would reduce survival hazards. As previously mentioned, signal detection framework hypothesizes that four possibilities exist in situations where individuals try to decide if a stimulus or signal is present or absent: (1) “hit”—the signal exists and the perceiver determines that it is present; (2) “miss”—the signal exists but the perceiver fails to identify it; (3) “false alarm”—the signal does not exist but the perceiver mistakenly concludes that it is present; (4) “correct rejection”—the signal does not exist and the perceiver accurately determines that it is not present. A signal in the context of family-owned startups is the presence of an opportunity that leads to successful outcome.

Applying the signal detection framework in the context of Regulatory focus theory, the presence of a signal is similar to the presence of an opportunity. A decision maker needs to make the call whether the opportunity (signal) is there or not. In the context of Regulation Focus Theory, when individuals are in a promotion focus the attention is placed on hits, which represents a situation where an entrepreneur successfully detects an opportunity when it actually exists. Similarly, in a

preventive focus strategy, the attention is placed on a “correct rejection”, which represents a situation where an entrepreneur accurately evaluates the absence of an opportunity when it actually is not present at all.

However, although a promotion regulation strategy aims hits, it may have the downside that a signal is perceived when in fact the signal didn't exist at all (i.e. detecting opportunity that leads to failure or “false alarm”). This is similar to a Type I error, that is, undertaking explorative behaviors in the hope of aiming a target, when in fact that action leads to failure. In the case of family startups this error is less likely to occur because family members are more cautious in undertaking courses of action that may challenge their SEW. Lone founder startups, in turn, lack SEW and thus, are more promotion-focused, which can lead them to be overly optimistic to detect opportunities that in fact didn't exist. This is consistent with recent findings from Hmielesky and Baron (2008) regarding a negative relationship between optimistic entrepreneurs and performance in new ventures.

On the other hand, although a preventive regulation strategy ensures correct rejections, it may have the downside that a signal is avoided when in fact the signal existed (i.e. not detecting opportunity that leads to success). This is similar to Type II error, that is, avoiding exploiting an opportunity while continuing with current courses of action, when in fact the opportunity was there and would have led to success. This is the case of a family founder who uses exploitation in order to avoid losing existing SEW but in doing so ignores important business opportunities that may lead to success.

In all, a family business, which relies predominantly on a preventive focus, will benefit from a prevention and promotion focus because it will allow them to complement the prevention focus with a promotion focus, suggesting that the dual reinforcement of both would allow family-owned startups to successfully assess the impact of external threats as well as make sure not to lose valuable opportunities that would otherwise lead them to failure. This, in turn, can lead to adapt to

organizational changes by using both diligence and generation of ideas when it is appropriate, reducing the tendency to become fixated on only exploration or exploitation at the startups level and thus, decreasing their survival hazards. Hence,

Hypotheses 9

In family startups, internal locus of control orientation of the main founder will reduce survival hazards.

Ambidexterity and Survival Hazards

As previously mentioned, because ambidexterity consists on balancing two paradoxical processes which involve two contradictory processing of information, scholars have recommended that leaders reconfigure assets to reconcile the tensions between exploration and exploitation (O'Reilly & Tushman, 2004; Tushman & O'Reilly, 1996). This view is based on the assumption that tradeoffs to balance the tension between exploitation and exploration are difficult and without managerial intervention they are not likely to prosper. The concept of dynamic capability allows overcoming this limitation by recombining capacities in unique ways avoiding unnecessary tradeoffs. Teece (2006) referred to dynamic capabilities as “distinct skills, processes, procedures, organizational structures, decision rules and disciplines” ...”that allows top management teams to sense, seize, and reconfigure capacities that are hard to develop and deploy” (p. 319).

This study argues that, although ambidexterity may require a managerial intervention in large established firms, startups are less likely to require these interventions because organizational capabilities are not yet transformed into organizational routines. Startups are more in experimental mode and thus, are more likely to change because they lack organizational myopias (Levinthal & March, 19993), core competencies and core rigidities (Leonard-Barton, 1992). Therefore, a different approach is needed to avoid the tension of exploitation and exploration in startups that takes into account other factors that don't necessarily deal with managerial

intervention. In this section, this study raises the question: do exploitation and exploration have an effect on organizational survival ex-ante? For example, if a founder has an exploitative and explorative orientation, does that help startups in organizational survival later in time? If the answer is positive then organizations will benefit from balancing these orientations earlier in the startup process in order to minimize the cost of future managerial interventions to smooth the tensions between exploration and exploitation.

These questions attempt to propose an explanation to how startup organizations can address the basic problem confronting an organization of "...engaging in sufficient exploitation to ensure its current viability and, at the same time, devote enough energy to exploration in order to ensure its future viability (March, 1991, p. 105)."

It is proposed that the sooner main founders are influenced by these factors to develop a capability that allows them to "think" in exploitative and explorative terms, the sooner the startups will learn how to manage the tensions between exploration and exploitation. Put differently, developing earlier this capability should allow startups to be less likely to fall into competency traps that favor previous exploitation-driven processes. This, in turn, should allow them to improve organizational survival (March, 1991).

Organizational survival increases because exploitation and exploration can be deployed according to organizational demands rather than become fixed in one particular approach (March, 1991). This balance of exploration and exploitation should lead to improved performance and greater survival rates in the long term (March, 1991). Previous studies suggest that firms that use a balance of exploitation and exploration lead to increased survival rates than firms that only reinforce exploration or exploitation. Cottrell and Nault (2004) argued that the combination of exploitation and exploration is associated with longer survival. Probst and Raisch (2005) empirically found that a balance of exploration and exploitation was less prone to failure than firms with a one-sided orientation.

Organizational survival is particularly important in startups. According to Knaup (2005) in a 4-year (1999-2002) cohort from the Bureau of Labor Statistics in its Quarterly Census of Employment and Wages (QCEW) program, 66% of businesses survive in the first 2 years and 44% survive after 4 years. Audretsch (1995) found, similar to Geroski's (1995) predictions, that innovative industries are a barrier of entry to new entrants which reduces their survival rate. These barriers result from the inability of new entrants to compete with established firms in the industry, specifically, with their economies of scale and product differentiation. Audretsch (1995) found that firms that are able to adapt to environmental changes and produce a viable product after enduring the initial startup process, not only increase survival rates, but also increase the survival hazards for new entrants. Put differently, entering and enduring in an innovating race can be a barrier of entry for new entrants that may dramatically reduce the survival rate of incumbents. Moreover, if these incumbents successfully adapt and endure through the startup process, and they are able to create their own small scale and differentiate their product, they may out-compete new entrants and achieve a sustainable competitive advantage (Audretsch, 1995).

Piao (2010) found that organizational survival in the long term increased with more exploration, however the specific predictions of exploration on organizational survival depended on the extent of time overlap between exploitation and exploration, with a moderate overlap being optimal than too much or too little. The rationale of Piao's study was that too long or too little time between exploitation and exploration challenges survival. Piao argued that having too long a lapse between exploiting and exploring an opportunity may lead to a short-term orientation or organizational myopia, whereas exploring too soon after exploiting an opportunity reduces efficiencies such as economies of scale or scope. However, although illuminating in the general idea that the distribution of exploitation and exploration in time has an effect on firm survival, Piao's study didn't consider that the distribution of exploitation and exploration orientation at the startup level may lead to simultaneously and independently deploying exploration and exploitation later in time.

This study proposes that main founders are the major agent who can realize the importance of exploration and exploitation and that the ambidextrous orientation of the firm will finally depend on the relative importance those main founders attribute to exploitation and exploration initiatives. Specifically, it is proposed that a main founder with a simultaneous emphasis in exploration and exploitation would be more likely to consider both orientations when they make a decision. In other words, they would be aware not only of what they might lose in terms of the opportunities forgone by exploring opportunities, but also of the resources forgone in the exploitation of an ill-defined opportunity. This is supposed to increase the chances of survival.

Therefore, it is hypothesized that ambidextrous family owned startups would reduce the probability of failure or survival hazards. Hence,

Hypothesis 10

Ambidextrous family startups will be associated with less survival hazards than non-ambidextrous family startups.

CHAPTER 3: METHODS

Overview

Research on nascent entrepreneurs has been difficult because of the lack of representative samples and the fact that nascent entrepreneurs are unregistered, which increases the costs of collecting information and follow up. Fortunately, a large database of nascent entrepreneurs has been generated by the Panel Study of Entrepreneurship Dynamic (PSED), a public database that includes detailed information on US entrepreneurs starting up their business. Full documentation and all data are in the public domain, available at www.psed.isr.umich.edu.

The PSED project consists of PSED I and PSED II studies. However, PSED II has better psychometric properties of the variables, more variables and a greater response rate than in the PSED I. PSED II was started in 2005 with screening items on 31,845 respondents contacted by random digit dialing, from which 1206 respondents were considered eligible autonomous nascent entrepreneurs. Nascent entrepreneurs answered a 60-minute phone survey and five follow up interviews or “waves”, followed after the initial interview (Wave A). The topics covered in “Wave A” include information on the nature of the business, start-up activities implemented on behalf of the new firm, demographic characteristics of the founders and the relationships among them in terms of family ties, friendship or acquaintances.

This study consists of two samples taken from the PSED II. PSED II is a complete database of nascent entrepreneurs, which is described more in detail in the section below. Two samples were drawn from this database. The first sample was used to test the hypotheses concerning explorative and exploitative orientation. The second sample was used to test the hypotheses concerning survival hazards.

Sample 1

From the total random sample, family startup status and lone founder startup status were identified resulting in 628 (64%) lone founder startups (only one founder owns the business) and 358 (36%) family startups (only family related founders own the business) for a total sample of 986 startups. The family startup status was determined by looking at the type of relationship existing among owners. A family startup status was associated with family startups if founders were all family related or they were spouses living in the same household. A lone founder startup status was associated with startups consisting of only one founder. After listwise deletion of missing values, the total sample size for the first model (see figure 1) was reduced to 470 cases with similar proportion of family to lone founder startup than the initial sample. Although listwise deletion of 50% of the sample might be problematic for representativeness of the sample, a Little’s test was performed which is discussed further in this chapter.

Sample 2

For the second sample a harmonized database available for public access was used. A harmonized database refers to a database which contains all relevant variables for longitudinal analysis aggregated in one consolidated variable (see Reynolds & Curtin 2011 for methodology for harmonization of PSED study). This harmonized data base included all startups that are appropriate for a longitudinal analysis. Startups that didn't meet certain financial characteristics were dropped from the analysis. This harmonized database included the time until the startup failed and the status of the startup (1=failed, 0=survived). Since the code for each firm in the harmonized database included the same cases that were included in the PSED II study, the harmonized database was linked to the PSED II database. This allowed all variables in the PSEDII database to be included in the analysis. Only family startups were selected in this sample. The final sample was reduced to 172 cases.

Description of Dataset:

PSED II interviews started in 2005 and continued throughout 5 waves from A to E, until 2009. Given the cross sectional nature of this analysis, this study only included Wave A because of the greater data availability and less attrition of initial Waves.

Further, since this study focuses on the initial stages of the venture process and analyzes the conditions that lead to exploitation and exploration of opportunities, Wave A is appropriate as it best represents the beginning of the pre startup process. Given the representativeness of the random sample from the general population and the nature of this study's research questions, it is likely that construct and statistical validity is less compromised in Wave A as compared to other waves. However, given that the sample consists of US entrepreneurs only, generalizability to other non- US countries is not warranted.

The study design consisted of identifying from the totality of respondents screened with random dialing, the nascent entrepreneurs who meet four criteria 1) they consider themselves as involved

in the firm creation process, 2) they have engaged in some startup activity in the past 12 months, 3) they expect to own all or part of the new firm, and 4) the initiative has not progressed to the point that it may be considered an operating business (Reynolds & Curtin, 2008). Respondents were contacted by phone and offered 25 dollars for a phone interview of 60 minute length.

The topics covered in the “Wave A” include information on the nature of the business, start-up activities implemented on behalf of the new firm, incorporation into business registries, the nature of the start-up team and helping networks, sources and amounts of financial support, evaluations of the immediate context, competitive strategy and growth expectations, along with details of the motivations, perspectives, self-descriptions, background, and family context of the responding nascent entrepreneur. If the startup reported initially in the screening process revenues that exceeded expenses, including salaries, for more than 6 months, it was considered a new firm and, therefore, was dropped from the sample. Similarly, a question was asked to identify the startups that had disengaged their activities. If this was the case, the disengaged startup was dropped from the sample for subsequent waves.

Measures

Family/lone founder startup status

Family startups status is a dichotomous variable: family startup and lone founder startup. A value of one was used to identify cases having more than one founder along with other family members. PSED II included family relationships among founders in the following categories: partners or spouses sharing a household, relatives sharing a household and relatives living in different households. If founders were linked to one another in any of these categories, they were classified as a “family startup”. If one of the founders was not family related to the other founders, that startup was dropped from the analysis. If the startup involved only one founder, then the startup was considered a “lone founder startup” and was coded with the value of zero. The reason for this classification is twofold. First, the research question of this study is concerned with comparing teams bonded with socio-emotional wealth and lone founders who lack those bonds.

Second, a lone founder is the most common form of ownership in entrepreneurial endeavors and has been recently categorized as a non-family startup (Miller, Le Bretton-Miller & Lester, 2007). Therefore, this classification makes a clear distinction that socio-emotional dynamics among family owners are likely present exclusively in family startups, and are absent in the cases of lone founder startups.

Explorative orientation

In this study, “explorative orientation” refers to the founder’s assessment of explorative behaviors and actions. Following recommendations of Benner and Tushman (2003) and consistent with the typology of “Innovator” in the Miles and Snow’s (1978) strategy, these behaviors and actions correspond to targeting new markets, developing new products, being the first to achieve a competitive advantage, focusing on new technology development, and patents (Benner & Tushman, 2003, He & Wong, 2004).

Therefore, in this study, explorative orientation is measured by the degree of agreement or disagreement that the main founder places on the importance for the startup competitive position of the following Likert scale items (1= strongly disagree, 5= strongly agree): (1) being first to market, (2) contemporary products, (3) developing new product technology, (4) technological expertise and (5) developing patents or copyrights. For example, if a founder rates high in all of these items, it means the main founder considers important to use exploration as the preferred innovative strategy.

Cronbach alpha for this scale was .84. A principal component exploratory factor analysis based on a Montecarlo simulation of eigenvalues, or parallel analysis, was performed to test for unidimensionality of the scale. Since the decision of how many components to retain is key in exploratory factor analysis to determine construct validity (cf. Nunnally, 1978; Gorsuch, 1983; Guilford, 1946; Nunnally & Bernstein, 1994; see Thompson & Daniel, 1996, for a discussion), parallel component analysis was used as the preferred method to calculate the exact number of factors to be extracted. Parallel analysis has been proved consistently accurate and

recommended as a routine procedure in principal component factor analysis (see Hayton, Allen, Scarpello, 2004 for a review). One factor emerged with eigenvalue of 3.03 accounting for 61% of the variance in the total solution. All factor loadings after extraction were greater than .72 and communalities greater than .52. All items are significantly correlated above .38. The KMO test of sampling adequacy was .814 and Barlett's test of sphericity was significant, supporting the suitability of the factor analysis. No extreme outliers were observed and the plots suggested an approximately normal distribution. The items, therefore, were summed to form an aggregate that represents explorative orientation.

The mean of explorative orientation was 16.00 and the standard deviation was 5.24. The range was from 5 to 25. No extreme outliers were observed for this variable.

Exploitative orientation:

Since exploitative strategies are not directly observable at the startup phase because routines are not yet standardized to follow a predefined course of action, this study considers exploitative orientation as the common factor between three item measures for exploitation: (1) whether the business has achieved sales or not after 12 months from startup, (2) whether the product development stage has been started or has been completed and (3) the extent to which promotional efforts have begun. These three items best describe the product/market trajectories (product development stage) and the customer/market trajectory (sales and promotion) as recommended by Benner & Tushman (2003). This measure is also consistent with the exploitative strategies suggested by Beckman (2006) related to either Low cost strategies (promotion efforts), or the Enhancer strategies (product development and sales). Each of these items were measured as dichotomous variable (0=no, 1=yes).

Cronbach's alpha for this measure was .68. The construct validity of this measure was also evaluated by correlating this aggregated measure with other indicators of exploitation in Miles and Snow's (1978) strategies, which captured the importance of quality products/services to achieve

competitive advantage. This item was available in PSED II in a 5-Likert scale item (1= strongly disagree, 5= strongly agree). The correlation was low but positive and significantly correlated ($r=.101$, $p=.018$). Furthermore, a principal component exploratory factor analysis based on the Montecarlo simulation of eigenvalues, or parallel analysis, was performed to test for unidimensionality of the scale. One factor emerged with eigenvalue 1.832 accounting for 61.1% of the variance in the total solution. All items had communalities greater than .54. All factor loadings after extraction were greater than .73. All items were significantly correlated. The KMO test of sampling adequacy was .641 and Barlett's test of sphericity was significant, supporting the suitability of the factor analysis. The items, therefore, were summed to form an aggregate that represents exploitative orientation.

Ambidextrous Orientation:

Consistent with the idea from Floyd and Lane (2000) that exploration and exploitation are two interdependent orientations "inseparable" from each other, researchers have looked at ways to combine these two measures. These operationalizations have resulted in various measures. For example, Gibson and Birkinshaw (2004) noticed that the multiplication of both explorative and exploitative orientation led to better firm performance, whereas He and Wong (2004) classified a firm as ambidextrous when it was able to score high in both exploitation and exploration simultaneously.

Lubatkin et al. (2006), in measuring ambidextrous orientation in SMEs, used the methodology proposed by Edwards (1994), in which three different operationalization (adding, multiplying and subtracting) were compared in terms of their predictive capacity to achieve growth. This approach examines the information lost in the beta weight of the model, assessing the combined index relative to the unconstrained regression equation in which explorative and exploitative orientation are treated as separate independent variables. Using this procedure, and using performance as the survival status of the startup (1=failed, 0 survived), the results of this study indicate that the

“additive” model significantly predicted survival rate with a beta weight that is similar to the beta weight of the unconstrained model and proved to be superior; its regression beta weight (.136) indicated no significant loss of information, whereas the beta weights for the “difference” (.05) and “multiplicative (-.011) models were not significant and indicated a significant loss of information relative to the unconstrained regression equation. Therefore, and consistent with recommendations of Lubatkin et al. (2006) study, the adding of the standardized exploitative and explorative orientation scores is a reasonable operationalization of ambidextrous orientation.

Summing the standardized value of exploration and the factor score solution from exploitation, generated an ambidextrous orientation score. Ambidextrous orientation scores were then grouped with a median cutoff grouping. That is, for the entire sample, values of ambidexterity (operationalized as the adding of both exploitative and explorative orientations) below the median cutoff were assigned a value of zero indicating a non-ambidextrous orientation. Values above the median cutoff were assigned a value of one, indicating an ambidextrous orientation.

Furthermore, to test for robustness, a sensitivity analysis was performed in which other 2 cut off criterion were used to operationalize ambidextrous orientation at the 20th and 37.5th percentile.

To test whether the Lubatkin et al (2006) index of ambidexterity was consistent with the ambidexterity classification proposed by He and Wong (2004), an alternative coding system was proposed. That is, a startup was coded as one when it was able to be high in both exploitation and exploration (ambidextrous firm) and coded zero if otherwise (non-ambidextrous firm). This conceptualization of ambidexterity has been common in extant literature and captures the paradoxical view on ambidexterity of this study.

The ambidexterity model proposed in Figure 2 was then analyzed using this He and Wong's (2004) coding of ambidexterity.

The results are shown in Appendix 1, and suggest that the interaction of internal locus of control and family startups vs. lone founder startup was significant (χ^2 (1, N=470), $p < .001$, odds ratio=.463), and that the main the effect of family startups vs. lone founder startup on

ambidexterity is also significant (χ^2 (1, N=470), $p < .001$, odds ratio=.107). Moreover, the model, after the inclusion of this new ambidexterity classification of He and Wong (2004), is still significant ($p < .001$, -2 Log likelihood=458.643). This suggests that the operationalization of ambidexterity, based on Lubatkin et al's (2006) additive mode, is a robust proxy that captures the essence of ambidexterity as a paradoxical construct.

Achievement Motivation

Miner's Achievement Motivation scale was recommended by Johnson (1990) to reflect a more specific measure of task requirements rather than a more global or generalized model of achievement motivation. Tang (2009), using PSED I, adapted Miner's scale of achievement motivation to reflect the motivation to perform the task requirements related to establishing new ventures. Items from PSED II were very similar if not identical to the scale from Tang (2009). The scale included the following Likert scale items (1=to no extent; 5= to a great extent) regarding the importance for the main founder in establishing the new business of (1) higher position in society (2) achieving and be recognized (3) achieving a personal vision (4) achieving great wealth.

Cronbach's alpha for the scale was .70. A principal component factor analysis based on a Montecarlo simulation of eigenvalues, or Parallel analysis, was performed to test for unidimensionality of the scale. One factor emerged with eigenvalue 2.096 accounting for 52% of the variance in the total solution. All factor loadings after extraction were greater than .62. All items were significantly correlated. The KMO test of sampling adequacy (.728) and Barlett's test of sphericity were both significant, supporting the suitability of the factor analysis. The items, therefore, were summed to form an aggregate that represents the construct of Achievement Motivation.

Internal locus of control orientation

It has been recognized that the construct of locus of control is multidimensional (Paulhaus, 1983). Paulhaus's (1990) sphere of control scale differs from the original Rotter's scale of internal and external locus of control in that it distinguishes three subscale dimensions, or spheres of control, within that scale. The three scales measure personal control, interpersonal control and socio-political control. Since the level on each of these subscales can vary in each dimension, research supports this differentiated view (Paulhaus, 1990). Paulhaus's (1990) sphere of control measure related to personal control was used in this study. The personal control subscale is an improved scale of the previous personal efficacy scale from Paulhaus (1983). This dimension is similar to the conceptualization of locus of control as a person's generalized belief above and beyond a specific situation as proposed by Rotter (1966). This scale is the most consistent with an internal locus of control orientation. Tang (2009) used Paulhaus (1983)'s subscale of perceived efficacy to measure internal locus of control orientation. This study selected the PSED II items that closely matched Paulhaus' (1990) scale of personal control. The items selected were very similar, if not identical, to items in the scales used by Tang (2009) and Kroeck et al. (2005) scale to measure internal locus of control orientation at the startup level. The five items selected constitute a Likert scale (1=to no extent; 5= to a great extent) measuring the importance to the main founder when establishing the new business of the following items: (1) my skills and abilities will help me start this new business; (2) my past experience will be very valuable in starting this new business; (3) I'm confident I can put in and the effort needed to start this new business; (4) I have no limit as to how long I would give maximum effort to establish this new business; (5) my personal philosophy is to "do whatever it takes" to establish my own business.

Cronbach's alpha for the scale was .73. To test for unidimensionality, a principal component factor analysis was performed based on Montecarlo simulation of eigenvalues or Parallel analysis. One factor emerged with an eigenvalue 2.53 accounting for 51% of the variance in the total solution. This confirms the unidimensionality of the scale. Commonalities were greater than .6 and all factor loadings after extraction were greater than .63. The KMO test of sampling

adequacy and the Barlett test of sphericity were both significant, supporting the suitability of the factor analysis. The items, therefore, were summed to form an aggregate construct representing internal locus of control orientation.

Survival Hazards

The dependent variable in the Cox Proportional Hazard regression analysis depends on two variables: (1) the time that a startup takes to disengage from the business in days and (2) the status of the business (1=disengaged from the business, 0=still a startup or new firm). This data was collected from an harmonized database from PSED I and II, in which all firms that were eligible to be considered a startup were filtered by using a standardized criteria of inclusion. Therefore, Cox Proportional Hazards is appropriate in this sample of startups because the cases selected contain similar information about their characteristics and outcomes. These cases can be compared across time without violating the assumption of Cox Proportional Hazards, that is, that the probability of survival hazard over time does not depend on the sample cases' characteristics (for more details on the procedure for harmonization see Reynolds & Curtin, 2008).

Covariates

Previous experience has been associated with the intensity of searching information due to stronger previous schemas and greater alertness (Kirzner, 1973). However, empirical testing of this relationship has been equivocal (Patel & Fiet, 2009; Fiet, 1996; Hayek, 1945; Cooper, Folta & Woo 1995). To account for both alternative explanations of experience on search intensity, this study controls for two type of experiences: industrial experience and previous startup attempts.

The age of the firm in startups has not yet achieved sufficient variability to be included as a covariate in the analysis because startups are too early in the business life cycle. Firm size has been associated with inertia, difficulty in processing information related to changing resources, and failure to adapt to changing resource conditions (e.g., Hannan & Freeman, 1984; Tushman &

Romanelli, 1985). Net household income was included as a proxy for firm size at the startup level because it affects the amount slack that the family founders have for investment.

Environmental munificence, defined as the scarcity or abundance of critical resources needed by firms operating within an environment (Dess and Beard, 1984; Pfeiffer & Salancik, 1978; Randolph & Dess, 1984; Staw & Sz wajkowski, 1975; Tushman & Anderson, 1986), affects survival and growth (Castrogiovanni, 1991; Gnyawali & Fogel, 1994; Korunka, Lueger & Mugler, 2003). It also can affect promotion regulation since it facilitates the achievement of goals and hopes (Higgins, 1997). To control for this alternative explanation, a measure similar to Tang's (2009) concept of entrepreneurial munificence was used consisting of 12 Likert scale items (1= strongly disagree, 5=strongly agree) such as (1) the extent that a society's norms are supportive of success (2) the extent that norms emphasize self-sufficiency, entrepreneurial risks, creativity, and responsibility (3) the extent that government supports new venture startups and encourages participation of young people in startups and (4) the extent that the community helps startup new firms.

The Cronbach's alpha was .8 and the principal component factor analysis showed that all the items loaded into one factor. This allowed adding of the items to represent the aggregate measure of entrepreneurial munificence.

Finally, industry controls were used to account for the study's large sample proportion of high-technology industry (20%). Given the high representation of high-tech firms in this study's sample (20%) the business code was used as a control variable.

Missing Values Analysis

In sample 1 missing values were mostly present in explorative orientation (50%). In order to check whether the missing values were random, Little's test was performed in the first sample by including all demographic variables such as the industry experience, age and sex of the main founder (i.e. that which ownership percentage is the highest in the founding team). Results showed that the model including all variables was non-significant (χ^2 (56, N=1214) = 47.847,

$p=.772$), suggesting that missing values were random. To avoid biasing estimates of the dependent variable due to the high percentage of missing values for explorative orientation, listwise deletion in explorative orientation variable was preferred over inputting missing values for this variable. The total sample (which remained large) was reduced to 470 cases.

From this sample of 470 cases, missing values were also present in net household assets (15.7%) and exploitative orientation (15.3%). Little's test showed that missing values in this sample were random ($\chi^2(26, N=470) = 47.847, p=.272$). Given the small percentage of missing values and the fact that data was missing at random, the expectation maximization algorithm was used to estimate missing values (Dempster, Laird & Rubin, 1977).

In sample 2, only three variables had missing values: net household assets (16.3%), status of the startup (9.3%) and time until the startup failed (13.4%). Little's test showed that missing values were missing completely at random ($\chi^2(41, N=172) = 46.651, p=.251$). Given the small amount of cases with missing values and the fact that values were missing completely at random, a listwise deletion was performed, reducing the sample to 131 in the case of ambidextrous orientation with a 50-50 split, 103 in the case of ambidextrous orientation with a cut off in the upper and lower 37.5th percentiles and 51 cases with a cutoff in the upper and lower 20th percentiles in ambidextrous orientation. No extreme outliers were observed in ambidextrous orientation.

Statistical procedures

To test the exploration hypotheses a hierarchical linear regression was performed. In the first block all covariates were introduced. In the second block, the independent variables -including family/lone founder status, internal locus of control orientation and achievement motivation- were entered. In the third block, the two interaction terms were introduced. A bootstrap procedure was performed in order to take into account deviation from normality and to increase robustness of the model.

To test the ambidexterity hypotheses a logistic hierarchical regression in three blocks was performed. This is appropriate for a dichotomous dependent variable and a mix of continuous and dichotomous variable as independent variables. In the first block all controls were introduced. In the second block the independent variables were family/lone founder startups and internal locus of control. In the third block the interaction term was entered.

To test for Survival Hypotheses a Cox proportional hazard model in two blocks was used to estimate the probability that a given startup would disengage from the business. In the first block all covariates were added. In the second block the independent variables internal locus of control orientation and ambidextrous orientation, were added. The dependent variables in this model are both the actual status (that is, whether it has disengaged or not from the business) and the time elapsed from the last time the startup was censored.

CHAPTER 4: ANALYSIS AND RESULTS

Analysis and Results

Initial analysis

In order to rule out the threat to validity of common method bias, a Harmon's one factor solution (or single factor) was tested according to Podsakoff et al. (2003) suggestions. Harmon's one factor test assumes that either one factor will emerge or a general factor solution will account for most of the covariance among the variables. Therefore all variables in this study were entered into an exploratory factor analysis using principal axis factoring method. The results for the unrotated solution showed that the number of factors that were necessary to account for 72.73% of the variance were 4, all with eigenvalues greater than one. No single value was dominant with the first factor accounting for 22.572% of the variance. This indicates that common methods bias is not likely to be a significant problem. Figure 4 shows the empirical model tested for explorative orientation.

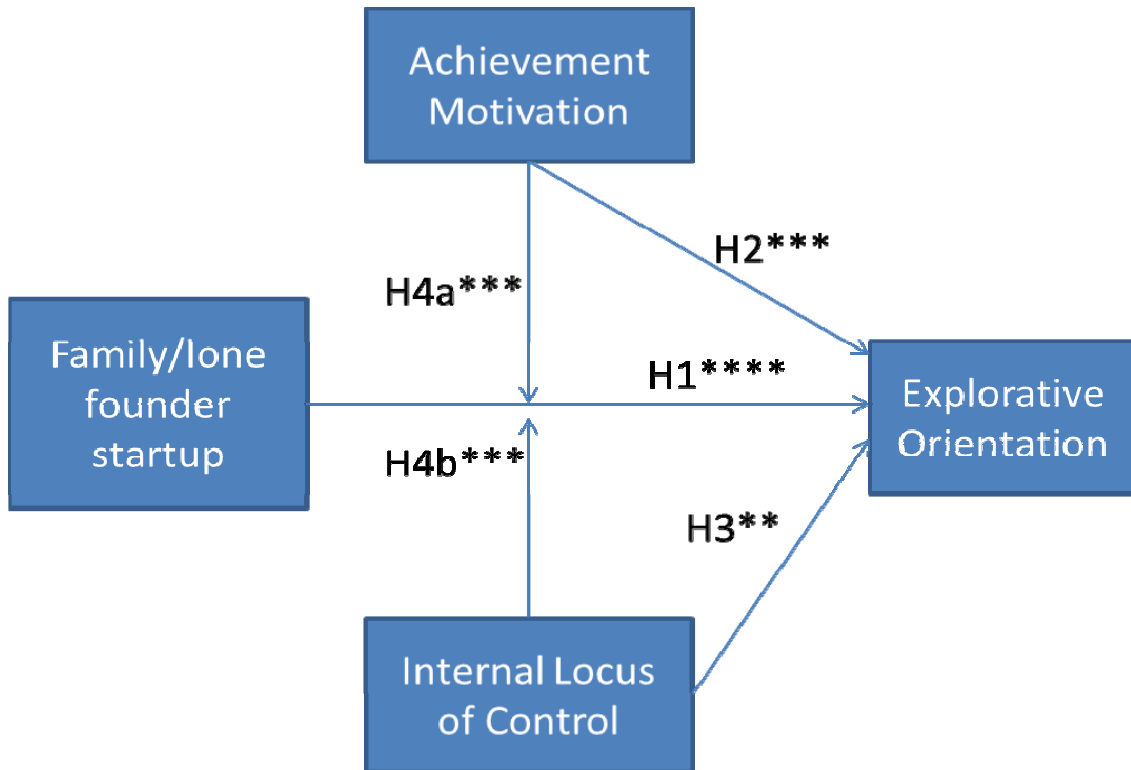


Figure 4: Empirical Model Explorative orientation for Family startups versus Lone Founder startups

Exploration Hypotheses

Table 1 shows the mean and standard deviations, person product-moment correlations and coefficient alphas in the mean diagonal where applicable for 470 startups.

Hypotheses were tested using hierarchical linear regression to account for the contribution of each model to explain variance in explorative orientation (see Figure 4). Table 2 shows the results of the hierarchical regression analysis. Controls such as average startup experience, average industry experience, munificence and the Sic business code were entered in Model 1 to account for their on explorative orientation. Next, the independent variables family/lone founder startup status, achievement motivation and locus of control, were entered in Model 2. Interaction terms were entered in Model 3 to test the moderating effects of achievement motivation and internal locus of control. The mean centering technique was used for the interaction terms. The

variance inflation factors (VIF) estimates for all variables in the full model (Model 3) were between 1.002-1.856, suggesting no threat of multicollinearity (Pedhazur, 1982; Barringer & Bluedorn, 1999). In order to test the hypotheses, betas, change in R^2 , and F test statistic of significance in the change of R^2 were used.

Table 2 shows that Model 1, with all control variables entered in block 1, did not explain any significant variance in explorative orientation. Net assets, average industry experience, previous startups attempts, munificence and business code explained about 1% in the variance.

Table 2 shows Model 2 as highly significant. Family/lone founder startup status was significant in the model. Model 2 explained a significant proportion of variance in explorative orientation with $\Delta R^2 = .436$, ($F(3, 461) = 116.041$, $p < .001$). The slope coefficient of family/lone founder startup status was significant ($\beta = -.654$, $t(459) = -19.829$, $p < .001$), supporting Hypothesis 1 that family startup status is negatively related to explorative orientation. This indicates that family startups explore less than lone founder startups. Achievement motivation and locus of control were not significant when included in Model 2.

In Model 3, the two interaction terms were entered on block 3 after all controls and independent variables were included in Model 2. Table 2 shows that model 3 increased predictive power from the hierarchical F tests ($\Delta R^2 = .074$, $F(2, 459) = 34.903$, $p < .001$) after the two interaction terms were entered in the model. Model 3 also explains more than half of the proportion of variance on explorative orientation when including all predictors, with $R^2 = .505$ ($F(10, 385) = 39.334$, $p < .001$). Slope coefficients of both interaction terms for achievement motivation ($\beta = -.257$, $t(459) = -6.072$, $p < .001$) and internal locus of control ($\beta = -.181$, $t(459) = -4.12$, $p < .001$) are significant and negative, lending full support to Hypotheses 4a and 4b. These results suggest a negative moderating effect of both locus of control and achievement motivation in the relationship between family/lone founder status and explorative orientation. Put differently, the negative relationship between family status and exploration should be reduced for high levels of achievement motivation and increased for lower levels of achievement motivation. Similarly, at

higher levels of locus of control the negative relationship between family status and explorative orientation is reduced and increased for lower levels. The two interactions terms are plotted in Figure 1. Figures 5 and 6 show that the slopes of the regression lines in each graph is decreased with an increment in the level of each moderator.

In Model 2, both achievement motivation and internal locus of control were not significant after family/lone founder status was entered in the equation. However, Table 2, Model 3, shows that there were positive significant slope coefficients for the independent variables achievement motivation ($\beta = -.219, t(459) = 5.204 < .001$) and internal locus of control ($\beta = .117, t(459) = 2.633, p = .009$), which lends support for Hypotheses 2 and 3 respectively.

Given that OLS assumptions rely on normality distribution and homogeneity of variance, a bootstrapping procedure was performed based on 1000 bootstrap samples. The results are identical to the previous results. This was expected given that a large sample size ($N=470$) improves the power and robustness of linear regression estimates.

Table 1: Means, Standard Deviations and Correlation Coefficients of Variables in the Explorative and Ambidextrous Orientation Models

	M	SD	1	2	3	4	5	6	7	8	9	10
1. Exploitative Orientation	1.49	1.14	(0.68)									
2 Explorative Orientation	16.00	5.25	-.026	(0.84)								
3. Ambidextrous Orientation	0.51	0.50	.559**	.555**	1							
4. Family versus Lone Founder startup status	0.37	0.48	.051	-.654**	-.340**	1						
5. Achievement Motivation	11.70	3.87	-.103*	.116*	.012	-.081	(0.70)					
6. Internal Locus of Control	21.78	2.74	-.078	.056	.013	-.076	.229**	(0.73)				
7. Net Household Assets	242,803	395,872	.125**	-.034	.046	.102*	-.168**	-.031	1			
8. Average Industry Experience in Startup Team	9.09	10.62	-.102*	.066	-.020	-.077	.032	.142**	.110*	1		
9. Average Startup Attempts	1.35	5.70	-.026	-.013	.032	.005	.032	.020	.090*	.118*	1	
10. Munificence	31.69	7.64	.070	.029	.042	-.086	-.063	-.174**	-.114*	-.025	-.071	(0.80)

* Correlation is significant at the 0.05 level (2 tailed).

Listwise Deletion. N=470

** Correlation is significant at the 0.01 level (2-tailed).

Cronbach's alpha reliabilities for scales are in parentheses

Table 2: Results of moderated hierarchical regression analysis on exploration family versus lone founder startups

Variables	Exploration		
	Model 1	Model 2	Model 3
Controls			
Average industry experience in startup team	.073	.013	.003
Average startup experience in startup team	-.19	-.020	-.023
Munificence	.025	-.022	.003
Net Household assets	-.36	.043	.032
Business Code	.056	.031	.042
Independent Variables			
Family status		-.654***	-.659***
Achievement Motivation		.069	.219***
Internal Locus of control		-.012	.117**
Interaction effects			
Achievement Motivation and Family/lone founder status			-.257***
Internal Locus of Control and Family/lone founder status			-.181***
R2	.101	.436	.51
Adjusted R2	-.001	.426	.500
R2 Change	.010	.426	.074
F Change	.952	116.041***	34.903***

Note: The entries in the table are standardized coefficients (betas). Results are based in a one tailed test. P values estimated by 1000 bootstrap samples. VIF between 1.002 and 1.856.

*p<.05

**p<.01

***p<.001

Deletion list wise. N=470

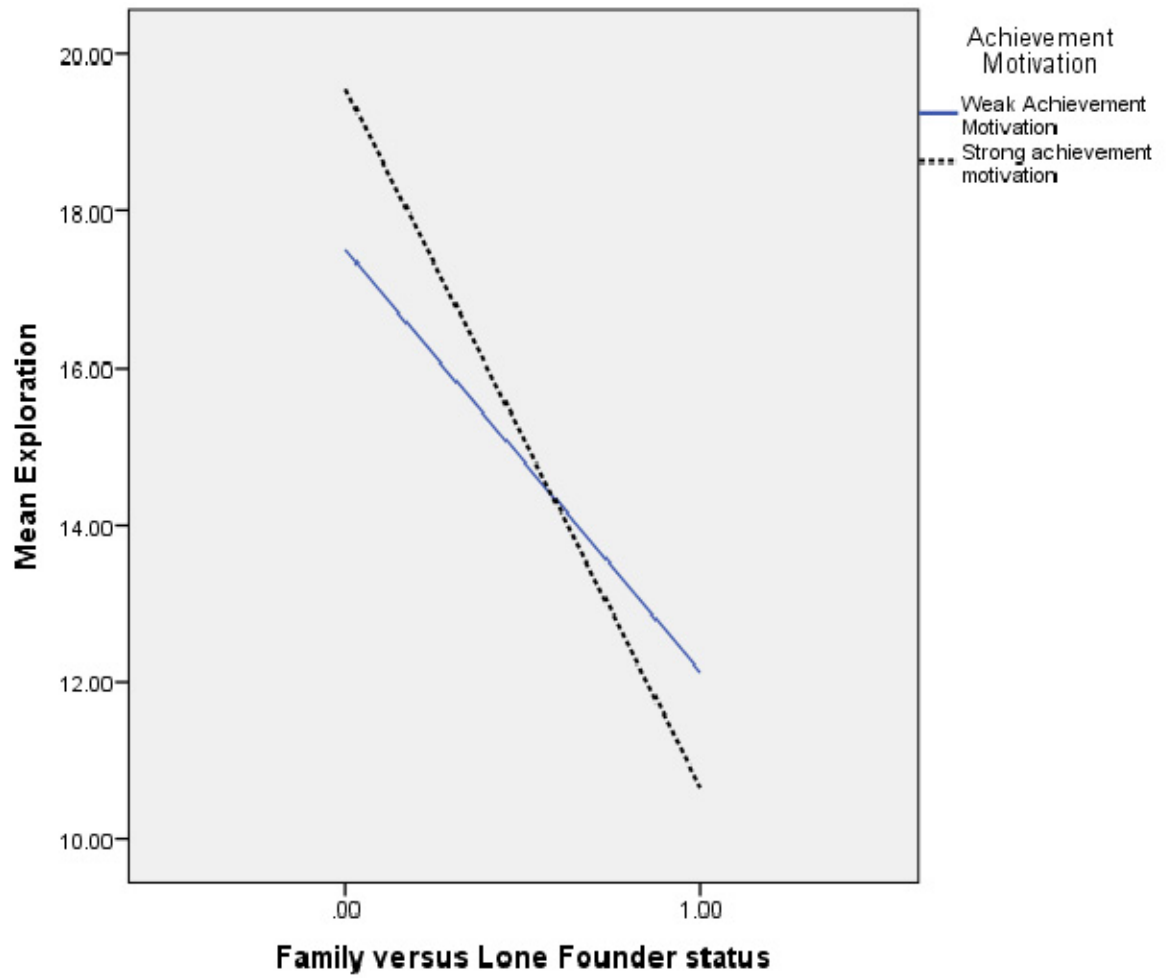


Figure 5: Achievement motivation as moderator of relationship between founder status and exploration orientation

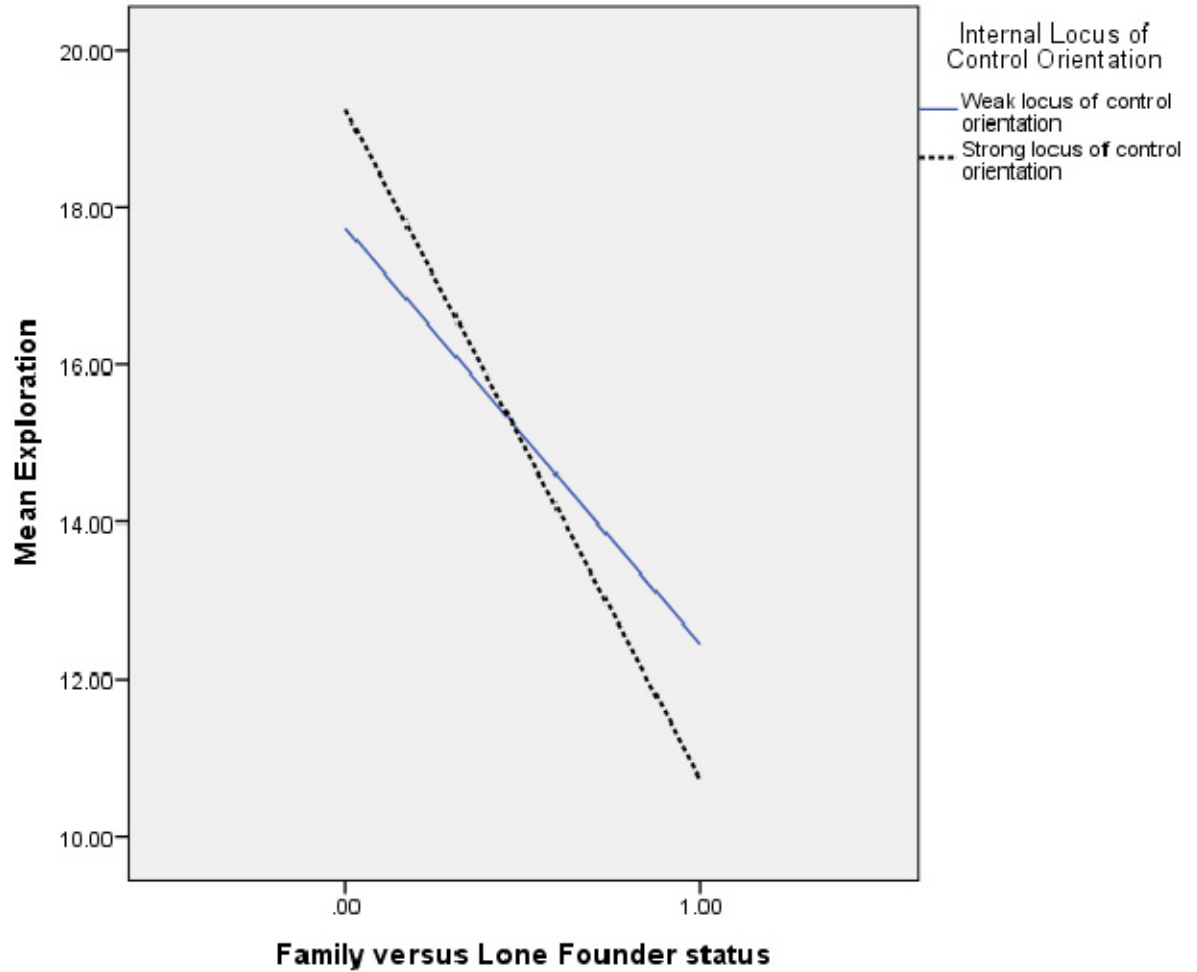


Figure 6: Internal Locus of Control as Moderator of Relationship between Founder status and Explorative Orientation

Ambidexterity Hypotheses

Table 5 shows that, from a total of 470 family and lone founder startups available in the initial sample, 239 (51%) were considered ambidextrous. From the total number of ambidextrous firms only 49 (21%) were family startups and 190 (79%) were actually lone founder startups. The chi square test suggested that the percentage of family startups is negatively associated with the percentage of ambidextrous firms ($\chi^2 (1, N=470) = 54.281, p<.001$). This provides support for the hypothesis that family startups tend to be less ambidextrous than lone founder startups. Although non-parametric testing such as chi square test can be useful to predict associations regardless of

distribution assumptions, it comes at the expense of less power and instability for sample coefficients for low sample size. In this study, sample size is considerable enough to overcome concerns about less power. Logistic hierarchical regression was used to test the hypotheses because 1) it is the appropriate statistical analyses when the predictors are both continuous and categorical variables and the dependent variable are dichotomous (Agresti, 1990), and 2) it provides information about the each variable's contribution when added to the model.

To test the ambidexterity hypotheses, a different treatment than ordinary least squares regression is necessary. This is because the dependent variable is dichotomous and a simple linear regression analysis does not meet the assumption of normality and homoscedasticity (Menard, 1995) of the error term. Also, the results from logistic regression are presented in the form of odds—or the probability of observing an event compared to the probability of not observing such event—which facilitates interpretation. Logistic coefficient estimates represent changes in the log of observing a firm with ambidextrous orientation for a unitary change in a predictor, with all other predictors held constant. The exponentiation of the logistic regression coefficient corresponds to the odds ratio. A positive value of the logistic coefficient indicates that there is a positive relationship between the predictor and the odds of observing an outcome, in this case, an “ambidextrous firm” (i.e. when the sum of exploration and exploitation is high). Similarly, a negative coefficient indicates that there is a negative relationship between the predictor and the odds of observing an “ambidextrous firm”. Exponentiation of the logistic coefficient results in the odds ratio of an ambidextrous firm for a unit change in the predictor. R^2 , in the case of logistic regression, is called pseudo R^2 because it differs from the percentage of the total variance explained by the linear model. Pseudo R^2 doesn't rely on assumptions of minimizing the variance that OLS regression does. However, pseudo R^2 provides a measure of the goodness of fit of the model. Positive increments in pseudo R^2 can be interpreted as the overall improvement in the predictive power of the model.

Table 3 shows the odds ratios and the Wald's statistics for significance along with pseudo R^2 .

Table 3 also shows the significance of the models for increments in regression coefficients. The

improvement in prediction accuracy of model 1, which includes the controls, was negligible when compared with a model containing only the intercept. After entering family/lone founder startup status and locus of control in Model 2, both the increment ($\chi^2 (2, N=470) = 58.679, p<.001$), and Model 2 ($\chi^2 (7, N=470) = 61.774, p<.001$) were significant. Similarly, Pseudo R^2 increased from .007 to .123 for Cox and Snell R^2 , and from .009 to .164 for Nagelkerke R^2 . Since Nagelkerke is closer to how R^2 is interpreted in linear regression, family/lone founder startup status accounts for nearly 16% of the variance in ambidextrous firms. The predictive accuracy of the model also improved from 54.5 in Model 1 to 66.6 in Model 2. This shows that the adding of family/lone founder startup and locus of control has a high overall contribution to Model 2 above and beyond covariates in Model 1. Model 3 introduces the interaction term of locus of control and family/lone founder startup status. After introducing the interaction term to Model 3, the increment ($\chi^2 (1, N=470) = 14.489, p<.001$) and Model 3 ($\chi^2 (8, N=470) = 76.204, p<.001$) were significant. Pseudo R^2 increased from .123 to .15 for Cox and Snell R^2 , and from .164 to .2 for Nagelkerke R^2 . The overall correct predictions of the model 3 improved to 67.7 from 66.6 for Model 2, and accounts for 20% in the variance of ambidextrous firms. Therefore, adding the interaction term between founder status and internal locus of control contributes to the predictive capacity of the model above and beyond all other predictors in Model 2.

Table 3 shows the Wald test of significance and the odds ratio for each of the predictors. Employing a .05 criterion of statistical significance for all variables in Model 3, in Figure 2, was fully supported. Table 3 shows, in Model 3, that the odds ratio for family/lone founder startup status was significant, suggesting that a family startup is .191 as likely to be ambidextrous firm (high in the sum of exploitative and explorative orientation) as compared to a lone founder startup, keeping all other predictors constant. Put differently, and taking the inverse of the odds ratio, the odds that a family startup is not ambidextrous it is 5.24 times higher than for a lone founder startup, keeping all other predictors constant. This finding fully support s hypothesis 5 that family startups are less likely to become ambidextrous than lone founder startups.

Table 3, shows that the odds ratio for locus of control was significant and more than 1 when locus of control was entered in model 3. The odds ratio indicates that startups with a one additional unit in locus of control would be 12% more likely to be ambidextrous than lone founder startups. However, the interpretation of this result needs to be taken with care since the interaction effect was also significant. Therefore, the main effect cannot be taken out independently of the interaction effect.

Table 3 shows, in Model 3, that the odds ratio for the interaction between locus of control and family/lone founder startups was less than 1 and significant. This suggests that the negative association of family startups and the likelihood to be less ambidextrous than lone startups is different for different levels of locus of control of the main founder. The interpretation of the interaction in a logistic regression can be tricky. Basically, the idea is that a conditional effect needs to take into account both the direct effect and the interaction. In the case of a logistic regression, a multiplication of both the odds ratio of internal locus of control and the odds ratio of the interaction of internal locus of control and family/lone founder startup status yields the total effect that a one unit increase in internal locus of control has on the likelihood of ambidextrous orientation in family startups. In the case of this study the multiplication of both odds ratio is less than one (odds ratio=.85), suggesting that additional increase in one unit further decreases the likelihood of ambidextrous orientation.

Therefore, the interpretation of the total effect of internal locus of control on the likelihood of ambidextrous orientation needs to take into account the effect of the interaction and the main effect of internal locus of control. In this case, this study's sample reveals that an additional unit of internal locus of control reduces rather than increases the chances to be ambidextrous. This finding is contrary to the expectation that internal locus of control should reduce the chances of ambidextrous orientation. However, these findings are consistent with the idea that SEW can also become a deterrent for change. The stronger the family founder's internal locus of control, the more entrenched they may become in order to avoid losing their source of non-economic benefits. In other words, family founders may become more preventive focused by perceiving

their ownership of the business more important than pursuing uncertain actions that may challenge their SEW. Therefore, family startups with high internal locus of control can challenge the balance of exploitation and exploration and further reduce the chances of ambidextrous orientation compared to lone founder startups.

Odds ratios of the moderator coefficient shows that family startups increase their likelihood to being ambidextrous compared to lone founder startup from .191 to .75, when locus of control of the main founder is considered in the model. This finding supports Hypothesis 7.

In order to test whether the hypotheses of ambidexterity holds at cut off points different from the previous median cut-off grouping (i.e. when the upper 50th percentile contains ambidextrous firms with a value of one and the lower 50th percentile contains non-ambidextrous firms), a sensitivity analysis was performed. Table 4 shows a comparison of three cutoff points for Model 3: the median cutoff point already analyzed, a cut-off point that considered the upper and lower 37.5th percentile as ambidextrous firms, and a cut-off point that considered the upper and lower 20th percentile as ambidextrous firms. The results suggested that the more stringent the cut off, the more the magnitude of the effects of the predictors and the greater the accuracy of the model.

When the cutoff point of ambidextrous orientation was more stringent, the odds of a family startup becoming ambidextrous compared to lone founder startups decreased from .191 to .149 for the 37.5th percentile, and from .191 to .035 for the 20th percentile. Accuracy of the predictions of the model improved from 67.7 percent for the 50th percentile to 69.4 percent for the 37.5th percentile and to 79.4 percent for the 20th percentile. Also, the variance explained in ambidextrous orientation increased from 15% to 20% and to 37% as the cutoff became more stringent. This indicates that the more stringent is the criteria for considering a firm ambidextrous, the greater the effect of the founder status on ambidexterity.

Similarly, internal Locus of Control increased its beta weight of the direct effect from 1.117 to 1.134 to 1.184, whereas the moderation coefficient decreased from .75 to .69 to .62, as the criteria became more stringent. This suggests that the effect of locus of control is stronger the

more stringent the criteria for cutoff, and that the effect of the attenuation in ambidextrous orientation is more pronounced when the cutoff criteria is more stringent, for each unit change in locus of control.

Table 3: Logistic hierarchical regression analysis on ambidextrous orientation family versus lone founder status

Variables	Ambidextrous orientation (cut off point 50%)		
	Model 1	Model 2	Model 3
Controls			
Average industry experience in startup team	.995 (.371)	.987 (1.839)	.984 (2.646)
Average startup experience in startup team	1.013 (.472)	1.016 (.565)	1.022 (.912)
Munificence	1.013 (1.137)	1.000(.270)	1.010 (.546)
Net Household assets	1.000 (.1.210)	1.000 (3.931)	1.000* (4.156)
Business Code	1.000 (.191)	1.000 (.065)	1.000 (1.39)
Independent Variables			
Family versus lone founder status		.210 (52.936)***	.191*** (54.431)
Internal Locus of control		1.001 (.001)	1.117** (5.460)
Interaction effects			
Internal Locus of Control and Family status			.750** (13.973)
-2 Log-likelihood	648.327	589.648***	575.219***
Cox & Snell R Squared	.007	.164	.2
Nagelkerke R Squared	.009	.123	.15
Model Fit Chi squared	3.096	61.774***	76.204***
Hosmer and Lemeshow p value	.514	.955	.844
Percentage Predicted	54.5	66.6	67.7

Note: The entries in the table are Odds ratio. Wald's statistic in parenthesis. Results are based on a one-tailed test. P values based on 1000 bootstrap samples.

*p<.05 **p<.01 ***p<.001 Deletion list wise. N=470

Table 4: Comparison of results for different cut off points in Ambidexterity

	Ambidexterity(20% Cutoff)	Ambidexterity(37.5% Cutoff)	Ambidexterity(50-50 Cutoff)
Controls			
Average industry experience in startup team	.982 (.885)	.983 (2.411)	.984 (2.646)
Average startup experience in startup team	1.005 (.011)	1.014 (.171)	1.022 (.912)
Munificence	.988(.204)	1.024 (1.943)	1.010 (.546)
Net Household assets	1.000 (1.293)	1.000 (.82)	1.000* (4.156)
Business Code	1.000 (1.293)	1.000 (3.18)	1.000 (1.39)
Independent Variables			
Family status	.035 (43.29)***	.149*** (49.144)	.191*** (54.431)
Locus of control	1.184 (4.152)**	1.134** (5.028)	1.117** (5.460)
Interaction effects			
Internal Locus of Control and Family startup status	.62** (10.155)	.696** (15.111)	.750** (13.973)
-2 Log-likelihood	173.575***	412.635***	575.219***
Cox & Snell R Squared	0.498	0.26	0.2
Nagelkerke R Squared	0.374	0.195	0.15
Model Fit Chi squared	88.43***	76.724***	76.204***
Hosmer and Lemeshow p value	0.215	0.7	0.844
Sample	189	353	470
Percentage Predicted	79.4	69.4	67.7

Note: The entries in the table are Odds Ratios. Wald's statistic in parenthesis.

Results are based in a one tailed test. P values based on 1000 bootstrap samples. No missing values.

*p<.05 **p<.01 ***p<.001

Table 5: Family versus Lone Founder status * Ambidextrous Orientation Cross tabulation

			Ambidextrous Orientation		Total
			No	Yes	
Family versus Lone Founder status	Lone	Count	108	190	298 (63.4%)
		Expected Count	146.5	151.5	217
	Family	Count	123	49	172 (36.6%)
		Expected Count	84.5	87.5	119
Total	Count		231 (49.1%)	239 (50.9%)	470
	Expected Count		231	239	470

Alternative explanations for explorative and ambidextrous orientations

So far the argument has been that the existence of family ties in a family business startup and their absence in a lone founder startup should make a difference in terms of explorative and ambidextrous orientation. However, the effect on exploration can be also due to a group effect.

Early work from Sherif (1937) analyzed the role of group norms in decision making. Sherif (1937) proposed that individuals perceive a situation differently and are influenced not only by their personal judgments but also by the presence of other people. In order to account for the fact that a group effect, rather than the family ties, leads to explorative and ambidextrous orientation, a non-family business reference group was used in both the explorative and ambidexterity hypotheses. This study design allows comparing two groups in terms of explorative and ambidextrous orientation. The first group corresponds to family startups in which all founders are family related (i.e. family startups). The second group (reference group) corresponds to non-family startups, that is, startups in which all founders are non-family related (non-family startups). Therefore, if in fact there is a group effect, the group effect of family startups versus lone founder startups on explorative and ambidextrous orientation and the group effect of non-family startups versus lone founder startups in exploration and ambidextrous orientation, should be about the same.

In order to test for this alternative explanation, a dichotomous variable “non-family startup” — with a value of 1 if all founders are non-family related and a value of zero if the startup has a lone founder— was entered in lieu of the previous family startup dichotomous variable in the exploration and ambidexterity models shown in Tables 2 and 3 respectively.

Table 6, Model 3, shows that the difference in exploitation orientation of non-family founders' group compared to lone founders was not significant ($\beta = -.004$, $t(312)=-.0702$, $p=.943$) after entering all the variables in Table 2. Similarly, Table 7 shows that the difference in ambidextrous orientation of non-family founders' group compared to lone founders was not significant ($p= .736$) after entering all the variables in Table 3.

Therefore, group effects are not likely to play a role in explaining difference in explorative and ambidextrous orientation.

Table 6: Results of moderated hierarchical regression analysis on exploration for non-family versus lone founder startups

Variables	Exploration		
	Model 1	Model 2	Model 3
Controls			
Average industry experience in startup team	.1*	.109*	.107
Average startup experience in startup team	.02	.000	-.002
Net Household assets	-.019	-.008	-.008
Business Code	.157**	.135*	.137
Munificence	-.02	.044	.046
Independent Variables			
Non Family versus Lone Founder status		-.002	-.004
Internal Locus of control		.154	.142
Achievement Motivation		.273	.291***
Interaction effects			
Achievement Motivation and Family/lone founder status			-.257***
Internal Locus of Control and Family/lone founder status			-.181***
R2	.04	.155	.157
Adjusted R2	.025	.134	.13
R2 Change	.025	.134	.13
F Change	2.641	7.209 ***	5.804***

Note: The entries in the table are standardized coefficients (betas). Results are based in a one tailed test. P values estimated by 1000 bootstrap samples.

*p<.05

**p<.01

***p<.001

Deletion list wise. N=323

Table 7: Logistic hierarchical regression analysis on ambidextrous orientation non-family versus lone founder status

Variables	Ambidextrous orientation (cut off point 50%)		
	Model 1	Model 2	Model 3
Controls			
Average industry experience in startup team	1.016 (1.965)	1.012 (1.028)	1.012 (1.031)
Average startup experience in startup team	.999 (.003)	1.001 (.003)	1.001 (.003)
Net Household assets	1.000 (.086)	1.001 (.156)	1.000 (.153)
Business Code	1.002 (.019)	1.009 (.429)	1.009 (.426)
Munificence	1.000 (4.364)	1.000 (4.473)*	1.000 (4.446)*
Independent Variables			
Non-family versus lone founder status		.907 (.115)	.908 (.113)
Internal Locus of control		1.125 (7.381)**	1.123 (5.051)*
Interaction effects			
Internal Locus of Control and Family status			1.014(.003)
-2 Log-likelihood	441.311	433.31*	433.328
Cox & Snell R Squared	.020	.044	.044
Nagelkerke R Squared	.026	.058	.058
Model Fit Chi squared	6.434	14.414*	14.417
Percentage Predicted	55.4	57.3	57.3

Note: The entries in the table are Odds ratio. Wald's statistic in parenthesis. Results are based on a one-tailed test. P values based on 1000 bootstrap samples.

*p<.05 **p<.01 ***p<.001 Deletion list wise. N=323

Survival Hazards Hypotheses

A multivariate Cox proportional hazard regression model was used to predict the likelihood of disengaging from the business at any given time. The dependent variable is the time at which the startup disengaged its activities (disengaged = 1) or the time elapsed until the surviving startup was censored (0 = survived). The Cox model was used in this study to estimate relative risks of disengaging from the business given the ambidexterity hypothesis that a more ambidextrous

orientation is expected to reduce survival hazards in family startups. Cox proportional hazard assumptions were met as there were no time dependent covariates that contributed to the model.

Explorative and exploitative orientations of the main founder were measured in wave A as the importance the founder placed on exploitation or exploration behaviors at the beginning of the startup process. Later in time, the status of a startup was determined in terms of whether the startup disengaged (i.e. not active anymore) or it continued operating. Also, the time of the disengagement was assessed in each wave. Both the time of disengagement and the status of the startup were entered in a Cox Proportional Hazards regression model, which provided an estimation of the likelihood that a startup would not survive beyond a certain time. Table 8 shows respective proportions of disengaged startups and active startups by family vs. lone founder status.

The assumption that the hazard ratio is kept constant across different levels of a covariate at all times was confirmed using Kaplan-Meier estimation technique. Both Log rank ($\chi^2 (1, N=108) = 4.49, p=.034$), and Breslow's statistics ($\chi^2 (1, N=108) = 4.38, p=.036$) were significant, supporting the assumption that the distributions at different levels of the covariate came from different populations. Figures 7 and 8 also show a graphical representation of this assumption by showing that survival curves for family and lone founder startups don't cross out and are approximately parallel to each other. Therefore, it is safe to say that proportional hazard assumptions were met.

The model is shown on Figure 3. The model was tested in two blocks. In the first block, previous covariates were entered in the model (average industry experience in founding team, average startup experience in founding team, munificence, business code and net assets in household). None of the controls were significant and the first model was not different from the intercept only model. When ambidextrous orientation ---a dichotomous variable with 1 for high and 0 for low levels-- and locus of control were entered in Model 2, this step was statistically significant as compared to Model 1 ($\chi^2 (2, N=131) = 9.192, p=.01$). The fit of the model was also statistically significant ($\chi^2 (7, N=108) = 15.976, p=.025$) as compared to a model with intercept only.

Table 9 shows the exponentiated beta coefficients, or hazard ratios, along with their confidence intervals. The operationalization of ambidextrous orientation was a 50-50 split. That is, a firm that scores more than the median in ambidextrous orientation was considered ambidextrous and coded by 1 (0 was the coding for firms with non-ambidextrous orientation). Hypothesis 8 was supported because the beta coefficient was negative and significant, suggesting that ambidextrous family startups will have lower survival hazard (HR=.556, C.I. = .333-.926). Therefore, ambidextrous family startups (those high in the sum of exploration and exploitation) were about half as likely to disengage from startup than non- ambidextrous firms (those low in the sum of exploration and exploitation orientation). Inverting the hazard ratio, ambidextrous firms were 1.8 times more likely to survive than non-ambidextrous startups, holding other covariates constant.

Table 9 also shows that Hypothesis 9 was supported because the beta coefficient for internal locus of control was significant and negative, suggesting that main founders with higher levels of a locus of control were associated with less survival hazards (HR=.881, C.I. 805-.976).

Similar to He and Wong (2004), a sensitivity analysis was performed to analyze the effect of different cutoff criteria on survival hazards. Table 8 shows a comparison of the three previous cutoff points for Model 2. The results suggest that the more stringent the definition of ambidexterity, the greater the magnitude of the effects of the predictors and the greater the accuracy of the model.

Table 10 shows that, when the cutoff point defining ambidextrous orientation was more stringent, the odds of a family startup to disengage from startup activities decreased from H.R. = .556 (C.I. = .333-.926) for the 50th percentile, to H.R. =.32 (C.I. = .170-.605) for the 37.5th percentile, and to H.R. = .274 (C.I. =.095-.789) for the 20th percentile. To estimate the model fit, the log likelihood ratio was calculated by subtracting the log likelihood of the null model from the log likelihood of the alternative model. The log-likelihood ratio for Model 2 with a median cut-off grouping was significant (χ^2 (7, N=131) =15.976, p=.025). The log-likelihood ration for model 2 with a 37.5th percentile grouping had a better model fit (χ^2 (7, N=103) = 26.485, p<.001). Finally, the log-

likelihood ration for model 2 with the 20th percentile was also significant and with a better fit than the median cutoff grouping (χ^2 (7, N=51) =19.890, p=.006). This suggests that the more stringent is the criteria defining a firm as ambidextrous, the greater the fit of the model to the data, even with a sample as small as 51 firms.

Table 10 shows that internal locus of control also had a greater effect both as a moderator and as a predictor as the ambidexterity cut off becomes more stringent, decreasing the hazard ratio from HR=.908 (C.I. = .838-.983) to HR=.84 (C.I.=.761-.928) to H.R. =.778 (C.I. =.671-.90). This suggests that the effect of locus of control is be stronger the more stringent is the criteria for cutoff, and that the effect of the attenuation in ambidextrous orientation is even more pronounced when the cutoff criteria is more stringent.

Table 8: Cross tabulation survival hazard (disengaged) versus family/ lone founder status

	Lone Founder	Family Startup	Total
Disengaged	152	93	245 (57.8%)
Active	116	63	179 (42.2%)
Total	268 (63.2)	156 (36.8%)	424

Table 9: Cox's proportional hazard model for predicting survival hazards in family startups for ambidexterity in 50-50 cutoff criteria.

	Model 1 HR	95% Confidence Interval	Model 2 HR	95% Confidence Interval
Variables				
Controls:				
Average industry experience in startup team	.973	.943—1.004	.977	.947—1.008
Average startup experience in startup team	.995	.889—1.113	1.001	.916—1.093
Munificence	1.005	.97—1.036	1.007	.975—1.041
Net Household assets	1.000	1.000—1.000	1.000	1.0—1.000
Business Code	1.000	1.000—1.000	1.000	1.0—1.000
Independent Variables:				
Ambidextrous orientation			.556*	.333—.926
Internal Locus of Control			.908*	.838—.983
Chi square change	6.502		13.513**	
-2LL	669.327		660.135	
Chi square	7.872		9.192*	
<p>Note: HR= Hazard Ratio. N= 131. Cases excluded from the analysis because of missing values=41.</p> <p>*p<.05</p> <p>**p<.01</p> <p>***p<.001</p> <p>p values calculated using bootstrapping for 1000 samples</p>				

Table 10: Cox's proportional Hazard model for different cut-off points in ambidexterity

	Median cut-off grouping		37.5th cut-off grouping		20th cut-off grouping	
Controls						
Average industry experience in startup team	0.977	.947—1.008	.964	.933—.997	0.979	.938—1.023
Average startup experience in startup team	1.001	.916—1.093	1.007	.907—1.117	0.992	.850—1.157
Munificence	1.007	.975—1.041	1.007	.974—1.042	1.017	.961—1.077
Net Household assets	1.000	1.0—1.000	1.000	1.0—1.000	1.000	1.000—1.000
Business Code	1.000	1.0—1.000	1.000	1.0—1.000	1	1.000—1.000
Independent Variables						
Ambidextrous orientation	.556*	.333—.926	.32***	.17—.605	.274*	.095—.789
Internal Locus of Control	.908*	.838—.983	.84***	.761—.928	.778**	-.671--.901
Chi square change	13.513**		18.973***		12.164**	
-2LL	660.135		488.156		210.454	
Chi square	9.192*		26.485***		19.890**	
Sample size	131		103		51	
Missing	41		13		7	

Note: The entries in the table are Hazard ratio with the corresponding confidence intervals. *p<.05, **p<.01, ***p<.001

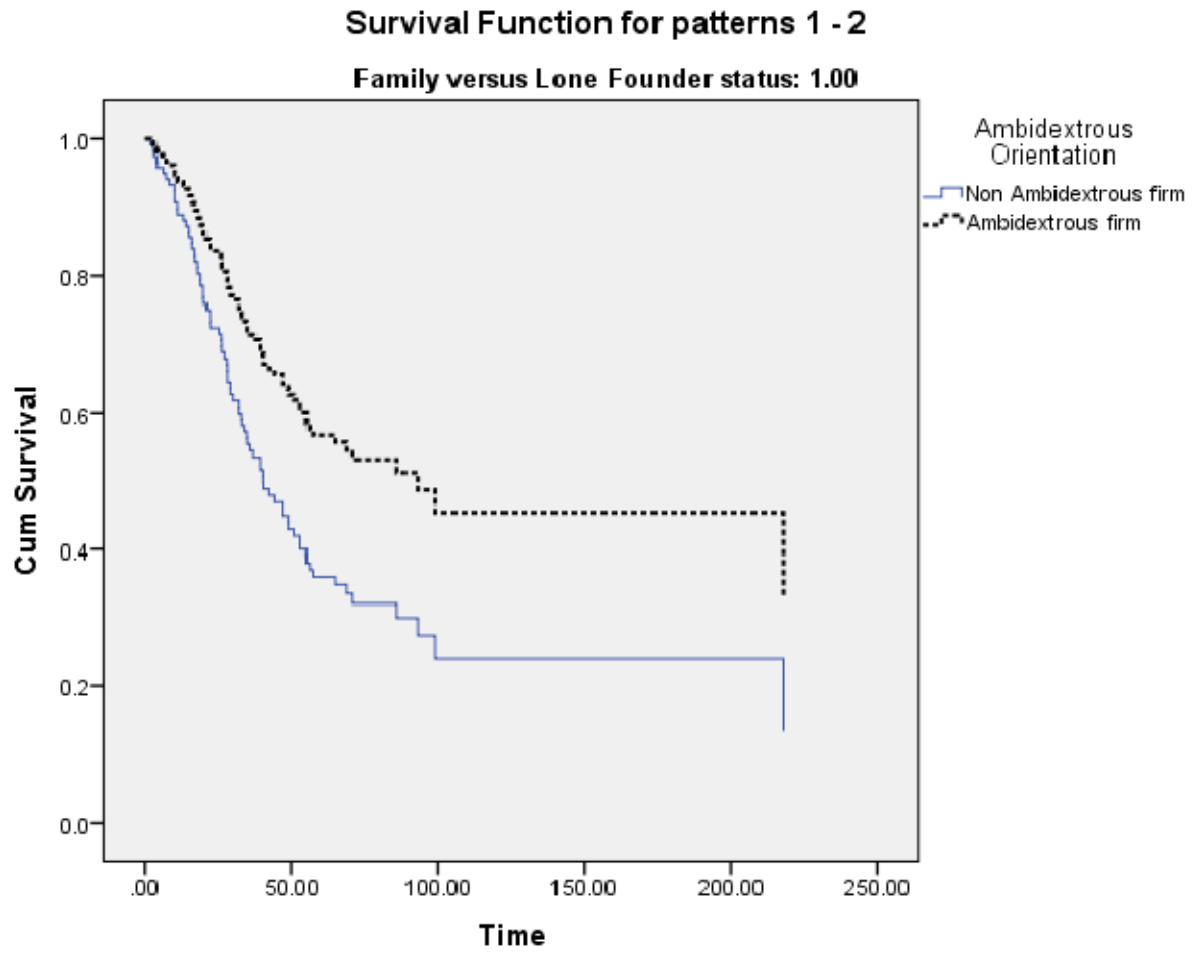


Figure 7: Survival Function in Family Startups

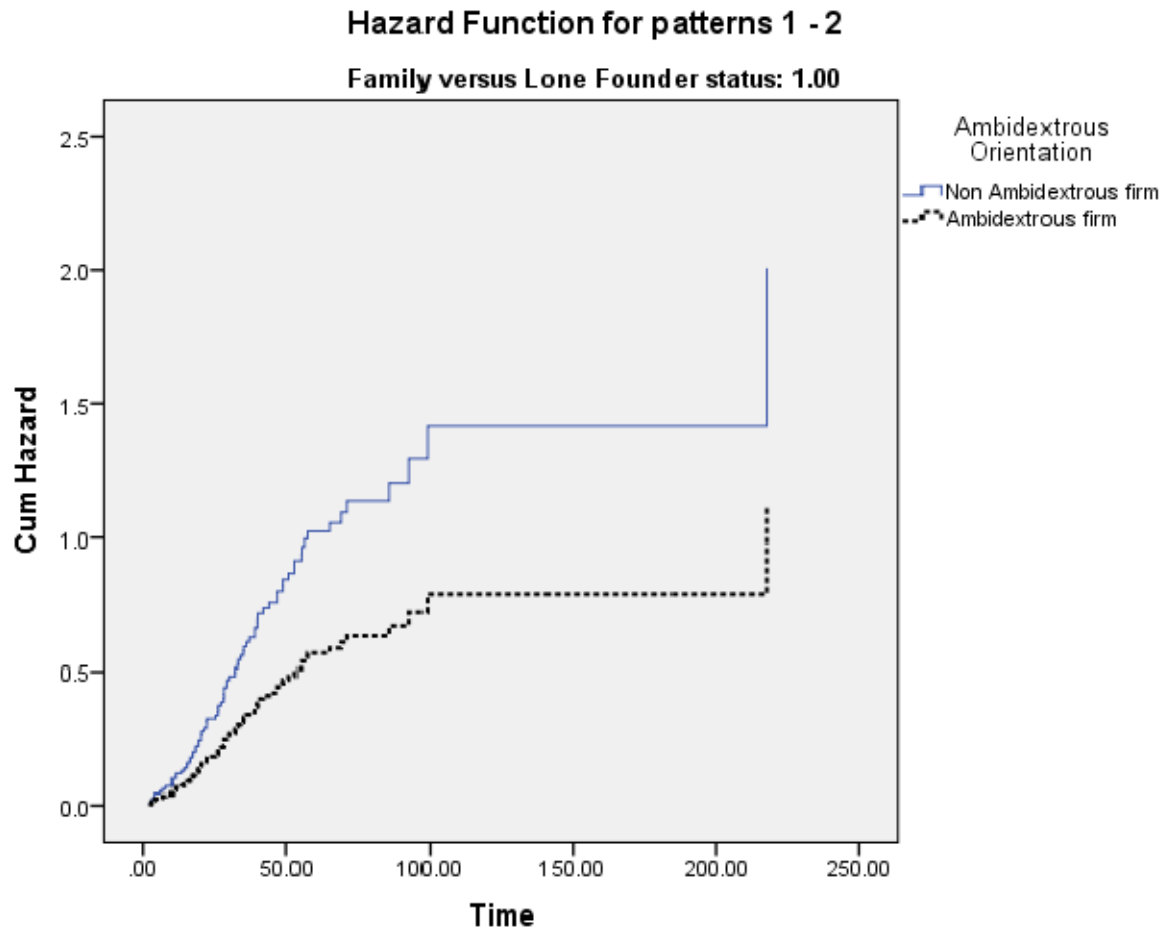


Figure 8: Hazard Function in Family Startups

CHAPTER 5: DISCUSSION

Exploration Hypotheses

Following the call from researchers to incorporate social cognitive determinants in predicting entrepreneurship outcomes (e.g. Shaver & Scott, 1991; Brittain & Freeman, 1980; Gartner, 1985) this study considered the following effects on explorative orientation: 1) the effect of the social context represented by the presence of family ties in family versus lone founder startups 2) a interaction effect between family versus lone founder startup status and the psychological traits of the main founders 3) the effect of the psychological traits of the main founders.

First, this study showed how the social context, in term of the family ties among founders, affects explorative orientation as compared to the absence of such ties in lone founders (i.e. only one founder owns the firm).

Gomez-Mejia et al, (2007) empirically demonstrated that family businesses are willing to take high risks in order to preserve socio-emotional wealth (SEW) and also avoid risks that may lead to the loss of SEW. However, their results applied only to established public family owned businesses. This study extends previous findings on established business to private startup firms, and asks the question: Does SEW have an impact on the explorative orientation of startup firms? More specifically, do family startups explore less than lone founder startups due to the SEW of family businesses?

Although it can be argued that a lone founder can still have other links to other family members who don't own the business, this study assumes that family ownership has a greater impact on risk taking, as recently shown by empirical studies (e.g. Gomez-Mejia at al. 2007). This approach has the advantage that it avoids complications with different family business definitions by analyzing how explorative orientations differ as a function of the presence of family ties (family startups) or their absence (lone founder startups). Consistent with literature on socio-emotional wealth (see Gomez-Mejia et al., 2011 for a review) --which considers family ties among owners as a proxy for socio-emotional dynamics among family owners-- this study predicted a negative

effect on explorative orientation when such ties are present rather than when they are absent. Results from the hierarchical linear regression strongly support the fit of the linear regression model. Results showed that the variance in explorative orientation is explained by all the predictors in the model. Moreover, family versus lone founder startup status alone predicts 43% of the variance in the difference in explorative orientation in the overall model.

These results are consistent with literature on Behavioral Agency Theory which offers a different interpretation of risk behaviors than agency theory does (e.g. Jensen & Meckling, 1976). Agency Theory assumes that decision makers hold consistent risk preferences. Behavioral Agency Theory (Wiseman & Gomez-Mejia, 1998) allows for variation of risk preferences depending on the context that decision makers face. Results show that SEW, conceptualized as family related ties among founders, provides a salient context which affects risk behaviors, consistent with behavioral theories spearheaded by researchers such as Bowman (1980), Bromiley (1991), Fiegenbaum (1990), Jegers, (1991), MacCrimmon & Wehrung (1986 a, b), March & Shapira (1987), Sinha (1994), Tversky & Kahneman (1981). Behavioral theories argue that the relative importance that decision makers may give to similar outcomes depend on their reference points. In this study, it was hypothesized that those referent points depend on what is important for the family founders. Based on Regulatory Focus Theory, it was proposed that a preventive focus would be more salient as a reference point for family startups than for lone founder startups because of SEW preservation arguments, which in turn should increase risk perception and reduce explorative orientation.

An alternative explanation regarding the effect of family ties on exploration is the “risky shift” effect- a phenomenon which spans 300 studies from the initial research of Stoner (1968). Risk shifting is one of the most standard phenomena in the risk-taking literature (e.g. Bateson, 1966; Rim, 1963; Stoner, 1961). It can be described “...as the increase in an individual’s likelihood to take larger risks as the result of group processes of the risk-taking situation and the level of risk involved” (Glover, 1977, p. 317). Numerous findings show that individuals in groups advocate greater risk taking than individuals alone (see Clark, 1974 for a review).

"Value theory" offers an explanation to risk shift by focusing on the underlying motivation to agree upon shared values. Value theory argues that it is the value in risk rather than the exchange of information which drives risk shifting (Brown, 1965). This underlying motivation has been related to need of approval which stem from the desire for esteem (Crowne and Marlowe, 1964). For Crowne and Marlow "…the studies of the approval motive suggest a set of self-reflexive attitudes—a self-conception in which an idealized version of the self … is maintained and defended (p. 190)". Interestingly, family startups provide a strong value system which provides family owners with identification, control, altruism and belongingness all of which satisfy affective needs (Gomez-Mejia et al., 2011). Therefore it is reasonable to expect that family owners would tend to be driven by these values, which are salient to them, compromising their particular risk choice to this new reference point, that is, maintaining and preserving the SEW.

In other words, risk shifting can explain why family startups have a less explorative orientation than lone founder startups. This also explains Gomez-Mejia et al.'s (2007) findings that family businesses were willing to take higher risks than normatively appropriate in order to prevent the loss of their SEW. More specifically, value theory can help to understand why family businesses can be risk willing and risk seeking at the same time. Future studies might analyze the relationship between SEW, family values and risk shifting effect.

Second, it was proposed that achievement motivation and internal locus of control interact with family startup/lone founder startup status to predict explorative orientation. Specifically, it was hypothesized that these constructs provide a promotion chronic promotion focus which interact with SEW in such a way that a strong value on these constructs lead to decrease the gap in exploration between family startups and lone founder startups. Contrarily to expectations, the moderation effects of both constructs, although significant, were positive rather than negative. This suggests that a strong value on these constructs lead to increase, rather than decrease the gap in exploration between family startups and lone founder startups. This was an unexpected finding because previous studies suggest that a promotion focus changes the preventive focus and leads towards more exploration and creativity (Lieberman et al., 1999).

Risk shifting can help to explain these findings. As previously mentioned, strong internal locus of control and achievement motivation increase the saliency of family values in the form of SEW. This, in turn, leads to change the reference points in accordance with ideals and aspiration for the family business, which include protection of the SEW. In nurturing and protecting SEW (Gomez-Mejia et al., 2011), family businesses can overcommit resources to a course of action resulting in less rather than more explorative orientation. Lone founders, in turn, are less restricted by SEW and act consistently with a utility maximizing criteria, changing from one opportunity to the next if that opportunity leads to increased economic welfare. This can explain why the gap in explorative orientation increases rather than decreases for high levels of these constructs.

Third, the effect of internal locus of control and achievement motivation on explorative orientation points out not only to the importance of the social context for risky decision making, but also the importance of these psychological traits of the main founders on explorative orientation. Specifically, this study showed that both achievement motivation and internal locus of control orientation are related to a promotion regulation focus and thus favors explorative orientation. The significant regression coefficient of internal locus of control and achievement motivation demonstrates the positive effect of psychological constructs on explorative orientation. However, it is important to be careful about the interpretation of this effect as the interaction term was also significant and in the opposite direction to expected direction. Therefore, a main effect cannot be interpreted alone without also considering the combined effect of both the main effect and the interaction term.

In this particular sample, the effect of family/lone founder startup status on explorative orientation was positive. However, the positive and significant term of the interaction suggests that high levels of internal locus of control and achievement motivation may strengthen rather than weaken the negative effect of family startups on explorative orientation compared to lone founder startups. Put differently, although there is a positive effect of internal locus of control and achievement motivation on explorative orientation, there is also a negative interaction, which tends to reduce explorative orientation compared to lone founder startups. Moreover, in this

sample, the addition of both standardized effects is less than one, suggesting a slight overall decrease in exploration for each additional unit of internal locus of control.

Results also showed that the effects of internal locus of control and achievement motivation are related explorative orientation. This suggests that the psychological traits of the main founder also affect risk behaviors that increase variance in actions. This is consistent with Yu (2001) argument that psychological traits can influence interpretation frameworks. Weingart and Pablo (1995) also suggested that psychological traits can affect risk propensities and that these psychological traits depend on past experiences. These findings, therefore, highlight the importance of incorporating these two distinctive psychological traits of the main founder as predictors of explorative orientation.

The results in the hierarchical regression showed that the control variables related to industry and startup attempts were not significant predictors of explorative orientation. Also, the net household assets and entrepreneurial munificence didn't have any effect on exploration. This is somewhat counterintuitive as previous research suggests that a greater industry experience, financial slack or previous startup attempts lead to foster more exploration of alternatives. However, previous research on innovation has focused on large public firms and not much on small business let alone at the startup level.

There is a controversy about whether small firms innovate more or less than large firms. Early, Schumpeter, in 1931, argued that small firms lack financial and human resources to support innovation initiatives, such as R & D., financial and human resources, while large firms contribute to innovation through the routinization of innovation by a process of "creative destruction". However, some studies suggest that radical innovations are more likely to come from new entrants (Ross 1990), such as, the incandescent lamp (Edison), the FM radio (Armstrong), the microwave oven (Raytheon), the microcomputer (Altair and Apple) and the microprocessor (Intel). Similarly, Almeida and Kogut (1997) suggested that smaller firms are more likely to possess characteristics that allow them to make adjustments necessary to take advantage of new opportunities. Henderson (1993) found some support to the link between new entrants and

radical innovation, proposing that larger incumbents were less productive in exploiting radical innovations than startup firms. This is also consistent with the idea that structural inertia (Hannan & Freeman, 1984; Down, 1967) constricts innovation to previously established trajectories.

Notwithstanding, this study's findings suggest that SEW in family ties supersede these controls increasing risk perceptions and thus, constraining family founders in exploring alternative courses of action. Lone founder startups, in turn, are less restrained by SEW and thus, are more likely to explore new ideas and opportunities. An explanation for these findings is that endowments at the startup team level related to experience or financial slack are not yet developed as in established firms, therefore, the context that is most salient to founders relies more in the family's SEW, or preservation of the non-economic benefits derived from their ownership of the firm. Moreover, SEW literature suggests that the family owners' identification with the business is stronger in the startup of the business rather than on later stages of the business cycle where other family ownership is diluted by outside managers or shareholders (Gomez-Mejia et al., 2011).

These findings have interesting implications for practitioners since achievement motivation and internal locus of control may in fact be a double edge sword. On the one hand, a founder high in both of these traits can promote an explorative orientation, as suggested by their positive effect on explorative orientation. However, on the other hand, the interaction terms suggest that the gap in explorative orientation is increased compared to lone founder startups. An explanation for this study's findings is that both constructs provide a motivation for family founders to nurture and protect their already accrued SEW. Therefore, too much confidence in one self (i.e. internal locus of control) or the sense of confidence on achieving goals (i.e. achievement motivation) can act as both a driver and a deterrent. Put differently, family founders will perceive that pursuing their own family agenda (e.g. protect and nurture SEW) is more salient to them, which may lead them to risk shift, reducing their attention to alternative courses of action that stray away from their family values. This, in turn, results in family business being both risk willing and risk averse simultaneously, as predicted by Behavioral Agency Model (Gomez- Mejia et al., 2007; Wiseman & Gomez-Mejia, 1998).

For example, achievement motivations have been related to previous mastering experience aimed to make the best out of a given situation, foster independence or a sense of autonomy (Rosen, 1958). Achievement motivation can be developed out of repeated affective experiences connected with certain types of situations and behaviors. Therefore, the experience that children have when learning from their parents can influence future behavior in terms of achievement motivation. Parent's previous entrepreneurial experiences are likely to motivate a family founder to achieve goals in the future, especially if those previous experiences evoke positive affect (McClelland and Friedman, 1952; McClelland, Atkinson, Clark & Lowel, 1953). Another condition that might foster achievement motivation relates to parents who foster children independence without interfering in their decision making process.

However, strong achievement motivation, or high internal locus of control, as previously noted, can also lead to entrenchment and to less willingness to explore new ideas. Literature on family firms agrees that a major characteristic of these firms is the family owners' desire to maintain the firm's "familiness" stemming from a strong personal attachment, commitment and identification with the firm (e.g., Habbershon & Williams, 1999; Thomsen & Pedersen, 2000; Anderson & Reeb, 2003; Kets de Vries, 1993). Parents in family businesses, due to the comingling of business and family systems, tend to overlap these two identities into one. Therefore, the family business becomes a source of identification and purpose in life for the main founder. Due to this strong identification with the family and the business, family founders are motivated to centralize decision making, which leads them to perceive any threat to that identity (i.e. SEW) as a negatively framed situation. This can cause a lot of frustration in younger siblings participating in the family business because they are given mixed signals: on the one hand they have the perception they have the freedom to contribute to the family business, while on the other hand, they are faced with opposition from their parents to their ideas, especially if their ideas go against the status quo created by their founding parent. In fact, recognizing that there might be a better alternative than the one followed by the main founder can undermine his/her sense of identity and his/her role as the provider of the family and the founder of the business. In order to protect this loss in SEW main founders can use passive aggressiveness (Carsrud & Brannback, 2012) by

pointing down to the perils of going with a new strategy and the threat to lose the business in an uncertain path, (i.e. prevention regulation focus). Moreover, to the extent that other family owners depend on the main founder with strong achievement motivation or internal locus of control, it is expected that they are more likely to use risk shifting to align with the main founder who represents family values, which in turn hinders explorative orientation.

Ambidextrous Orientation Hypotheses

Social cognitive determinants of ambidextrous orientation were analyzed. Results suggest that 1) social context represented in family ties decreases the likelihood to become ambidextrous 2) internal locus of control increases the likelihood to become ambidextrous 3) The interaction between family/lone founder startup status and internal locus of control increase rather than reduced the likelihood to be ambidextrous in family startups compared to lone founder startups.

First, it was proposed that family startups would be less likely to explore for a given level of exploitation because 1) family startups explore less than lone founder startups (hypothesis 1) and 2) family startups and lone founder startups don't differ in exploitative orientation.

Results strongly supported these hypotheses. Family startups were between 2 to 29 times more likely to be non-ambidextrous than lone founder startups. The results were robust to changes in the criteria for ambidextrous firm. Results showed that the more stringent the cutoff criterion the more predictability of the model and the greater likelihood of the effect on ambidexterity (29 times for 20% cutoff point criterion versus 5 times for 50% cutoff point criterion). Given that an ambidextrous orientation has been related to superior performance, these findings suggest that it is important that family startups develop dynamic capabilities that allow them to overcome their less explorative orientation earlier in the life cycle as proposed by Tushman and O'Reilly (1996) and Eisenhardt and Martin (2000).

Literature on ambidexterity has analyzed how dynamic capabilities evolve after the business is established and routines have already been deployed. In the case of established firms, managing the balance of exploitation and exploration is necessary to avoid tradeoffs that may lead to more

reliance of exploitation or exploration. However, in all startups, the balance of exploitation and exploration is less constrained by routines of large established firms. Therefore, it is proposed that both orientations can lead to enact exploitation and exploration strategies early in the startup process and thus, foster a mindset that allows them to exploit opportunities stemming from current courses of action or “old certainties”, as well as detecting opportunities stemming from “new possibilities” and ideas (March, 1991).

Second, results showed that one additional unit of internal locus of control of the main founder increased in 11%-18% the likelihood of an ambidextrous firm. The results were robust to changes in the criteria for ambidextrous firms. The more stringent was the cutoff criterion the more predictability of the model and the more the likelihood of the effect on ambidexterity (18% more for 20% cutoff point versus 11% more for 50% cutoff points).

Third, the interpretation of the interaction in a logistic regression can be tricky. Basically, the idea is that a conditional effect needs to take into account both the direct effect and the interaction. In the case of a logistic regression, a multiplication of both the odds ratio of interaction coefficient and the odds ratio of internal locus of control yields the effect that a one unit increase in internal locus of control has on the likelihood of ambidextrous orientation in family startups. In the case of this study the multiplication of both odds ratio is less than one, suggesting that additional increase in one unit further decreases the likelihood of ambidextrous orientation compared with lone founder startups. Therefore, the findings in this study suggests that internal locus of control can be a double edge sword as it can increase chances to become ambidextrous through the main effect, but also decrease the chances to be ambidextrous as compared to lone founder startups.

This study has implications for practitioners in terms of entrepreneurship policy. Opportunity entrepreneur and necessity entrepreneurs were classified in the Global Entrepreneurship Monitor study to differentiate entrepreneurs who have voluntarily pursuit an opportunity from entrepreneurs who have the necessity to engage in such activity in the absence of other employment opportunities (Reynolds et al., 2002, Sternberg et al., 2006). There is an interesting relationship between these two types of entrepreneurs and Regulatory Focus Theory. For

example, a founder with a promotion focus is more opportunity oriented, whereas a founder with a preventive focus is more concerned with security and safety (Higgins, 1997, 1998, Crowe & Higgins, 1997). Therefore, it is reasonable to expect that opportunity entrepreneurs would be associated with entrepreneurs with a promotion focus, whereas necessity entrepreneurs would be associated with entrepreneurs with a prevention focus. Furthermore, it should be expected, based on the previous hypotheses, that entrepreneurs with high internal locus of control would be more associated with opportunity rather than necessity entrepreneurs. Block and Wagner (2010) empirically demonstrated, in a sample of German entrepreneurs, that opportunity entrepreneurs had better performance than necessity entrepreneurs. The authors suggested that this can have implications for allocating funding criteria (e.g. focusing more on developing skills through training, tax incentives or education to foster opportunity recognition) in order to favor unmet needs of opportunity entrepreneurs rather than necessity entrepreneurs. Given the importance of opportunity entrepreneurs for policy making, future studies can analyze the relationship between internal locus of control and opportunity entrepreneurs.

Survival Hypotheses

It was proposed that family startups will be more likely to reduce survival hazards if 1) they were more ambidextrous from startup 2) main founders were high in internal locus of control.

First, it was tested whether ambidextrous family startups reduced survival hazards. As expected, more ambidextrous orientation was related to survival hazards. Results showed that family startups were 1.8 - 3.6 times more likely to survive if they were ambidextrous than if they were not. A sensitivity analysis was performed in which different cutoffs for ambidexterity were operationalized. For a 50-50 cutoff a firm was classified as ambidextrous if the ambidexterity index (adding of exploitation and exploration) is above the median and non-ambidextrous if it was below the median. For a 20th cutoff, a firm was classified as ambidextrous if it scored in the upper 20th percentile (between the 80th percentile and the highest score on the ambidexterity index) and as non-ambidextrous if it scored in the lower 20th percentile (between the lowest and the 20th percentile of scores on the ambidexterity index) Finally, for a 37th cutoff, a firm was classified as ambidextrous if it scored in the upper 37.5th percentile (between the 67.5th percentile and the highest score on the ambidexterity index) or as non-ambidextrous if it scored in the lower 37.5th percentile (between the lowest and the 37.5th percentile of scores on ambidexterity index). Results were robust for the different three cutoff criteria. The more stringent the cutoff points the more the effect on survival hazards and the predicted validity of the model (3.6 times more likely to survive for 20th cutoff criterion versus 1.8 times more likely to survive for 50th cutoff point criterion).

These findings complement recent empirical findings suggesting that organizational longevity depends on whether a firm is able to embrace exploration activities earlier in time (Cottrell & Nault, 2004; Probst & Raisch, 2005). Piao (2010) added to these findings that exploration and exploitation should not be too close nor too far from each other. If exploration follows too close from exploitation, exploration may not be aligned with previous activities. Similarly, if exploration follows too distanced from exploitation, a window of opportunity might be loss. This study adds to these findings by analyzing the genesis of ambidextrous orientation at the startup level and

suggests that the sooner a family startup can embrace both explorative and exploitative capabilities by embracing both orientations simultaneously; the firm will be less likely to take too long or too little between an exploration or exploitation attempt. This, in turn, avoids over-exploration or over-exploitation and increases likelihood of survival (March, 1991).

Second, it was hypothesized that internal locus of control would predict survival hazards. Results showed that one unit increment in internal locus of control orientation had an effect of 10% -29% increments in the likelihood to survive. Results were robust for changes in the cutoff criteria. The more stringent the cutoff points the more the effect on survival hazards and the predicted validity of the model (28% more likely to survive for 20th cutoff criterion versus 10% more likely to survive for 50th cutoff point criterion).

Implications for practitioners include the importance of internal locus of control of the main founders in order to reduce survival hazards. Interventions aimed to improve the main founders' internal locus of control may include training programs aimed to improve their skills and abilities, access to social capital through association with the private and public sector, or providing incentives to startup business in the form of access to loans or tax incentives.

Finally, these findings extend research by Gomez-Mejia et al. (2007) in large public family businesses to family startups. Methodologically, a Cox's proportional hazard analysis needs to meet the assumption that the sample contains firms with equal probability of survival. Gomez-Mejia et al. (2007) used this statistical technique, considering performance hazards as the probability of failure in established firms. Generalizing these conclusions to startups can be problematic because startups are less likely to survive than established firms. In order to extend Gomez-Mejia et al.'s findings while meeting the assumption of the Proportional Hazards in Cox Regression, a sample of family startups was selected from a harmonized database, which provided equal opportunity for selecting startups that all met the same criteria for inclusion in the sample (see Reynolds and Curtin, 2011 for harmonizing procedure). This harmonization assures that all firms in the selected sample meet the assumption of proportional hazard in the sample.

In all, this study provides a framework in which ambidextrous orientation and survival hazards can be influenced by the social context of family ties and the presence of certain psychological traits of the main founder, such as achievement motivation and internal locus of control.

Limitation of the study and Future Research

One major limitation of this study is the lack of available data to measure Regulatory focus. This study is based on inferences of Regulatory Focus Theory about the relationship between psychological traits of the main founders (e.g. achievement motivation and internal locus of control) and promotion regulation focus. However there is no operationalization of promotion regulation focus. Further studies may test for this relationship in order to understand the extent that these psychological traits drive a chronic promotion regulation focus. Future studies can address not only the extent of association with regulatory focus, but also causality by using longitudinal data.

Similarly, this study lacks data to measure preventive regulatory focus. Further studies can incorporate a specific measure of preventive regulation focus, which can be related to the presence or absence of family ties.

It is also possible that SEW can be present among founders non family related. For example a longtime friendship can also introduce SEW, such as identification, belongingness, control and altruism. Therefore, a validated measure of SEW could help to measure more accurately the non-economic benefits embedded in family relationships. In the absence of such measures, this study used family ties presence as a proxy for SEW assuming SEW to be greater in families versus lone founder startups.

Another limitation is the lack of data distinguishing risk propensities from risk perceptions. It was assumed that risk propensities stem from a chronic regulation focus, and that risk perception stems from situational regulation focus. Although these findings are supported by literature on decision making (e.g. Sitkin & Weingart, 1995) these relationships could be tested in future research in order to improve the predictive power of the model. Furthermore, an interesting study

could be performed by measuring risk propensities and risk perceptions applying Sitkin and Pablo's (1991) model for explorative orientation. These risk propensities and risk perceptions can be used to draw a more fine-grained model about the relationship of regulatory foci with risk perceptions and risk propensities.

This study considered the adding of standardized values of explorative and exploitative orientation as the best index for ambidextrous orientation. This index has been suggested by Lubatkin et al. (2006) as the recommended index for Ambidexterity. The combination of this index was also compared to the classical view of ambidexterity by He and Wong (2004) stemming from being high in both exploration and exploitation. The results of this alternative operationalization suggested similar findings as predicted in this study, adding to the robustness of this study's findings.

Future studies can use different operationalization of exploitative orientation. In the current study exploitation was related to activities that relates to exploiting current resources such as sales, promotions and product development. Nevertheless, PSED II items didn't include items related to quality of the product and cost efficiencies which have been used in scales related to the exploitation construct (e.g. Beckman, 2006). Although it is recognized that the conclusions in this studies are limited to the design and content of PSED II items, this limitations are probably compensated by the benefits of studying this unique and large database at the startup level.

Entrepreneurial alertness (Kirzner, 1973) has been related to both achievement motivation and internal locus of control orientation (Tang, 2009). In the present database, Entrepreneurial alertness was not measured. However, it would be interesting to test whether entrepreneurial alertness has a direct effect on explorative orientation. Future studies can control for this variable to test if the effect of both achievement motivation and internal locus of control orientation still hold after controlling for the level of Entrepreneurial Alertness.

Finally, further studies can compare family startups including family and non-family members, with startups including only non-family members in terms of an SEW scale continuum rather than

a dichotomous variables. The presence of SEW that lone founders have in relation to other family members who are not participating directly in the business may affect explorative and ambidextrous orientations. Future studies can incorporate these variables once a validated measure of SEW is available. However, in the absence of this measure, this study provides a reasonable explanation of how the presence or absence of family ties affects explorative orientation and ambidexterity after controlling for alternative explanations.

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Appendix

Appendix 1: Ambidexterity model based on He and Wong's (2004) classification of ambidexterity

Variables	Model 3
Controls	
Average industry experience in startup team	.993 (.376)
Average startup experience in startup team	1.000 (.000)
Munificence	.997 (.026)
Net Household assets	1.000* (4.953)
Business Code	1.000 (1.86)
Independent Variables	
Family versus lone founder status	
Internal Locus of control	1.029*** (.343)
Family versus lone founder status	.107*** (32.574)
Interaction effects	
Internal Locus of Control and Family status	.463** (6.45)
-2 Log-likelihood	458.643***
Cox & Snell R Squared	.12
Nagelkerke R Squared	.179
Model Fit Chi squared	59.833***
Hosmer and Lemeshow p value	.844
Percentage Predicted	76.2

Note: The entries in the table are Odds ratio. Wald's statistic in parenthesis. Results are based on a one-tailed test. P values based on 1000 bootstrap samples.

*p<.05 **p<.01 ***p<.001 Deletion list wise. N=470

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