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1 **Psychological ownership, job satisfaction and middle managers entrepreneurial behaviour**

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31

1 **Psychological Ownership, Job Satisfaction and Middle Manager Entrepreneurial Behavior**

2

3 What determines middle managers' entrepreneurial behavior? To answer this question,
4 most existing studies have focused on the characteristics of the entrepreneurial firm, in particular
5 organization-level factors (Kuratko, 2010; Naffziger, Hornsby, & Kuratko, 1994); but within this
6 debate, attention is gradually turning towards the human being in corporate entrepreneurship
7 (Sieger, Zellweger, & Aquino, 2013). There is a widespread consensus on what organizational
8 factors constitute a supportive internal organizational context for entrepreneurial behavior to
9 emerge (Hornsby, Kuratko, & Zahra, 2002; Kuratko & Hornsby, 1999; Kuratko, Ireland, Covin,
10 & Hornsby, 2005). However, while organizational characteristics are certainly important, they do
11 not sufficiently explain why and when an individual may choose to behave entrepreneurially.
12 Research on individual-level factors remains disparate, with studies focusing on attributes such
13 as dispositional traits, demographic characteristics, values and attitudes (Heinonen & Toivonen,
14 2008; Holt, Rutherford, & Clohessy, 2007; Kuratko & Goldsby, 2004); however, cumulatively
15 these studies only provide a little explanation of the psychological processes affecting the
16 corporate entrepreneurial behaviors of middle managers.

17 Psychological ownership, a state in which individuals feel as though the object of
18 ownership or a piece of that object is 'theirs' (Pierce, Kostova, & Dirks, 2003), is a
19 psychological construct that has the potential to influence middle managers' entrepreneurial
20 behavior in large, established organizations. However, despite a rich literature exploring the role
21 of psychological ownership within organizations (Avey, Avolio, Crossley, & Luthans, 2009;
22 Pierce, Jussila, & Cummings, 2009), studies are yet to examine its implications for corporate
23 entrepreneurial behavior. This is surprising as previous studies into organizational citizenship

1 behavior, innovation and creativity indicate psychological ownership may well be a crucial
2 factor in whether employees decide to engage with the types of behaviors necessary for
3 entrepreneurship to occur (Avey et al., 2009; Van Dyne & Pierce, 2004).

4 Middle managers have long been thought of as crucial agents of entrepreneurship in
5 established firms (Hornsby et al., 2002; Kuratko & Ireland et al., 2005). This is because middle
6 managers operate at the interface between lower level employees and top management, and
7 therefore play a vital strategic role in translating top management vision into action within the
8 organization (Canales, 2013; Ireland, Covin, & Kuratko, 2009). Middle managers'
9 entrepreneurial behavior therefore requires a dual focus as it consists of their own entrepreneurial
10 actions, such as risk taking, creativity and opportunity seeking, as well as having leadership
11 responsibility for creating an atmosphere that motivates subordinates to also behave
12 entrepreneurially (Hornsby et al., 2002; Kuratko, 2010; Leitch, McMullan, & Harrison, 2013).

13 Recent research suggests that entrepreneurial behavior may indeed depend on
14 psychological factors and job design, with an increasing number of calls being made for scrutiny
15 of this relationship (Baron 2010; Belousova & Gailly, 2013; Rigterin & Weitzel, 2013; Ramos et
16 al., 2014; Sieger et al., 2013). Employee feelings of ownership towards the organization can
17 induce a range of pro-organizational behaviors, such as organizational citizenship behavior,
18 affective commitment (Avey et al. 2009; Van Dyne & Pierce, 2004) and senior management (and
19 owner) entrepreneurial behavior within family firms (Sieger et al., 2013). Psychological
20 ownership can also align an individual's entrepreneurial behavior with those of owners or senior
21 managers (Sieger et al., 2013).

22 In addition to the data surrounding psychological ownership there is also evidence that
23 job satisfaction can influence the likelihood of managers engaging in entrepreneurial behavior

1 (Kuratko, Hornsby, & Bishop, 2005; Van Wyk & Adonisi, 2012) and, that it can play a
2 mediating role in the likelihood of a manager performing innovative behavior (Bysted, 2013).
3 Given that psychological ownership can also increase job satisfaction in organizations (Avey et
4 al., 2009), there is likely to be a causal link between psychological ownership, job satisfaction
5 and the corporate entrepreneurial behaviors of middle managers.

6 Focusing on these constructs, this study argues that (1) psychological ownership
7 influences whether middle managers decide to undertake entrepreneurial behavior within their
8 organizations, (2) middle manager's job satisfaction directly affects their entrepreneurial
9 behavior, and (3) job satisfaction will mediate the relationship between psychological ownership
10 and entrepreneurial behavior. Based on a study of 136 middle managers in a multinational
11 telecommunications and IT service company based in Singapore, this research makes two
12 contributions. First, the study contributes to the broader psychological ownership literature by
13 extending understanding within the context of middle manager entrepreneurial behavior (Avey et
14 al., 2009; Liu, Wang, Hui, & Lee, 2012). Second, the study contributes to the entrepreneurial
15 behavior and corporate entrepreneurship literature by empirically testing whether psychological
16 ownership and job satisfaction are important drivers of that behavior for middle managers. The
17 study proposes psychology ownership is mediated in its effect on middle managers'
18 entrepreneurial behavior by job satisfaction in addition to both exhibiting direct effects on
19 entrepreneurial behavior. The cumulative lack of knowledge on the antecedents of middle
20 managers' entrepreneurial behavior at the individual level represents a sizable and problematic
21 gap which this study takes steps to resolve.

22

23

Conceptual development

1

2 **Middle Managers' Entrepreneurial Behavior**

3 Entrepreneurial behavior in established organizations concerns the discovery or
4 development and exploitation of previously unnoticed entrepreneurial opportunities (Kuratko,
5 2010; Shane & Venkataraman, 2000; Sieger et al., 2013; Smith & Di Gregorio, 2002). There is
6 increasing evidence to suggest that such behavior is important for strategic renewal, innovation
7 within existing firms, and firm-level entrepreneurship (Smith & Di Gregorio, 2002). Such
8 entrepreneurial behaviors are not ubiquitous within organizations and are likely to vary
9 depending on an individuals' role within the management hierarchy (Hornsby et al., 2002;
10 Hornsby, Kuratko, Shepherd, & Bott, 2009). To date, researchers have focused attention on the
11 entrepreneurial behavior of middle managers as they tend to be most involved in the innovation
12 activities within established companies (Hornsby et al., 2002; Hornsby et al., 2009; Kuratko &
13 Ireland et al., 2005; Wakkee, Elfring, & Monaghan, 2010).

14 Within such research, it has been shown that management hierarchies cannot be assumed
15 to perform homogenous functions. For example, King, Fowler, and Zeithaml (2001) identified
16 that middle managers tend to reconcile top management's perspectives with the implementation
17 issues that appear at lower management levels. Additionally, top management is primarily
18 concerned with strategic decisions, while lower-level management is concerned with
19 implementing directives from middle managers (Floyd & Wooldridge, 2007). This suggests that
20 the antecedents to successful middle management entrepreneurial behavior may be different to
21 those measured so far in studies of senior management behavior (Sieger et al., 2013).

22 The organizational position of middle managers has also been described as critical for the
23 generation of entrepreneurial ideas and actions. For example, middle managers can facilitate the

1 sharing of knowledge internally and externally because of their unique position in receiving and
2 sharing information (Ghoshal & Bartlett, 1994; Mustafa, Richards, & Ramos, 2013; Nonaka &
3 Takeuchi, 1995). In turn, this can afford them with the knowledge, social capital (Hornsby et al.,
4 2002) and networks (Kuratko & Ireland et al., 2005) to spot unique and valuable entrepreneurial
5 opportunities as well as the capabilities to develop novel ideas to exploit those opportunities
6 (Hornsby et al., 2009). Middle managers are also well positioned to “endorse, refine, and
7 shepherd entrepreneurial opportunities and identify, acquire, and deploy resources needed to
8 pursue those opportunities” (Kuratko & Ireland et al., 2005, p. 705). In doing so, they can play a
9 pivotal role in fostering commitment among subordinates and encouraging risk-taking, creativity
10 and innovation (Hornsby et al., 2002; Kuratko, 2010). For corporate entrepreneurship to succeed,
11 not only do middle managers need to behave entrepreneurially, they also need to foster the
12 entrepreneurial behavior of others.

13 Significant effort has been devoted to understanding the antecedents of entrepreneurial
14 behavior. To date, it has been demonstrated that a combination of individual and organizational
15 factors can facilitate middle managers' entrepreneurial behavior (Hornsby et al., 2002; Kuratko,
16 2010; Naffziger et al., 1994; Sun & Pan, 2011). At the level of the organization, factors such as
17 management support, work discretion, rewards, time availability and organizational boundaries
18 have all been repeatedly found to influence the development of an organizational context
19 conducive to entrepreneurship (see Hornsby et al., 2002; Hornsby et al., 2009; Kuratko &
20 Hornsby et al., 2005). A range of individual level attributes have been identified among studies,
21 such as dispositional traits, demographic characteristics, values and attitudes (Heinonen &
22 Toivonen, 2008; Holt et al., 2007; Kuratko & Goldsby, 2004), and more recently, individual
23 psychological states (Sieger et al., 2013) have been shown to affect entrepreneurial behavior (for

1 senior management). For instance, Heinonen and Toivonen (2008) demonstrated that self-
2 confidence and initiative influence entrepreneurial behavior. However, the individual-level
3 psychological antecedents of middle managers' entrepreneurial behavior still require
4 investigation.

5

6 **Psychological Ownership**

7 Psychological ownership, defined as “the state in which individuals feel as though the
8 target of ownership or a piece of it is 'theirs'” (Pierce et al., 2003, p. 86), is increasingly being
9 shown to mediate the relationship between an individual and their organization (Avey et al.,
10 2009; Pierce et al., 2003; Pierce, O'driscoll, & Coghlan, 2004; Chi & Han 2008). Psychological
11 ownership refers to a state of mind, rather than a stable personality trait (Pierce et al., 2003), and
12 represents possessive tendencies a person refers to when it is suggested that an object is ‘theirs’
13 (Etzioni, 1991). It is widely acknowledged that ownership, whether personal or legal, satisfies
14 three basic human motives (Pierce, Kostova, & Dirks, 2001).

15 First, according to Beggan (1992), ownership can induce feelings of efficacy and control,
16 which can lead to the perception of it being the cause of something which has the power to alter
17 the circumstances surrounding them. Second, ownership allows individuals to express some of
18 their identity to others and maintain their sense of continuity of the self (Curasi, Price, &
19 Arnould, 2004). Thus, an individual's identity and self-continuity can be partially maintained
20 through their actual or perceived possessions (Pierce et al., 2001). Finally, a sense of place and
21 the need for territoriality and security can also be provided through ownership feelings (Porteous,
22 1976). Research into organizations has demonstrated that ownership feelings and the behavioral
23 changes that are influenced by them, need not emerge from formal ownership alone (Pierce et al.,

1 2001). Crucially, it has been demonstrated that even in the absence of formal ownership, feelings
2 of possession or ownership can arise and become part of the feelings of the self (Belk, 1988;
3 Dittmar, 1992). Indeed, the reverse can also be true, in that it is possible for the legal or formal
4 owner of an object to not feel ownership (Pierce & Furo, 1990).

5 In organizational research, this sense of possession, which lies at the heart of
6 psychological ownership, has been shown to induce individuals to evaluate a target more
7 favorably (Nesselroade, Beggan, & Allison, 1999). Research has further demonstrated that
8 psychological ownership can exist across all organizational levels (Floyd & Wooldridge, 2007;
9 Sieger et al., 2013) and as a collective phenomenon (Pierce & Jussila, 2010) without actual
10 ownership being in place. Psychological ownership has been linked with a range of pro-
11 organizational attitudinal and behavioral outcomes such as affective commitment (Avey et al.,
12 2009; Vandewalle, Van Dyne, & Kostova, 1995), extra-role behaviors (Vandewalle et al., 1995),
13 organizational citizenship behaviors and job satisfaction (Avey et al., 2009). Importantly, a
14 recent study has demonstrated that higher feelings of psychological ownership can influence
15 whether senior managers (and owners) undertake entrepreneurial actions or not (see Sieger et al.,
16 2013). Senior managers would seem more likely to have a sense of ownership because they also
17 tend to be shareholders in the company. With middle management, actual ownership of the
18 organization is not common, yet if middle managers can also experience these feelings of
19 ownership it could be a vital factor in their willingness to undertake entrepreneurial behavior.
20 This possibility needs investigating.

21

22 **Job Satisfaction**

1 Previous research has demonstrated that an outcome associated with feelings of
2 possession is a positive attitude towards the target of possession (Van Dyne & Pierce, 2004).
3 This sense of possession (which allows individuals to satisfy their basic needs for place, efficacy
4 and self-identity) is important to positive work-related attitudes such as job satisfaction. Job
5 satisfaction is commonly defined as an attitudinal evaluative judgment of one's job or job
6 experiences (Locke, 1976; Ilies & Wagner, 2009). It differs from general satisfaction, in that
7 general satisfaction is a positive or negative evaluative judgment of the overall job situation,
8 while job satisfaction is the more proximal positive or negative evaluative judgment of one's job
9 (Ilies & Wagner, 2009).

10 Not surprisingly, several studies have demonstrated a positive relationship between
11 psychological ownership and job satisfaction (Vandewalle et al., 1995; Van Dyne & Pierce,
12 2004), and that feelings of possession also enhance general satisfaction as well as providing a
13 context or environment in which job satisfaction is embedded and positively influenced (Klein &
14 Kozlowski, 2000; Van Dyne & Pierce, 2004). Some recent studies have also reported that job
15 satisfaction is an antecedent to entrepreneurial behavior more generally within organizations
16 (Brown, Pierce, & Crossley, 2013). Together, these studies enable us to propose that job
17 satisfaction will influence the entrepreneurial behavior of middle managers.

18

19 **Hypothesis Development**

20

21 **Middle Managers' Psychological Ownership and Entrepreneurial Behavior**

22 Middle managers who have strong feelings of psychological ownership towards their
23 organizations are more likely to develop feelings of attachment and belonging towards it

1 (Beggan, 1992). When an organization forms an integral part of a middle managers' ownership
2 identity, they are not only more likely to feel positive about their current job within the
3 organization, they are also likely to think and act with the organization's goals in mind, hence
4 "personifying the organization" (Organ, 1988). Therefore it follows that their perception of the
5 roles they perform will broaden, making them more likely to step outside the boundaries set by
6 their actual role. Related research into leader member exchange and job satisfaction supports this
7 thesis (Loi, Chan, & Lam, 2014).

8 It follows then that ownership feelings can motivate middle managers to engage in
9 entrepreneurial behavior through several mechanisms. First, they can induce feelings of personal
10 responsibility towards their firm which can lead to the adoption of a more caring and protective
11 attitude resulting in more willingness to nurture the firm so it can prosper. This could result in
12 increasing investments of time and energy, a willingness to take greater personal risks (Pierce et
13 al., 2001), to promote change, and to raise novel and unique ideas for the betterment of the
14 organization. The basis for this expectation rests in the citizenship behavior that psychological
15 ownership inspires. For example, Smith, Organ, and Near (1983) state that employees'
16 engagement in innovative and spontaneous activity beyond the scope of their formal role
17 prescriptions characterizes organizational citizenship behavior (see also Katz, 1964; Konovsky &
18 Pugh, 1994), and that sense of citizenship is heightened when individuals feel a sense of
19 ownership for the organizations they serve.¹

¹ It is possible that a sense of ownership, or ownership feelings, contained in psychological ownership carries the danger that middle managers become more risk averse. This possibility is grounded in agency theory. Agency theory suggests that as ownership (in stockholding or shareholding terms) increases, the less risk-taking behavior an individual might exhibit because of their greater investment and the danger risk-taking poses to that investment. The risk of losing can then cause an individual manager to take less risk. We favor that psychological ownership is not a psychological and cognitive phenomenon associated with stockholding and thus the characteristics of this form of 'ownership' behave differently to a financial investment. Specifically, psychological ownership inspires citizenship towards the best serving and prosperity of the firm, which studies have associated with wealth generating actions

1 Such feelings are capable of inducing middle managers to feel more supportive of their
2 subordinates' entrepreneurial behaviors and actions, which is a requirement for successful
3 entrepreneurial behavior (Kuratko, 2010), because of the increased personal responsibility
4 psychological ownership instills. Entrepreneurial behavior can then be considered as a legitimate
5 means through which middle managers can express their care and concern to ensure
6 organizational growth and survival (Hornsby et al., 2002; Kuratko & Ireland et al., 2005).

7 Second, feelings of ownership may motivate middle managers' entrepreneurial behavior
8 through their effect on feelings of empowerment, whereby empowered individuals believe they
9 are autonomous and have an impact on the firm's actions, decisions and performance (Van Dyne
10 & Pierce, 2004). A consistent body of research has suggested that individuals who feel
11 empowered are more likely to be creative, innovative, and engage in entrepreneurial behaviors
12 (Amabile, 1988; Bhatnagar, 2012; Valsania, Moriano, & Molero, 2014). Given that
13 empowerment is linked to creativity, innovation, and change, this study proposes that
14 psychological ownership should also be positively related to middle managers' entrepreneurial
15 behavior, elevating their discovery and exploitation of innovative ideas and opportunities across
16 the firm (Kuratko, 2010; Smith & Di Gregorio, 2002).

17 Finally, ownership feelings can affect middle managers' entrepreneurial behavior by
18 increasing their sense of control. A sense of control over the environment is one of the core
19 tenets of the self-efficacy theory of entrepreneurial behavior (Bandura, 1994). In this theory, the
20 more control an individual feels over their ability to shape their immediate environment, the
21 more likely they are to engage in entrepreneurial activity. According to Pierce et al. (2003),
22 individuals have an inherent need for efficacy and seek to produce their desired outcomes by

such as engagement in innovative and spontaneous activity (Katz, 1964; Konovsky & Pugh, 1994; Smith et al., 1983), or entrepreneurship. We thank an anonymous reviewer for raising this possibility.

1 exploring and manipulating their environment. Given that individuals with high ownership
2 feelings also tend to feel they have more control over their actions and that of the organization
3 (Pierce et al., 2003), a greater sense of psychological ownership should ease one of the major
4 obstacles to entrepreneurial behavior, namely the feeling of a lack of control over the
5 environment (Bandura, 1994). Such feelings may ultimately manifest themselves in the form of
6 self-initiated behaviors such as a hands-on work attitude (Spreitzer, 1995) and inclinations to
7 take the initiative and move ahead with novel ideas (Crant, 2000), which not only adds value to
8 the firm but also satisfies an individuals need for control and can strengthen their feelings of
9 efficacy (Pierce et al., 2001; Zhao, Hills, & Seibert, 2005). Based on these arguments, it is
10 hypothesized that middle managers with ownership feelings will be more inclined to achieve
11 organizational goals by exhibiting entrepreneurial behavior. Thus:

12

13 **Hypothesis 1 (H1):** Middle managers' psychological ownership is
14 positively related to their individual entrepreneurial behavior.

15

16 **Middle Managers' Psychological Ownership and Job Satisfaction**

17 The organizational positioning of middle managers affords them unique knowledge as
18 well as considerable influence and control over their own and the work of others. Feelings of
19 psychological ownership may therefore help middle managers feel invested in their
20 organizational roles and become more likely to perceive a degree of ownership over what they
21 do and where they work. Prior studies have suggested that feelings of ownership lead to
22 favorable evaluations of their possessions (Beggan, 1992) and judge owned objects more
23 favorably (Pierce et al., 2003; Van Dyne & Pierce, 2004). When middle managers develop such

1 possessive tendencies towards their organizations, they are likely to experience higher levels of
2 general satisfaction, which in turn should influence their job satisfaction (Brown et al., 2013).
3 Thus in line with the above reasoning, the following hypothesis is offered:

4

5 **Hypothesis 2 (H2):** Middle managers' psychological ownership is
6 positively related to their job satisfaction.

7

8 **Middle Managers' Job Satisfaction and Entrepreneurial Behavior**

9 Job satisfaction has been traditionally considered as a key attitudinal outcome in
10 psychology and organizational research (Chen, Ployhart, Thomas, Anderson, & Bliese, 2011). In
11 broad terms, job satisfaction can be conceptualized as a set of individual beliefs (cognitions) and
12 feelings (affect) regarding one's job in general (Locke, 1976) or the specific facets of one's job
13 and work environment. A considerable body of research has predicted positive associations
14 between job satisfaction and individual performance (Judge, Thoresen, Bono, & Patton, 2001)
15 and a range of cooperative and discretionary behaviors by organizational members such as OCB
16 (Fassina, Jones, & Uggerslev, 2008; Organ & Ryan, 1995) or innovative work behaviors (Niu,
17 2014). Much of the reasoning behind such relationships rests on the notion that satisfied
18 employees will perform their work more effectively (Batt, 2002; Crede, Chernyshenko, Stark,
19 Dalal, & Bashshur, 2007).

20 Hackman and Oldman (1966) stressed the psychological or intrinsic aspects of ones' job
21 correlated to higher level of satisfaction and intrinsic motivation because of the intrinsic
22 investment in tasks. Entrepreneurial behavior requires sustained effort, challenging goals,
23 persuasion, influence, interpersonal cooperation and organizational commitment (Kuratko,

1 2010). This is more likely to occur when employees are highly satisfied with their work (Kuratko
2 & Hornsby et al., 2005; Lee et al., 2009). Recently a small number of studies have demonstrated
3 the relationship between satisfaction at work and entrepreneurial behavior. For instance, De
4 Clerq Castañer, and Belausteguigoitia (2011) showed that managers' satisfaction with their
5 organization can increase their entrepreneurial selling initiatives, while Antoncic and Antoncic
6 (2011) and Kuratko and Hornsby et al. (2005) showed that employee satisfaction can have
7 significant effects on the development of firm-level entrepreneurial activities or individual idea
8 generation.

9 In line with existing theoretical considerations, we argue that middle-managers' job
10 satisfaction will be an important individual-level attitude that will help create internal
11 entrepreneurship (Akehurst, Comeche, & Galindo, 2009). When middle-managers are highly
12 satisfied with their jobs, they will be more intrinsically motivated to engage in 'organizational
13 spontaneity' in the form of idea generation, creativity and risk taking in order to improve
14 organizational functioning (George & Brief, 1992). Furthermore, middle-managers who are
15 satisfied with their jobs are also more likely to have the necessary passion to create collective
16 synergy by encouraging the entrepreneurial activities of their subordinates or fellow colleagues
17 (Akehurst, Comeche, & Galindo, 2009; Antoncic & Antoncic, 2011). In line with the above
18 reasoning we propose the following hypothesis:

19

20 **Hypothesis 3 (H3):** Middle managers' job satisfaction is positively
21 related to their entrepreneurial behavior.

22

23

1 **The Mediating Role of Middle Managers' Job Satisfaction in the Relationship Between** 2 **Psychological Ownership and Entrepreneurial Behavior**

3 The hypotheses developed so far suggest a direct relationship between psychological
4 ownership and entrepreneurial behavior is possible. However, given we also propose that a
5 relationship between psychological ownership and job satisfaction is likely, as well as a
6 relationship between job satisfaction and entrepreneurial behavior, it is necessary to examine
7 whether job satisfaction mediates the link between psychological ownership and entrepreneurial
8 behavior. In other words, we need to identify whether feelings of psychological ownership have
9 a direct or indirect effect on entrepreneurial behavior.

10 It is already known, for example, that the satisfaction–performance relationship is
11 stronger for complex jobs (Kuratko & Hornsby et al., 2005), such that it is possible middle
12 managers' job satisfaction may mediate the relationship between psychological ownership and
13 their entrepreneurial behavior. Antoncic and Antoncic (2011) showed that individual employee
14 job satisfaction is vital for sustaining businesses (and economies) and is the basis of business
15 performance. Middle managers who experience satisfaction are more likely to be committed to
16 team efforts and less likely to quit their jobs. Moreover, such middle managers will also be more
17 likely to suggest new ideas for the betterment of their organizations and to assist and encourage
18 their subordinates to engage in entrepreneurial efforts.

19 Conversely, numerous studies have demonstrated a positive relationship between
20 psychological ownership and job satisfaction across a broad range of managerial classes (Avey et
21 al., 2009; Pierce, Rubenfeld, & Morgan, 1991; Van Dyne & Pierce, 2004). Such studies have
22 generally suggested that feelings of possession enhance general satisfaction which provides a
23 context or environment in which job satisfaction is embedded and positively influenced (Van

1 Dyne & Pierce, 2004). Accordingly, when middle managers feel possessive toward the
2 organization their general satisfaction should result in improved job satisfaction (Van Dyne &
3 Pierce, 2004). Furthermore, when middle managers experience higher levels of job satisfaction
4 they may be more likely to engage in individual entrepreneurial behaviors which benefit the
5 organization (Akehurst, Comeche, & Galindo, 2009; Antoncic & Antoncic, 2011). These
6 arguments lead us to the following mediation hypotheses:

7

8 **Hypothesis 4 (H4):** Middle managers' job satisfaction mediates the
9 relationship between psychological ownership and entrepreneurial
10 behavior.

11

12 Figure 1 below provides a summary of our conceptual model and
13 hypothesized relationships.

14

15 -----
16 INSERT FIGURE 1 ABOUT HERE
17 -----

18

19 **Research Methodology**

20

21 **Sample and Data Collection**

22 The purpose of this study is to test the proposed relationships between middle managers'
23 psychological ownership, job satisfaction and their entrepreneurial behavior. The data was

1 collected from a sample of middle managers who worked in a large Singaporean firm active in
2 the telecommunications and IT services sector. With the assistance of the organization's Chief
3 Human Resource Director, potential middle managers for the study were identified. Following
4 Floyd and Wooldridge (2007), middle managers are defined as those "organizational members
5 who link the activities of vertically related groups and who are responsible for at least sub-
6 functional work flow, but not the work flow of the organization as a whole" (p. 157).

7 The company has approximately 6,000 employees throughout South-East Asia. The
8 headquarters in Singapore was the focus of the study and, at the time of the research, had
9 approximately 3,500 full-time employees located there. The firm has a wealth of experience in
10 the telecommunications and IT services industry and has grown significantly in the industry and
11 region over the past two decades. Between 2006-2013, the firm has undergone radical
12 transformation. In particular, senior management emphasized the need for innovativeness,
13 creativeness and entrepreneurial behavior as part of business operations. Accordingly, since 2007
14 they have been developing a corporate entrepreneurship culture and so individual innovativeness,
15 creativity, risk-taking, opportunity seeking and pro-activeness have become important values in
16 the organizational strategy. As the organization was actively trying to develop an entrepreneurial
17 culture in the time running up to this study, this circumstance may set constraints on our results
18 and our ability to generalize from our findings.

19 Our model mitigates some of this danger as it focuses on the degree to which middle
20 managers' psychological ownership, drives their individual entrepreneurial behavior and whether
21 job satisfaction plays a role in this relationship. Corporate entrepreneurship research has long
22 made the error that simply putting in place organizational structures or processes suitable for
23 corporate entrepreneurship will result in the triggering of entrepreneurial behavior. There is a

1 black box in between that has hitherto remained closed with little insight gained into the choices
2 individual managers make and when they act entrepreneurially. What determines middle
3 managers' entrepreneurial behavior has been answered solely in terms of the characteristics of
4 the entrepreneurial firm, in particular organization-level factors, but the psychological and
5 behavioral aspects of the individual are shrouded in mystery. Therefore sampling managers in
6 our chosen context seemed advantageous to advancing understanding. For additional confidence
7 in our sample and to test that the findings are representative, we performed a post-hoc power
8 analysis using GPower. The results can be found in the Results section and these also lend the
9 requisite support.

10 In September of 2012, the firm's CEO and Chief Human Resource Director were
11 approached and the objectives of the study were explained. Once approval was granted, the Chief
12 Human Resource Director was asked to send the questionnaire to employees identified as middle
13 managers. The firm's electronic mail service was used to distribute the questionnaire to these
14 individuals. Steps were taken to ensure employee anonymity. Two weeks prior to the
15 commencement of the survey, an electronic mail was sent to designated middle managers by the
16 Chief Human Resource Director explaining the purpose of the research. Exactly three weeks
17 after the distribution of the original questionnaire, a further electronic mail was sent to middle
18 managers with a reminder and request to participate. In total, 784 electronic mail questionnaires
19 were sent out to the middle managers. Only fully completed questionnaires were used for
20 analysis with partial or incomplete responses excluded. A total of 136 useable responses were
21 obtained representing an overall response rate of 17.3%. Of the respondents, 51.4% of were
22 male. The largest grouping of the respondents (33%) had been working at the firm for between

1 4-6 years. Approximately 74.5% held a basic undergraduate degree, while 21.2% held a
2 postgraduate degree.

3

4 **Measures**

5 The questionnaire consisted of four parts measuring middle manager entrepreneurial
6 behavior, psychological ownership, job satisfaction and background. To ensure the validity of
7 the questionnaire, only established and validated measures from the literature were used. To
8 determine the internal consistency of the constructs, a series of factor analyses were performed
9 and Cronbach's alpha was used to test uni-dimensionality and inter-item reliability (Carmines &
10 Zeller, 1979).

11

12 **Middle managers' psychological ownership.**

13 Pierce et al.'s (1991) seven-item measure was used to measure middle managers'
14 psychological ownership towards the firm. All items were measured on a seven-point Likert
15 scale ranging from 1 = strongly disagree to 7 = strongly agree. Sample items include "This is my
16 organization" and "I feel a very high degree of personal ownership for this organization". The
17 Cronbach's Alpha for psychological ownership was 0.79.

18

19 **Middle managers' job satisfaction.**

20 A three-item measure informed by Van Dyne and Pierce (2004) and Mayhew,
21 Ashkanasy, Bramble and Gardner (2007), was used to measure middle managers' job
22 satisfaction. All items were measured on a seven-point Likert scale ranging from 1 = strongly

1 disagree to 7 = strongly agree. Sample items include "I like the things that I do at work" and "In
2 general, I am very satisfied with my job". Cronbach's Alpha was 0.83.

3

4 **Middle managers' entrepreneurial behavior.**

5 We followed Sieger et al.'s (2013) procedure to develop a scale for middle managers'
6 entrepreneurial behavior. An 8-item measure of middle managers' entrepreneurial behavior
7 resulted from this process. We first sought to identify the essence and key elements of middle
8 managers' entrepreneurial behavior from the existing literature. As discussed previously,
9 individual-level entrepreneurial behavior is conceptually distinct from firm-level constructs such
10 as corporate entrepreneurship or entrepreneurial orientation (Kuratko, 2010; Sieger et al., 2013)
11 and it varies across managerial levels (Hornsby et al., 2009). Studies also point to the behavior of
12 entrepreneurial (Pearce, Kramer, & Robbins, 1997) or innovative (Dyer, Gregersen, &
13 Christensen, 2008) managers being different from executives. Specifically, the existing literature
14 has conceptualized middle managers' entrepreneurial behavior as consisting of two key actions
15 (Kuratko & Ireland et al., 2005; Kurtako, 2010; Smith & Di Gregorio, 2002): (1) recognizing and
16 generating novel ideas (Hornsby et al., 2009) and (2) helping (or supporting) others to act
17 entrepreneurially (Kuratko, 2010).

18 In line with Sieger et al.'s (2013) approach, we relied on established scales and existing
19 items from the literature to adequately capture these two key elements of middle managers'
20 entrepreneurial behavior. In capturing the first dimension (recognizing and generating new and
21 novel ideas, or idea generation), we relied on four items adapted from Dyer et al. (2008).
22 Example items include, "I often come up with new and innovative ideas" and "I often generate
23 new ideas by observing our customers". Dyer et al.'s (2008) scale for 'innovative behavior of

1 managers' contained four components across 19 items but were developed through qualitative
2 interviews and then validated with a quantitative study. We adopted and modified those items
3 solely concentrating on recognizing and generating new and novel ideas as relevant to our study
4 as appropriate to the context of our work, research question, and construct definition for middle
5 managers' entrepreneurial behavior.

6 For the second dimension (supporting others to act entrepreneurially), we relied on four
7 items adapted from Pearce et al.'s (1997) earlier scale for 'entrepreneurial behavior of
8 managers'. Example items included, "I encourage others to take the initiative for their own
9 ideas" and "I actively promote the good ideas of others.". Items were selected where their
10 wording, verbiage, and terminology were sensible and understandable to managers in the context
11 of our study (for example, some items used terms or phrases that would make little or no sense to
12 managers in South-East Asia such as 'go to bat for'). Each of Pearce et al.'s (1997) items had
13 support in the literature which lends confidence to the use of relevant items from this battery. We
14 did not use Pearce et al.'s (1997) battery in full because their work equated individual
15 entrepreneurial behavior to "managers who exhibit an entrepreneurial orientation" (p.151). This
16 is problematic as "entrepreneurial orientation" is a firm-level construct not an individual one.
17 There was no theorizing or justification in their work to bridge entrepreneurial orientation to the
18 individual manager level and so we only selected the items directly relevant to individual
19 managerial behavior. Our 8 items were measured on a 7-point Likert scale ranging from '1 =
20 strongly disagree' to '7 = strongly agree'.

21 We established the content validity of our 8-item composite scale in two ways. First, to
22 ensure our selected scales adequately capture the core elements of each dimension, we recruited
23 two expert panels to examine the items. The first expert panel consisted of 12 managers from the

1 South-East Asia region registered on an MBA program. These managers were asked to evaluate
2 the items for their content, clarity and to what themes (or dimensions) the items appeared to
3 speak or belong to. All 12 managers discerned that the 8 items were in line with our two
4 expected dimensions and that all were common to the notion of individual entrepreneurial
5 behavior. From this panel, no suggestions for changes were made. The second expert panel
6 consisted of six scholars, three of whom were experts in entrepreneurship and three of whom
7 were non-experts (two in the field of statistics and one in history). They were asked to comment
8 on what these items appeared to measure and whether these items were appropriate in their view.
9 Each member of this expert panel had an agreement rate between 90-100%, matching our items
10 to the two expected dimensions and applying labels that were synonymous with our own.

11 Second, after data collection, we performed an exploratory factor analysis to discover
12 whether our 8 items drawn from previously-established scales relating to middle managers'
13 entrepreneurial behavior, and its two expected dimensions of idea generation and supporting
14 others to act entrepreneurially, held statistically for our sample. As shown in Table 1, the rotated
15 factor matrix produced a two-factor solution and each of the items correctly loaded onto their
16 respective dimensions. The factor loadings for our items ranged from 0.67 to 0.90, all of which
17 exceed the limits suggested by Hair, Black, Babin, Anderson, and Tatham (2006). Table 1 also
18 shows that the alpha reliabilities for the two dimensions were 0.76 for Idea Generation and 0.84
19 for Supporting Others to Act Entrepreneurially. Each of these values exceeds the 0.70 criterion
20 specified by Hair et al. (2006) and Nunnally (1978) for construct reliability. In measuring the
21 composite middle managers' entrepreneurial behavior scale, we first summed up the scores for
22 each individual dimension, and then added together each of the individual summed dimensions
23 to form our overall composite score. The scale's overall Cronbach's Alpha was 0.83.

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INSERT TABLE 1 ABOUT HERE

Control Variables

Consistent with earlier studies on middle managers’ entrepreneurial behavior (see Hornsby et al., 2009), age, gender and job tenure were included as control variables. Age was measured in years and job tenure was measured as number of current years in the position of middle-manager. Prior working experience has been identified as an important source of human capital and skill development and has thus been positively related to job performance (Quiñones, Ford, & Teachout, 1995). Therefore we included job experience, measured as the number of years of full-time work in the labor market, also as a control variable.

Results

A Harman's single factor test was used to examine for common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). An exploratory factor analysis was conducted on all the study variables (Podsakoff et al., 2003). A four-factor solution was found which accounted for 68.65% of the total variance. The first factor explained 35.21% of the variance. Collectively the evidence suggested common method bias was not a problem because no single factor accounted for 45% of the total variance. Furthermore, key variables were centered to test for the potential problem of multicollinearity. The Variance Inflation Factor associated with the predictors generated showed a range from 1.02 to 3.48. This range is within the acceptable limits and

1 suggests that multicollinearity was not of concern in this particular study (Hair, Black, Babin,
2 Anderson, & Tatham, 2006).

3

4 **Descriptive Statistics, Correlations and Hypothesis Testing**

5 Means, standard deviations, and reliability coefficients are reported in Table 2. All scales
6 were found to be internally consistent ($\alpha > 0.7$) and normal. Table 3 examines the relationships
7 between the study variables. A significant positive correlation between psychological ownership
8 and middle managers' entrepreneurial behavior ($r = 0.32, p < 0.01$), psychological ownership and
9 job satisfaction ($r = 0.44, p < 0.01$) and between job satisfaction and middle managers'
10 entrepreneurial behavior ($r = 0.30, p < 0.01$). The preliminary evidence from the correlation
11 analysis provides encouragement for hypothesis 1 that psychological ownership is positively
12 related to individual entrepreneurial behavior, for hypothesis 2 that psychological ownership is
13 positively related to job satisfaction, and for hypothesis 3 that job satisfaction is positively
14 related to entrepreneurial behavior. While these correlations are encouraging, we tested the
15 directionality indicated in our hypotheses using stepwise regression.

16

17

INSERT TABLES 2 and 3 ABOUT HERE

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19

20 Tables 4 and 5 contain the results of our further hypothesis tests based on a stepwise
21 regression analysis. Table 4 examines whether middle managers' psychological ownership is a
22 predictor of their job satisfaction. Middle managers' psychological ownership significantly
23 predicts their job satisfaction ($H2, b = 0.48, p < 0.01$), explaining 17% of the variance in the
level of their job satisfaction. Table 5 examines the effects of the predictors on middle managers'

1 entrepreneurial behavior. In step 1, psychological ownership and the control variables were
2 included, while step 2 added job satisfaction. Middle managers' psychological ownership was
3 found to significantly predict their entrepreneurial behavior (H1, $b = 0.23$, $p < 0.01$). Similarly,
4 middle manager satisfaction with their job was also found to significantly predict their
5 entrepreneurial behavior (H3, $b = 0.14$, $p < 0.01$). The independent variables (psychological
6 ownership and job satisfaction) explained 12% additional variance (adjusted R^2) in the level of
7 middle managers' entrepreneurial behavior with 9% of this stemming from middle managers'
8 psychological ownership.

9 Hypothesis 4 predicted that the relationship between middle managers' psychological
10 ownership and their entrepreneurial behavior will be mediated by job satisfaction. To test this
11 hypothesis, the steps outlined by Baron and Kenny (1986) in conducting a mediated regression
12 were followed. Baron and Kenny (1986) advance that three specific conditions must be met for
13 mediation to occur. First, a relationship between the independent variable (psychological
14 ownership) and the potential mediator (job satisfaction) was established. These regression results
15 are presented in Table 3 and indicate that psychological ownership and the control variables
16 (age, gender and job tenure) accounted for significant variance in the mediator (job satisfaction)
17 ($R^2 = 0.17$, $F = 6.52$, $p < 0.01$). Additionally, the independent variable (psychological ownership)
18 must affect the dependent variable (middle managers' entrepreneurial behavior). Second, a
19 relationship between psychological ownership, job satisfaction and entrepreneurial behavior was
20 established by entering psychological ownership along with the control variables in block 1 and
21 the mediator (job satisfaction) in block 2. Third, when the mediator (job satisfaction) was entered
22 in block 2, the coefficient for the middle managers' psychological ownership decreased to $b =$
23 0.17 ($p < 0.05$). This satisfies the third condition and suggests the existence of partial mediation.

1 -----
2 INSERT TABLES 4 and 5 ABOUT HERE
3 -----

4 To test the significance of job satisfaction as a mediator in the relationship between
5 psychological ownership and middle managers' entrepreneurial behavior, 5,000 bootstrapping
6 resamples were used following the procedures as outlined by Preacher and Hayes (2008).
7 According to Preacher and Hayes (2008), mediation is said to be significant if the 95% bias
8 corrected and accelerated (BCa) confidence intervals (CI) for the indirect effect do not include
9 zero (Preacher & Hayes, 2008). Bootstrap results showed that after controlling for the effect of
10 age ($b = -0.01$, $SE = 0.01$, $p < 0.05$), gender ($b = 0.12$, $SE = .09$, $p < 0.05$), job experience ($b =$
11 0.08 , $SE = 0.09$, $p < 0.05$) and job tenure ($b = .05$, $SE = 0.07$, $p < 0.05$), psychological ownership
12 had a significant total effect on middle managers' entrepreneurial behavior ($b = 0.23$, $SE = 0.07$,
13 $p < 0.05$) as well as a significant residual direct effect ($b = 0.17$, $SE = 0.07$, $p < 0.05$). Job
14 satisfaction partially mediated the relationship between psychological ownership and
15 entrepreneurial behavior (IE lower 95% CI = 0.0126 upper 95% CI = 0.1311). Collectively the
16 results suggest support for the existence of a partial mediation for hypothesis 4.

17 Finally, we conducted a post-hoc power analysis using GPower (Faul & Erdfelder, 1992)
18 with a sample size of 136 and 6 predictor variables as a baseline to test that our sample and
19 findings are appropriate and representative. We used the following recommended effects sizes
20 for this assessment: small ($f_2 = .02$), medium ($f_2 = .15$), and large ($f_2 = .35$) as suggested by
21 Cohen (1977). Post hoc power analysis indicated that the power to detect obtained effects at the
22 .05 level was .97 for the overall regression in prediction of middle managers' entrepreneurial
23 behavior. This is far above the value of 0.8 recommended by Cohen (1977) and Field (2009). We

1 can therefore conclude that we have sufficient power to detect small effects with a sample of 136
2 and we can have confidence in the appropriateness of our sample and findings to protect against
3 Type II error (false acceptance of the null hypothesis) (Field, 2009).

4

5

Discussion

6 What determines middle managers' entrepreneurial behavior in the absence of formal
7 ownership (Kuratko, 2010; Lau, Shaffer, Chan, & Man, 2012; Rigtering & Weitzel, 2013; Wales,
8 Monsen, & McKelvie, 2011)? To address this question we draw on the psychology of possession
9 literature to examine whether job satisfaction mediates the relationship between middle
10 managers' psychological ownership and their entrepreneurial behavior using a sample of 136
11 middle managers from Singapore. We found a positive relationship between middle managers'
12 psychological ownership and their entrepreneurial behavior, and a partial mediation of this
13 relationship was found with job satisfaction.

14 Our findings offer a number of empirical and theoretical contributions to the literature.
15 Empirically, we demonstrate a positive relationship between middle managers' ownership
16 feelings towards their organization and satisfaction with their jobs which, in turn, positively
17 affects their likelihood of behaving entrepreneurially. The effect of the mediating relationship
18 was found to be partial, which means that a direct relationship between psychological ownership
19 and middle managers' entrepreneurial behavior must also explain some of the variance found
20 between these variables. Typically, "ownership represents a source of power that can be used to
21 either support or oppose management depending on how it's concentrated and used" (Salancik &
22 Pfeffer, 1980, p. 655). Within organizations, senior management are likely to experience a sense
23 of ownership (because they are likely to have some form of shareholding in their organizations)

1 and control, and with it the necessary entrepreneurial behavior (Floyd & Wooldridge, 2007;
2 Sieger et al., 2013).

3 However, the same cannot be said for middle managers, as they tend not to have
4 shareholdings within their organizations (Kuratko, 2010). Thus, empirically demonstrating the
5 value of middle managers' psychological ownership is important and refocuses attention on this
6 important group of managers. Middle managers are commonly charged with implementing
7 senior managers' corporate entrepreneurship strategies (Hornsby et al., 2002; Ireland et al., 2009;
8 Kuratko & Ireland et al., 2005) yet other than structural and process-based guidance, the middle
9 manager as a human agent has been treated solely as an automaton who, given the right
10 organizational conditions, 'will' act entrepreneurially. Our evidence suggests that their likelihood
11 of displaying individual entrepreneurial behavior can depend on their feelings of psychological
12 ownership and job satisfaction. We therefore direct attention to these important individual
13 components when explaining the human dimensions of corporate entrepreneurship.

14 By developing a sense of psychological ownership towards their organization, middle
15 managers may also come to regard themselves as the owners, even if they have no formal
16 ownership (Pierce, Kostova, & Dirks, 2001). By doing so, middle managers will be more likely
17 to develop a concern to advance the organization and its welfare (Avey et al., 2009; Van Dyne &
18 Pierce, 2004). This cognitive focus and heightened emotional attachment to the organization and
19 its stakeholders may be channeled through acting entrepreneurially. Therefore, in addition to
20 structural factors that promote organizational growth and development, middle managers can be
21 motivated to seek out new opportunities and ideas for products or services and assist their
22 subordinates to do the same through psychological ownership and job satisfaction. It is

1 incumbent on senior managers to engender these psychological processes in their middle
2 managers and the field would benefit from further investigating these important relationships.

3 Our results also demonstrate that middle managers' job satisfaction positively affects
4 their entrepreneurial behavior. This finding supports earlier observations by Kuratko and Ireland
5 et al. (2005). Entrepreneurial actions often require sustained efforts and energy (Antoncic &
6 Antoncic, 2011), for managers to generate creative ideas and to go out of their way to help their
7 colleagues behave entrepreneurially. Such efforts will be more likely to occur when middle
8 managers are highly satisfied their jobs. As middle managers' psychological ownership can
9 directly influence their entrepreneurial behavior as well as enhance their job satisfaction,
10 developing a sense of psychological ownership becomes a vitally important predictor of their
11 likelihood to perform the tasks that facilitate corporate entrepreneurship.

12 Through feelings of psychological ownership, middle managers are also likely to gain a
13 sense of control over making entrepreneurial decisions for the organizations they serve. Such
14 autonomy has been shown to be a strong predictor of job satisfaction (Antoncic & Antoncic,
15 2011). Therefore middle managers' job satisfaction can increase with feelings of psychological
16 ownership which will subsequently influence their likelihood to behave entrepreneurially.
17 Broadly, this implies that an organization can enhance steward-like and positive organizational
18 behaviors among middle managers not just through the provision of rewards and compensation
19 but also through enhancing a sense of possession towards their organization and their jobs (Pan,
20 Qin, & Gao, 2014).

21 The findings from our study also make a number of timely theoretical contributions to
22 existing literature. First, our findings support Sieger et al.'s (2013) suggestion that individual
23 entrepreneurial behavior is an effective way of assessing whether ownership feelings are

1 expressed in organizational behavior. Additionally, our study extends the literature on the
2 behavioral consequence of psychological ownership (Avey et al., 2009) by incorporating
3 additional pro-organizational behaviors not yet considered by the literature, namely
4 entrepreneurial behavior. Second, we highlight the strategic importance of middle managers in
5 organizations. The existing literature in this area has so far been largely conceptual in nature and
6 focused on the organizational antecedents of middle managers' entrepreneurial behavior (Dopson
7 & Stewart, 1990; Hornsby et al., 2002; Kuratko & Ireland et al., 2005) as opposed to their
8 choices and inclination to engage in such behavior as well as the psychological factors
9 influencing their entrepreneurial behavior.

10 Far too little is known of the processes through which individual-level antecedents affect
11 middle managers' entrepreneurial behavior. In developing our conceptual model, our study
12 offers insights into the processes through which individual-level factors can influence their
13 entrepreneurial behavior. And, in examining the psychological ownership of middle managers
14 from a non-Western country, we also add to small but growing stream of research investigating
15 the effects of ownership feelings in differing organizational and cultural contexts (Ramos, Man,
16 Mustafa, & Zu, 2014). This set of contributions enable corporate entrepreneurship researchers to
17 disentangle the reasons why middle managers might not engage in corporate entrepreneurship,
18 even when executives have put in place a pro-entrepreneurship architecture. This has been a
19 longstanding void in research on corporate entrepreneurship (see Ireland et al., 2009) and our
20 research offers a starting point for further insights through the use of psychological theory.

21

22 **Managerial Implications**

1 If senior managers in organizations are interested in increasing the entrepreneurial
2 activities of its staff then focusing on the ownership feelings and job satisfaction of middle
3 management is vital. Not only will this increase the likelihood of middle management identifying
4 opportunities, developing ideas and taking risks, it also means they become more likely to
5 encourage such behaviors throughout the organization. These middle managers had no
6 ownership stake in this organization yet there was variation in their perception of how much they
7 felt they ‘owned’ the product of their efforts. This variation in perceptions, alongside feelings of
8 job satisfaction, influenced their likelihood to act entrepreneurially. Ownership feelings are not
9 only the preserve of senior management, as previous entrepreneurship research has identified,
10 but are also important to other ranks within an organization. Giving people a sense of control
11 over their work, fostering positive organizational values and building a sense of community, can
12 all affect whether a sense of ownership develops. Facilitating a perception of ownership then, is
13 crucial to middle management entrepreneurial behavior.

14

15 **Limitations**

16 It is incumbent upon organizational researchers to ensure theoretical claims have validity
17 and this research, within a multi-national organization, ensures a high degree of ecological
18 validity can be inferred with these findings. Nonetheless there are always caveats to the findings
19 of research conducted in the field. First, claims concerning the direction of causality must be
20 made tentatively. In line with existing studies (Antoncic & Antoncic, 2011; Kuratko & Hornsby
21 et al., 2005), this research suggests that satisfied employees will perform their work more
22 effectively. However, it has also been suggested that the job satisfaction–performance
23 relationship can be complex (Judge, Thoresen, Bono, & Patton, 2001). Future research may seek

1 to generate longitudinal datasets, so as to increase understanding concerning causality among the
2 study variables. Such research is expensive, difficult to implement and often is not possible
3 because organizational sponsors can move into new roles before research is completed.
4 Nonetheless this work adds to the body of work that lends support to the direction of causality
5 proposed here (Kuratko & Hornsby et al., 2005; Mayhew et al., 2007; Vandewalle et al., 1995).

6 Prior research has also suggested that entrepreneurial behavior in established
7 organizations can be the result of complex processes which shape and guide individual
8 opportunity structures (Kuratko & Ireland et al., 2005; Rutherford & Holt, 2007). Previous
9 research has also suggested that the specific entrepreneurial behaviors in organizations may vary
10 with respect to organizational level (Hornsby et al., 2009) and type of sector or industry (Axtell,
11 Holman, Unsworth, Wall, Waterson, & Harrington, 2000). This research confirms that such
12 entrepreneurial behavior can be explained within middle management employees but there are
13 limitations to the generalizations possible. As research frameworks develop, more contexts and
14 types of employee can be studied to ensure such models take into account the complexities of
15 each context. Advanced modelling techniques will also help integrate levels of analysis across
16 different organizational settings and industries within theoretical models and this provides
17 opportunities for further research around this topic.

18

19 **Future Research**

20 The findings from our study open up a number of interesting avenues for future research.
21 First, while the theoretical reasoning behind the effects of psychological ownership on
22 behavioral consequences is increasingly holding firm under empirical scrutiny, the evidence on
23 these effects remains divided. For example, while Pierce et al. (2003) demonstrate a significant

1 relationship between psychological ownership and behavioral outcomes, Mayhew et al. (2007)
2 were not able to do so. Moreover, such findings have consistently shown a strong relationship
3 between psychological ownership and work attitudes but not always work behaviors. One reason
4 for this may lie in the nature of psychological ownership. Future research should establish if
5 particular dimensions of psychological ownership are more or less likely to affect behavioral or
6 attitudinal outcomes.

7 Second, Avey et al. (2009) argue that psychological ownership has two important
8 dimensions: a promotion and a prevention regulatory focus. Drawing on the work of Kark and
9 Van Dijk (2007), Avey et al. (2009) show that those whose ownership is focused on promotion
10 tend to be more concerned with what they achieve and their aspirations (and this could lead to a
11 willingness to take risks). Those whose ownership has a prevention focus tend to be more
12 concerned with their duties and obligations and may therefore experience anxiety as they
13 conduct their work. Having established the link between psychological ownership and the
14 entrepreneurial behavior of middle managers, future research could explore the effects of
15 regulatory focus on subsequent behaviors and attitudes.

16 Third, Beggan (1992) suggests that a sense of ownership is more likely to come about
17 when an individual has a strong sense of place, belonging and personal space within the
18 organization. This is also more likely to occur in individuals who have significant tenure within
19 the organization. Sturman (2003) pointed out that tenure serves as an easily obtainable proxy for
20 organization socialization and organization experience. Similarly, Zampetakis, Beldekos, and
21 Moustakis (2002) found organizational tenure to have a significant effect on individual
22 entrepreneurial behaviors in established organizations. Future research could explore the effects
23 of a more distributed sample based on tenure than this study was able to achieve. Finally, this

1 study filled a gap in our understanding of which individual-level variables and attitudes motivate
2 and explain entrepreneurial behaviors in established organizations. Acknowledging that
3 entrepreneurial behaviors come about through complex process within organizations (Rigtering
4 & Weitzel, 2013), future research can now examine possible interactions between individual and
5 organizational factors.

6 **Conclusion**

7 The sustainability of an organization increasingly depends on the entrepreneurial
8 behavior of its employees. Their ability to identify opportunities, generate profitable ideas, take
9 calculated risks, innovate and help strategic renewal are fundamentally important to value
10 creation and wealth. The contribution of this study deals with the question of which
11 psychological processes affect the entrepreneurial behaviors of corporate middle managers. It
12 was found that individuals' ownership feelings can directly influence their entrepreneurial
13 behavior (H1) and that psychological ownership influences job satisfaction (H2). In addition it
14 was found that job satisfaction can increase entrepreneurial behavior (H3) and also acts as a
15 partial mediator for the relationship between psychological ownership and entrepreneurial
16 behavior (H4). By drawing on psychological ownership and job satisfaction to explain
17 entrepreneurial behavior in established organizations, this study adds to the understanding of
18 corporate entrepreneurship. This offers scholars new opportunities to advance knowledge on
19 sustaining entrepreneurship in firms, a subject that remains partially explored to date.

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9
10 **Table 1**
11
12 *Summary of Exploratory Factor Analysis results for Middle managers entrepreneurial behavior*
13 *measure*
14

Item	Factor Loadings	
	Idea Generation	Supporting Others to Act Entrepreneurially
I often come to new ideas when observing how people interact with our products and services.	.82	
I often get new ideas by observing our customers	.81	
I often generate new ideas by observing the world.	.72	
I often come up with new and innovative ideas.	.69	
I actively promote the good ideas of others.		.90
I inspire others to think about their work in new ways.		.85
I encourage others to take the initiative for their own ideas		.82
I actively help others find new ways to improve our products and services		.67

1 **Table 2**

2
3 *Descriptive statistics*

4

Variables	Mean	SD	α	<i>Skewness</i>	<i>Kurtosis</i>
Psychological Ownership	3.18	0.69	0.79	-0.63	0.89
Entrepreneurial Behavior	3.81	0.53	0.85	-0.09	0.68
Job Satisfaction	3.71	0.76	0.83	-0.08	-0.33

5

6 **Table 3**

7 *Zero-ordered correlations among the study variables*

8

Variables	1	2	3	4	5	6
1. Age						
2. Gender	-0.03					
3. Job Experience	0.83**	-0.09				
4. Job Tenure	0.46**	0	0.52**			
5. Entrep. Behavior	0.10	0.10	0.14	0.13		
6. Job Satisfaction	0.13	0.03	0.09	0.05	0.30**	
7. Psychological Ownership	0.22*	-0.01	0.21*	0.11	0.32**	0.44**

9
10

1 **Table 4**

2

3 *Multiple regression analysis of job satisfaction*

4

Variable	Job Satisfaction
	<i>B</i>
Age	0.01
Gender	0.04
Job Experience	-0.08
Job Tenure	0.004
Psychological Ownership	0.48**
R ²	0.17
F	6.52**

5 ** *p* < .01

1 **Table 5**

2 *Multiple regression analysis of entrepreneurial behavior*

3

Variable	<i>B</i>	R ²	ΔR ²
<i>Step 1</i>		0.09**	0.13**
Age	-0.01		
Gender	-0.12		
Job Experience	0.08		
Job Tenure	0.05		
Psychological Ownership	0.23**		
<i>Step 2</i>		0.12**	0.03**
Age	-0.01		
Gender	0.11		
Experience	0.09		
Tenure	0.05		
Psychological Ownership	0.17*		
Job Satisfaction	0.14*		

4 * $p < .05$; ** $p < .01$

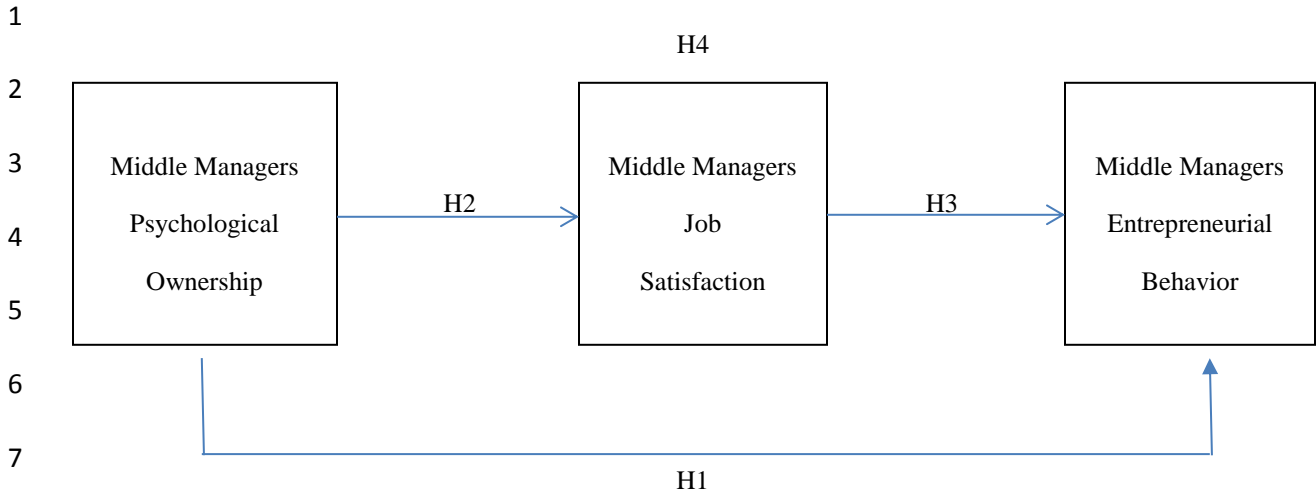


Figure 1. Conceptual model and hypothesized relationships