A Configuration Analysis of Organizational Ambidexterity in Three Types of Firms

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'Balance is a nice word, but a cruel concept.'
James March (1999, p.5)

Introduction

Organizational ambidexterity is under scrutiny (Stettner and Lavie, 2014). Often heralded as an optimal and sustainable solution to long-term business performance by bringing together competing but essential activities (Raisch, Birkinshaw, Probst, and Tushman, 2009), critics highlight an implicit assumption that managers can implement organizational ambidexterity theory against a backdrop of normative ideas that entail substantial implementation challenges (Lavie and Rosenkopf, 2006). This challenge is in no small part due to the phenomenon of 'balance', which has led to at least three different ways of calculating or verifying ambidexterity—additive, difference, and multiplication (Lubatkin, Simsek, Ling, and Veiga, 2006). In each instance, the assumption is that 'balance' of exploration and exploitation yields the highest performance.

This assumption is problematic, however, because it manifests in a lack of conceptualization of the necessary organizing principles of ambidexterity and empirical evidence of their effects (Durisin and Todorova, 2012), and disregard for the context (or setting) in which exploration and exploitation (as the two primary competing activities firms need to balance) takes place (Chang and Hughes, 2012; Junni, Sarala, Taras, and Tarba, 2013; Stettner and Lavie, 2014). For example, balance as an equilibrium is assumed to be optimal across all firms such that there will be no difference in performance across different types of firms once they have achieved an equilibrium (balance) of both of exploration and exploitation to an acceptable level of quality (i.e., once exploration and exploitation are equalized, high performance is unlocked). However, our argument is that striking the right balance is *not* symmetrical across firms, and the notion of balance itself does *not* mean equilibrium. March (1999, p.5) put forward this very concern, but posed that, "[d]efining an optimum *mix* of exploration and exploitation is difficult" and "[t]he optimum balance *may vary* from one participant to another" (emphases added). We believe that defining an optimum mix for different types of firms can be achieved through configuration theory.

The failure to address March's (1999) longstanding concern is in part a product of the rush to empirically validate the performance rewards of ambidexterity without first understanding what constitutes organizational ambidexterity in relation to specific activities (e.g., Nosella, Cantarello, and Filippini, 2012). Positive performance effects (He and Wong, 2004; Jansen, Van den Bosch, and Volberda, 2006) are then juxtaposed against insignificant (Venkataraman, Lee, and Iyer, 2007) and negative ones (Lavie, Kang, and Rosenkopf, 2011). These disparities can be attributed to restricted theoretical and empirical development about context and organizing principles relevant to the ambidexterity phenomenon.

Related to this problem is an oversimplification of the complexity caused by the biological metaphor contained within the term 'ambidexterity'. In humans, ambidexterity is a state of being equally adept at using both left and right appendages, which can be used interchangeably with equal value for a specific task or activity (Uzoigwe, 2013).The notion of equal balance is value-free because no value is (or can be) attached to the use of one appendage over another. In organizations, this idea does not hold. Organizational ambidexterity represents an organization's ability to pursue two different activities at the same time, or to 'balance' the two (Atuahene-Gima, 2005; Benner and Tushman, 2003; He and Wong, 2004; Lin, McDonough, Lin, and Lin, 2013; Lubatkin et al., 2006; Stettner and Lavie, 2014). But the value and purpose of each activity is not the same such that a configuration of the activities optimal to achieving high performance might be quite different to an equilibrium perspective and further differ across types of firms.

Current treatments then do not sufficiently examine the interface uniting exploration and exploitation activities. What form the optimal 'balance', mix or configuration (March, 1999), should then take is perhaps the most persistent unanswered question present in the organizational ambidexterity thesis. Answering this question is necessary for a fine-grained evaluation of organizational ambidexterity to become possible.

We address this problem in two ways. First, focusing on exploration and exploitation as the two competing but essential activities firms must reconcile, we draw on configuration theory, a theory birthed in the management of calculating and verifying the optimal mix of two or more activities, to examine what

precise combination of both activities is necessary to unlock high performance. This corrects for the disregard among studies of organizational ambidexterity for the organizing principles underpinning both activities (Durisin and Todorova, 2012). Second, to optimize our analysis, we examine for configurations and the performance implications of deviating from optimal configurations of ambidexterity across three types of firms each with its own specific context—growth entrepreneurs, regular entrepreneurs, and mature growth firms. This corrects for the disregard for context among studies of organizational ambidexterity (Stettner and Lavie, 2014).

We offer two main contributions. First, we integrate explanations from configuration theory with theory on organizational ambidexterity to reveal an alternative conceptualization of ambidexterity more in line with March's (1999) arguments and his original (1991) thesis that, "maintaining an *appropriate* balance between exploration and exploitation is a primary factor in system survival and prosperity" (p.71, emphasis added). This generates a theoretical contribution providing an alternative conceptualization of organizational ambidexterity more amenable to its theoretical origins. Second, we offer conceptual and empirical evidence that the configuration of exploration and exploitation is not equally balanced in pursuit of high performance and the precise mix further differs across three types of firms. This provides a methodological contribution supporting configuration as an appropriate operationalization to calculate and verify organizational ambidexterity. Third, we empirically demonstrate that the contribution of organizational ambidexterity to three types of firms are not consistent and these firms also differ in structural, contextual, and organizational principles to further explain this phenomenon. By amassing a primary survey dataset from Denmark with almost 300 growth entrepreneurs, regular entrepreneurs, and mature growth firms, the study is unique in extending the theoretical implications of configuration theory to ambidexterity thesis and extending empirical evidence across three different categories of firms in a single study. To the best of our knowledge, this is the first study to conceptualize and text a configuration examination of organizational ambidexterity and the first to do so across a sample of three types of firms in one study. Collectively, these contributions provide open important new avenues for further scholarly research and managerial insights into the strategic management of organizational ambidexterity.

Ambidexterity and Configuration Theory

Exploitation is based on incremental improvement and refinements through increases in efficiency, cost recovery, variance reduction, and better execution of largely existing activities; exploration is based on a search for new possibilities through experimentation and discovery to increase variance and innovation of primarily new activities (He and Wong, 2004; Junni et al., 2013; March, 1991). Managers are expected to organize for both exploration and exploitation (March, 1991). Those that can do so successfully may obtain superior business performance (cf. Stettner and Lavie, 2014), but those that do not, or do so badly, risk a downward spiral into mediocrity (March, 1991).

Exploration relies on variance-inducing activities but exploitation relies on choice-inducing activities (March, 1991). This dichotomy is a significant problem because both activities compete for scarce resources, typically rely on different activities, and call for different structures or patterns of organizing (Ireland and Webb, 2007; March, 1991; Tushman and O'Reilly, 1996; Voss, Sirdeshmukh, and Voss, 2008). This problem can greatly affect young firms in particular because of their relative constraints of newness (Hughes, Morgan, Ireland, and Hughes, 2014), but is also profound in established firms because inertia prevents such firms from optimally balancing exploitation with sufficient exploration (Junni et al., 2013; Levinthal and March, 1993; March, 1991). The result is that one activity tends to flourish while the other is neglected.

This dilemma led March (1991) to propose that organizational survival, let alone high performance, relies on achieving and maintaining a proper balance between exploration and exploitation. From this origin, scholars formed two views on the calculation of ambidexterity and the form ambidexterity would take: (1) whether it refers to an optimal balance between exploration and exploitation, floating around a midpoint on a continuum between the two; or (2) whether it involves a combination of high levels of both exploration and exploitation in which balance is then determined by quality and not absolute difference per se (e.g., Cao, Gedajlovic, and Zhang, 2009; Junni et al., 2013). The former 'balance perspective' would be the expected approach when firms have limited resources since the 'combination perspective' considers both activities as independent and to be maximised as far as possible, which is far more resource intensive (e.g., Cao et al., 2009; Chang and Hughes, 2012; Voss et al., 2008). We take the view that firms are largely resource constrained and align with March (1991) that firms face an almost inevitable trade-off when allocating resources to both activities to ward off the decline into mediocrity that may occur without balance.

As the resource and managerial demands between exploration and exploitation are seen as conflicting, trade-offs are unavoidable such that ambidexterity relates to managing these trade-offs to find an

"appropriate degree of emphasis between the two activities" (Simsek, Heavey, Veiga, and Souder, 2009, p.867). The degree of balance has then been calculated as the absolute difference between the two (e.g., He and Wong, 2004; Lubatkin et al., 2006). Ambidexterity then takes the form of a floating midpoint between exploration and exploitation defined only as the degree to which the firm performs both activities to a different degree or standard (Junni et al., 2013). The standard must be high for the balance to be relevant as March (1991) himself recognizes the necessity of pursuing both activities. Missing for this debate however is a consideration of what an *optimal* mix or configuration might consist of (March, 1999). Configuration theory may resolve this problem.

Configuration theory explains why some firms achieve more than others (Hewett, Roth, and Roth, 2003), and what dimensions drive that difference. Under configuration theory, high-performing firms represent a so-called 'ideal' profile of a set of dimensions, deviance from which can be compared against alternative groups of firms with weaker performance to identify whether a configuration of a set of dimensions contributes meaningfully to performance (Doty, Glick, and Huber, 1993; Ketchen, Thomas, and Snow, 1993; Vorhies and Morgan, 2003). This allows an assessment of whether ambidexterity makes any meaningful contribution to firm performance, and what configuration of ambidexterity is associated with the best performers and weaker performers. In configuration theory, the profile of high performers is described as an 'ideal profile', a benchmark that is empirically established to represent the pinnacle group of performers within a set of firms (Vorhies and Morgan, 2005). We are interested in the configuration of exploration and exploitation exhibited by high performers and those deviating from this profile.

Hypotheses

Decomposing high performers along the dimensions of exploration and exploitation informs whether ambidexterity contributes to exemplary performance, whether ambidexterity is different from high-performers to weaker performers, and whether the configuration of ambidexterity is consistent or different in the relative balance between exploration and exploitation across different populations (or types) of high-performing firms. A configuration view of ambidexterity makes no assumption that balance must be represented by an absolute difference of zero. A firm must undertake enough exploration to protect against inertia but the must invest in exploitation above excessive exploration to prevent falling into a failure trap in which they "exhibit too many underdeveloped new ideas and too little distinctive competence" (March, 1991, p.71). But as the costs of exploration far exceed exploitation and the returns to exploration are far more distant and uncertain, the firm will likely need a greater degree of exploitation relatively speaking to ensure sufficient income generation to fund its explorative activities. Thus:

H1: The optimal configuration of exploration and exploitation will not be equally balanced.

The degree of ambidexterity present among high-performers of one type of firm is unlikely to be identical to a configuration of ambidexterity present among high-performers within an entirely different population of firms. As March (1999, p.5) states, "[t]he optimum balance may vary from one participant to another" precisely because each firm within a population of firm types will exhibit different organizational and competitive properties. For example, there are differences among growth entrepreneurs, regular entrepreneurs, and mature growth firms. Growth entrepreneurs prioritize the rapid expansion of the business whereas regular entrepreneurs place greater emphasis on stability. The competitive and strategic context of both firms and their desire for different forms of innovation likely mean a difference in the priority they give to exploration and exploitation. It would be expected that high-performing growth entrepreneurs have a tighter configuration of exploration and exploitation, seeking new innovation to disrupt markets but with sufficient exploitation to convert those innovations into sustained growth. Such firms align with March's (1991) model of learning in an open system in which firms are subject to greater variability in organizational membership and environment turbulence. Mature growth firms will have greater legacies of resources and knowledge to draw on and regular entrepreneurs typically prioritize stability, rendering conditions more akin to March's (1991) idea of firms operating in a relatively closed system, more stable in nature than their growth entrepreneur counterparts. This aligns with Sine, Mitsuhashi, and Kirsch (2006) debate that young entrepreneurial firms have different organizational needs to established businesses. Thus:

H2: The optimum balance of ambidexterity will not be symmetrical across growth entrepreneurs, regular entrepreneurs, and mature growth firms.

Configuration theory holds that if ambidexterity has an impact on performance, poor 'fit' with the 'ideal' profile of high-performing firms by comparing the high-performers against their lesser-performing peers will be found. A lack of fit represents 'profile deviation' (Doty et al., 1993; Venkatraman, 1989).

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Profile deviation is the extent to which the fit among ambidexterity dimensions of regular firms differs from that of the 'ideal' (benchmark) profile drawn from high-performers. If ambidexterity is meaningful to performance, deviation will result in a negative and significant relationship with performance.

March (1991) theorized that those firms unable to achieve the optimal mix of exploration and exploitation would experience a downward spiral into mediocrity. The costs of exploration would balloon to unsustainable levels in such firms or those engaged in too much exploitation to the exclusion of exploration will find themselves trapped in a suboptimal equilibrium (March, 1991). Those firms successful at achieving both activities and at striking an appropriate balance can potentially achieve a competitive advantage that augments business performance. For example, studies of innovation ambidexterity among small-to-medium firms have found positive returns to performance (Lubatkin et al., 2006). However, the business performance implications of attempting ambidexterity in growth oriented entrepreneurial firms are less clear. Ambidexterity is resource intensive and requires managers to make active investment decisions that maintain a delicate balance between exploration and exploitation innovation activities (Kyriakopoulos and Moorman 2004; March, 1991). Nevertheless, striking the right balance suggests a frim can secure the benefits of exploration while suffering fewer of its costs, establishing a platform for longer-term sustainability, which could not accrue with a focus on exploitation alone (March 1991). Deviation should then harm performance. Thus:

H3: Deviation from an ideal profile of ambidexterity will harm firm performance.

Method

Data collection and sample

The research setting is Danish growth entrepreneurs, regular entrepreneurs, and mature growth firms from multiple industries. The aim was to contact and include all Danish growth entrepreneurs established in 2006-2007 and then randomly select regular entrepreneurs and mature growth firms from Danish Statistics' census database. There were a total of 226 firms fitting the growth entrepreneur definition (Table 1) and responses were obtained from 108 (48% of the population).

The final sampling frame consisted of 627 growth entrepreneurs, regular entrepreneurs, and mature growth firms of which 287 participated. Table 1 contains the definitions and division of the sample. The choice of research context was given by the sponsorship of the Danish Government and their interest in better understanding growth entrepreneurs because of their enhanced ability to create new jobs and increase tax yields (OECD, 2007; Schreyer, 2000). To meet the research objectives of the study, rather than looking at growth entrepreneurs and regular entrepreneurs in isolation, mature growth firms were included as a further comparison group.

A survey was carried out using telephone calls (131 respondents, 45.6%) and web-administered questionnaires (156 respondents, 54.4%). After one follow-up contact to all firms in the net sample, useful responses were obtained from 287 respondents. Response bias was tested for using independent samples t-test. There was no significant difference between web and telephone administered data collection for firms' level of exploration, exploitation, market share, or firm age. The main reasons for non-participation was 'Refusing to participate' (205 firms), 'Not available' (92 firms), and 'Bankrupt' (17 firms).

Table 1. Sample characteristics

Firm type	Definitions (OECD, 2007)	Respondents
Growth entrepreneurs	• Startup in 2006 and 2007 • 5 or more employees in 2008 (full-time equivalents) • Average yearly growth in employees of 20% during 2008-2011	108
Regular entrepreneurs	• Startup and minimum size in 2008 like growth entrepreneurs, but without growth requirement	89
Mature growth firms	• Older firms than entrepreneurs • Like growth entrepreneurs in terms of distribution of size. • With same growth rate in employees	90
Sample size		287

A questionnaire was developed containing items capturing the study constructs. *A priori* content (face) validity was established by two pretests assessing the quality and meaningfulness of the indicators. First, the questionnaire was pretested among business practitioners from the target sample and then the refined questionnaire was pretested by Danish Statistics and refined again before launch. All constructs were measured using five-point Likert scales. Initially, a seven-point Likert scale was associated to the indicators,

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but Danish Statistics who conducted the data collection advised against this, as respondents in a telephone survey were less likely to cope meaningfully to the larger variance in a seven-point scale. The key informants were CEOs (Huber and Power, 1985), because they are knowledgeable about the firm's performance, organizational activities, and situation.

Measures were drawn from existing studies. To measure exploration and exploitation, we used the measures of Jansen et al. (2006) adapted for SMEs by Chang and Hughes (2012). Firm performance was assessed with indicators for growth in sales, market share, revenue, and profitability over the last three years relative to main competitors from Lubatkin et al. (2006). All measures subject to principal components analysis with Varimax rotation to assess the underlying factor structure among the indicators. All factor loading and construct reliabilities (Cronbach alpha) were above accepted thresholds. The Harman one-factor test for common method variance (Podsakoff and Organ, 1986) was applied. Since neither a single factor nor a general factor accounted for the majority of variance, common method variance was not deemed to be an explanation for the results found.

Results

Table 1: Ideal Ambidexterity Profiles for High Performers by Firm Type

	Growth Entrepreneurs	Regular Entrepreneurs	Mature Growth Firms
Exploration: Mean (S.D)	3.50 (0.72)	3.41 (1.09)	3.40 (1.08)
Exploitation: Mean (S.D)	4.03 (0.50)	4.00 (0.70)	4.16 (0.63)

Table 2: Regression Results

	Financial Performance					
	Growth Entrepreneurs		Entrepreneurs		Mature Growth Firms	
'Ideal' Profile Models	Standardized β (t-value)	95% CI LL, UL	Standardized β (t-value)	95% CI LL, UL	Standardized β (t-value)	95% CI LL, UL
Profile deviation	0.02 (0.17)	-0.17, 0.20	-0.26 (-2.34)*	-0.46, -0.04	-0.27 (-2.28)*	-0.52, -0.03
Firm size	0.21 (1.87)†	-0.01, 0.26	0.02 (0.17)	-0.13, 0.16	0.05 (0.70)	-0.13, 0.19
R^2	0.04		0.07		0.08	
F-value	1.81		2.81†		3.05*	

**p<.01, *p<.05, †*p*<0.10; CI confidence interval; LL lower limit, UL upper limit

Discussion, Limitations, and Future Research

Our results validate March's (1999) concerns about balance. We make a theoretical contribution by situating this problem in configuration theory. First, the optimal balance of exploration and exploitation does not call for an equal distribution but instead a configuration that compensates for each other's contribution to excellence. This suggests that an absolute difference method of calculating ambidexterity is dangerous and misconstrues the relative amount of exploration and exploitation best suited to performance. Second, that configuration is not symmetrical across types of firms reveals the context sensitivity of ambidexterity. This suggests that an explanation for inconsistent returns to firm performance from ambidexterity found among existing studies (see Stettner and Lavie, 2014) is due to applying a generic calculation of ambidexterity across all firms regardless of type. Third, we find that deviation from an ideal profile of exploration and exploitation found within high-performing growth entrepreneurs does not negatively affect performance. This identifies a context in which striving for ambidexterity is seemingly suboptimal for firm performance (cf. March, 1991). No performance gains are to be found for such firms from ambidexterity.

Our study has limitations. First, we do not address whether temporal pressure exists on the configuration of exploration and exploitation, or whether the configuration of ambidexterity may differ at other levels of analysis (e.g., at the individual, team, functional or divisional levels, the configuration needed might be different). Future research adopting a longitudinal design would be best placed to monitor temporal pressure, using repeated surveys across a sample of firms to determine change in the ambidexterity configuration profile. Future research forming a multi-level model of ambidexterity would be best place to address whether the configuration of ambidexterity differs across alternative levels of analysis. Second, while our study examines configurations of organizational ambidexterity across three different types of firms, it is geographically limited to Denmark. Denmark is a member of the EU (but retains its own currency) and is regarded as a modern market economy with a highly technological agricultural sector and world-leading firms in pharmaceuticals, maritime shipping, and renewable energy, with a high dependence

on foreign trade, and ranks first on Forbes' list of 'Best Countries for Business' as of February 2016. Its context specificity as a nation state may mean that some of our calculations about optimal configurations do not carry completely to other nation states or into different geographical regions. Future studies organized around a multi-country study would be valuable to further corroborate our insights.

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