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Internationalization and Organizational Ambidexterity for Sustainable Performance

Moderating Effects of
Firm-specific Advantages and
Competitive Strategies

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Tiivistelmä Kansainvälisen liiketoiminnan kirjallisuudessa yksi näkökanta puoltaa joko lineaarista tai epälineaarista yhteyttä kansainvälistymisen ja taloudellisen tuloksen välillä, kun taas toinen esittää, ettei yhteyttä ole. Työssäni seurataan kolmen askelen teoriaa, joka on syntetisoitu sisäistämisteoriasta, resurssipohjaisesta näkemyksestä sekä markkinapohjaisesta näkemyksestä, ja sillä testataan S-käyrä-hypoteesia kansainvälistymiseen. Lisäksi testataan käänteistä U-muotoista suhdetta tuloksellisuuden ja organisatorisen ambidekstrisyyden dynaamisen osaamisen välillä. Näiden päävaikutussuhteiden analyysin lisäksi testataan yrityskohtaisten etujen sekä kilpailustrategioiden moderaatiovaikutusta. Pyrkimyksenä on vastata aiemmissa tutkimuksissa esitettyihin tarpeisiin toteuttaa tämän tyyppinen tutkimus pitkittäistutkimuksena. Empiirinen tutkimusasetelma muodostuu otoksesta suuria ja keskisuuria yrityksiä pohjoismaisessa NASDAQ-indeksissä vuosina 2005–2014. Tietolähteinä on käytetty vuosikertomuksia sekä arkistomateriaalia. Aineiston muokkaamisessa on hyödynnetty tietokoneavusteista tekstianalyysia ja mallien estimoinnissa yleistettyä momenttimenetelmää. Työssä testataan empiirisesti useampien eri mittarien avulla yhteyttä mitatun yrityksen kansainvälistymisen tason sekä organisatorisen ambidekstrisyyden välillä kahdella muuttujalla, jotka ovat Tobin Q sekä kokonaispääoman tuottoaste-prosenti (ROA). Työn ensimmäinen keskeinen tulos on, että tulokset puoltavat S-käyrä-hypoteesia, jossa yrityskohtaiset etuudet toimivat moderaattoreina, jopa otettaessa huomioon metodologiset heikkoudet. Työn toinen keskeinen tulos on, että käänteinen U-muotoinen suhde löytyi organisatorisen ambidekstrisyyden ja tuloksellisuuden välillä kaikilla mittareilla. Erikoistumis- ja hybridistrategiat moderoivat positiivisesti organisatorista ambidekstrisyyttä dynaamisena kyvykkyytenä, mutta kustannusjohtajuusstrategia ei tehnyt tätä. Edelleen tulokset osoittivat, että kaikki kilpailustrategiat sekä yrityskohtaiset edut moderoivat kansainvälistymisen tasoa. Tulosten perusteella esitetään erilaisia teoreettisia, metodologisia sekä yritysjohtollisia johtopäätöksiä.		
Asiasanat Yrityskohtaiset edut, organisatorinen ambidekstrisyys, kansainvälistymisen kolmen askelen teoria, kansainvälistymisen taso, kilpailustrategiat, GMM-metodi		

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Abstract In the international business literature, one stream argues for a linear or non-linear relationship between internationalization and performance, while the other argues for no relationship to performance. In my work, a three-stage theory, synthesized from the internalization theory, the resource-based view, and the market-based view is followed to test the S-curve hypothesis of internationalization. Similarly, an inverted U-shaped relationship between organizational ambidexterity as a dynamic capability and performance is tested. On these main effects, the moderating effects of firm-specific advantages and competitive strategies are tested. As there have been several calls to conduct longitudinal studies, the empirical setting consists a sample of large-cap and mid-cap firms listed in the Nordic NASDAQ index from 2005 to 2014. The annual reports and archival measures were used as data sources. Computer-aided text analysis and system generalized methods of moments were used to analyze the data. I conducted an empirical analysis of the multiple measures of the degree of internationalization and organizational ambidexterity with two dependent variables: Tobin's Q and ROA. The first important finding was that the S-curve hypothesis is true in the presence of FSAs as moderators even after controlling for existing methodological flaws. The second important finding is that there is an inverted U-shaped relationship between the organizational ambidexterity and performance across measures. The organizational ambidexterity as a dynamic capability was positively moderated by differentiation and hybrid strategies but not the cost leadership. The degree of internationalization was moderated by all competitive strategies and firm-specific advantages. Based on the findings implications for theory, method, and practice are derived.		
Keywords Firm Specific Advantages, Organizational Ambidexterity, Three-stage Theory of Internationalization, Degree of Internationalization, Competitive Strategies, System GMM		

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Abbreviations

DCV	Dynamic Capabilities-based View
DoI	Degree of Internationalization
FSAs	Firm Specific Advantages
FSTS	Foreign Sales to Total Sales (a measure of DoI)
FATA	Foreign Assets to Total Assets (a measure of DoI)
OA	Organizational Ambidexterity
RBV	Resource-based View
MBV	Market-based View
ROA	Return on Assets
TCE	Transaction Cost Economics
TST	Three-Stage Theory

1 INTRODUCTION

In this section, first, the outline of the study background is presented based on the strategic-adaptation literature together with international business (IB) literature. Next, the research gaps are presented. Then I outline the purpose of the study together with a research question and objectives. In the following section, I describe the positioning and contextual and methodological justification of the study. Following this, I explain the definitions of key terms and present the research process and the structure of the thesis.

1.1 Background of the Study

Based on my early career and the evolution of Nokia, I was motivated to explore what makes a firm sustainable in the long run. My exploration led to the IB literature, strategic adaptation literature, and competitive strategies literature. To my surprise, the academic literature reported mixed findings on the benefits of internationalization. One school of thought says that there is a diversification discount (Denis, Denis & Yost 2002), while, the other says globalization is beneficial due to the flexibility it creates (Chang, Kogut & Yang 2016). The theoretical rationale behind such arguments is that flexibility in reconfiguring resources outweighs the diversification discount associated with it, resulting in diversification premium (Chang et al. 2016).

Strategic renewal literature is at the center of firm survival (Schmitt, Raisch & Volberda 2016), in contrast to the population ecology view of organizational inertia and environmental selection that ultimately cause an organization to fail (Hannan & Freeman 1977). However, there are key theoretical tensions in strategic renewal. Finding a balance amidst the tension for an explanation for organizational renewal is crucial. For survival and growth triggered by globalization and accelerated pace of technological change, IB has become an important approach for growth and survival. Also, the IB literature is divided on the issue of how to measure internationalization. IB literature has been divided on degree of internationalization (DoI) or internationalization on all four fronts— theoretical rationale, measurement, methodological choice, and performance outcome (Matysiak & Bausch 2012).

Another key construct of the current thesis is organizational ambidexterity (OA). Organizational learning as a dynamic capability (Teece, Pisano & Shuen 1997; Teece 2007; Teece 2014), its impact on competitive advantage, and the latter's

influence on performance is sparsely researched quantitatively in the literature. Studying organizational learning as a balance of exploration and exploitation trade-off and performance in the presence of competitive strategies interests me a lot since there are no quantitative studies explaining these combined relationships. Based on the strategic management literature, survival during the change is very important for sustainable competitive advantage.

Underlying the survival thesis, there is a rich debate on organizational adaptation (O'Reilly III & Tushman 2008). Per the organizational ecology perspective, in the long run, most organizations fail due to inertness created by organizational inertia for change. Another perspective argues that learning and adaptation in changing environmental conditions are possible. The latter view is developing around two schools of thought, dynamic capabilities (Teece, Pisano & Shuen 1997; Teece 2007; Teece 2014) and ambidexterity (Birkinshaw & Gupta 2013). Based on the dynamic capabilities, the ability of a firm to reconfigure assets and existing capabilities explains a sustainable competitive advantage. Based on the ambidexterity view, the ability of a firm to simultaneously explore and exploit enables it to adapt over time, and hence creates a sustainable competitive advantage. In this notion, ambidexterity acts as a dynamic capability (O'Reilly III & Tushman 2008).

Thus, my early career quest and the interest to understand the rationale for sustainable performance for an internationalizing firm guided me to explore the twin roles of OA and DoI in the presence of competitive strategies and firm-specific assets (FSAs). On this background, the following section identifies the research gaps in the literature.

1.2 Identifying the Research Gaps

IB literature and strategic management literature has small streams of papers with longitudinal research design for a longer duration such as 10 years. This is inherently, due to the focus on survey-based research designs which has been surfaced in the *Journal of International Business Studies* (JIBS) editorial as well. The IB literature has been labeled as suffering from endogeneity (Reeb, Sakakibara and Mahmood 2012) and common method variance (CMV) (Chang, Van Witteloostuijn & Eden 2010). The reasons being the availability of data and specially for regions like Nordic countries though Compustat data were available for a longer duration for United States and other countries. Even while conducting this research, I was limited by the availability of data for selecting more measures. On the other hand, dynamic capabilities should be changing as

they are 'dynamic' in nature and valuable, rare, inimitable, and non-substitutable (VRIN) attributes of a resource should be 'unique' in its nature. This means measuring such phenomenon is a grand challenge. However, anchoring on the existing literature and innovating new measures as well, I am interested to further the understanding of this phenomenon.

Balancing exploration, that is, opportunity seeking and exploitation, that is, advantage-seeking, though seem logical, it is very challenging to implement in practice (March 1991). To solve the adaptation problems as discussed above, previous strategic management and IB researchers have called for furthering the understanding of antecedents, driving sustainable performance (Matysiak and Bausch 2012). The literature on exploration and exploitation is divided on their link to performance. One school of thought (Ireland, Hitt & Sirmon 2003; O'Reilly & Tushman 2008; March 1991; Hitt, Ireland, Camp & Sexton 2001; Hitt, Ireland, Sirmon & Trahms 2011) proposed that the constructs have a direct positive link to performance. The other school of thought (Raisch, Birkinshaw, Probst & Tushman 2009; Simsek, Heavey, Veiga & Souder 2009; Raisch & Birkinshaw 2008) suggested the possibilities of moderating and mediating effects.

In the year 2007, two prominent theorists, Contractor (2007) and Hennart (2007), immersed in a debate in their papers, the former discussed about the evolutionary or three-stage theory (TST) and the later discussed about the internalization theory. The debate continued in the year 2012, as researchers have been divided into two schools of thought, one favoring FSAs (Hymer 1976; Buckley & Casson 1976) as the key moderating variable while the other ignoring it. Matysiak and Bausch (2012) clearly made a case for FSAs bringing RBV into focus. The authors argue that resources and capabilities are the origins of FSAs, as outlined and developed as a core concept of internalization theory (Hymer 1976; Buckley & Casson 1976). For MNEs to succeed in foreign markets FSAs are crucial which overcome the cost incurred by liabilities of foreignness (Zaheer & Mosakowski 1997). Motivated by this debate, I reviewed the existing literature and decided to conduct a study that contributes on all four fronts—theoretical rationale, measurement, methodological choice, and performance.

Barney (1991) assumed the heterogeneity of strategic resources and their stability over time and Lavie (2006) extended this view to interconnected firms. There is a positive link between a resource with VRIN (value, rareness, inimitability, and non-substitutability) characteristics and a sustained competitive advantage. In a very thought provoking article, Peteraf (1993) suggested that four conditions are necessary for a sustained competitive advantage: superior resources (to create

Ricardian or monopoly rents), ex post limits to competition (preventing Ricardian or monopoly rents to be reduced), imperfect resource mobility (helping firms to retain their resources within the firm), and ex ante limits to competition (prevents the rents from being offset by costs).

Therefore, one plausible angle to study the internationalization phenomenon is to follow TST (Contractor 2007; Matysiak and Bausch 2012). The term first appeared as a multi-stage theory used in Contractor et al. (2003), Lu and Beamish (2004), and Contractor (2007), but to be more specific on the number of stages in the internationalization process, I follow the TST. However, I bring theoretical rationale of the RBV, the market-based view (MBV), and the internalization theory as suggested by Matysiak and Bausch (2012) in arriving at an S-curve hypothesis of internationalization apart from the concepts of economies of scale and economies of scope logic (Contractor 2007). The market-based view is particularly interesting from the competitive strategies perspectives where overall cost leadership, differentiation or hybrid strategies are relevant (Porter 1980).

The other theory in TST is the resource-based view (RBV) (Matysiak & Bausch 2012). The root of the RBV goes back to Penrose (1959), who outlined how a firm grows. In the development process of the RBV, Wernerfelt (1984) explored the utility of analyzing firms from the resource side in contrast to doing so from the product side. The key argument is to create a resource position barrier. Dierickx and Cool (1989) have argued that the notion of sustainability of a firm's asset position rests on the substitutability and imitability of the assets thereby furthering the RBV. In this notion, imitability is related to various processes of asset accumulation, such as time compression diseconomies, asset mass efficiencies, interconnectedness, asset erosion and causal ambiguity.

Linking the finance literature, Hennart (2011) argued that agency theory leads to over internationalization as agents maximize their benefits at the expense of principals' interest. In this notion, internationalization is endogenous as firms with poor corporate governance are over-internationalized. Similarly, Hennart has argued for insufficient internationalization where managers are biased towards higher risks of a foreign footprint. Another stream of literature suggests that there are moderating or mediating effects of FSAs (Kirca, Hult, Roth, Cavusgil, Perry, Akdeniz, Deligonul, Mena, Pollitte, Hoppner, Miller & White 2011; Verbeke & Forootan 2012; Kirca, Roth, Hult & Cavusgil 2012). This stream of literature suggests that there would exist a direct relationship between internationalization and performance, but that such a relationship is conditional to FSAs. Thus, there is a need for furthering the understanding of antecedents to

superior performance and establish the moderating effects. Based on the research gaps just outlined, studying OA and DoI as antecedents and competitive strategies and FSAs as moderating effects would be interesting research setting where merger of strategic management and IB literature is possible. Based on this background, the following section outlines the research question, main goal, and sub-objectives.

1.3 Purpose and Research Question of the Study

Based on the research gap identified in the section 1.2, the current study was commenced to identify how large-cap (≥ 1 billion EUR market capitalization) or mid cap (≥ 150 million EUR market capitalization) firms internationalize and balance exploration and exploitation; and what is the contingent role of competitive strategies and FSAs. Therefore, the main goal of the study is:

- ***To increase the understanding of key antecedents to performance such as organizational ambidexterity and three-stage internationalization and the moderating role of FSAs and competitive strategies.***

Thus, the main research question of this dissertation is: ***how do firms achieve sustainable performance through organizational ambidexterity, three-stage internationalization and what is the role of FSAs and competitive strategies?***

The main research question presented above is answered and addressed both theoretically and empirically, and hence, the study aims to achieve the following five **research sub-objectives**:

The five sub-objectives of the study are:

- To assess the literature on DoI, OA as a dynamic capability, FSAs, and competitive strategies.
- To synthesize a three-stage theory of internationalization anchored in the internalization theory, the RBV, and the MBV.
- To develop hypotheses of DoI (multiple measures) with performance and the moderating effect of competitive strategies and FSAs on the relationship between DoI and performance.

- To develop hypothesis of OA as a dynamic capability (multiple measures) with performance and the moderating effect of competitive strategies on the relationship between OA and performance.
- To empirically test the performance impact of internationalization, OA, and the moderating effect of FSAs and competitive strategies.

Based on the first two objectives, a thorough review of the existing IB, TST, and MBV literature is done to develop the theoretical framework and underlying methodological rationale. The third and fourth objectives are to develop hypotheses of antecedents and moderators and their impact on performance. Fifth, the above-mentioned hypotheses are empirically tested using a sample of Nordic NASDAQ listed large-cap and mid-cap companies from 2005 to 2014.

Why Nordic? The empirical setting for my research is small open economies (SMOPECS) such as Nordic markets. First, SMOPECS have been interesting from the research perspectives due to their small home market and innovative culture. The very premise that a firm grows large in each market demands strong competitive strategies enabled by distinct resources and OA conceptualized as dynamic capabilities. This becomes an ideal setting with respect to a paucity of international enterprise related quantitative studies from the large databases in the Nordic or SMOPECS. Most of the studies are either US-focused or large-domestic-market-based MNEs-focused. In contrast, SMOPECS are stretched by their small home market and forced to internationalize from inception. Therefore, studying these countries make both theoretical and empirical sense. Therefore, the following section presents the theoretical positioning to achieve the research goal outlined above.

1.4 Positioning of the Study

The major challenge in doing social science research is to balance theoretical rigor and practical relevance (Corley & Gioria 2011). Following this logic, current work aimed to contribute to being incremental in the development of the literature and at the same time scientifically useful. The internationalization process starts with liabilities of foreignness and liabilities of newness. This situation is followed by key resource advantages as suggested by Barney (1991). Once a firm has key resource advantages, it is good to internationalize as fast as possible with the internalization of key FSAs. For long-term survival, OA as a dynamic capability should be in place across time. Positioning the study on the

dynamic capabilities and the RBV, this thesis links strategic management and IB literature to give a broader perspective on competitive strategies and internationalization.

Current work brings three key streams of literature into a coherent whole as shown in figure 1. First, it argues for TST of internationalization anchored in the RBV, the market-based view (MBV) representing competitive strategies, and the internalization theory representing FSAs. Buckley and Casson (1976) argued based on the foreign direct investment (FDI) to be carried out for the existence of MNEs as the knowledge is a public good within the firm. This FDI reasoning will be represented in modeling through DoI measured as ratio of foreign-assets to total assets (FATA). TST is not shown as a separate block in the figure because it is an umbrella concept to link all three theories (internalization, RBV, and MBV). The RBV, internalization theory, and the MBV are the cornerstones for TST which explains DoI, competitive strategies, and FSAs. Second, it brings OA as a dynamic capability which goes together with RBV but builds on the logic that building and reconfiguring resources enable sustainable performance. Dynamic capabilities based view in Figure 1 is used to conceptualize OA as a dynamic capability. Third, though both views have an origin in the Penrosean school of thought, competitive strategies rooted in the MBV emerge from the differing school of thought of I/O economics.

However, building further from Contractor (2007), current work aims to enhance the understanding of the puzzling findings in the discourse in IB and strategic management literature by studying the internationalization phenomenon from TST as the theoretical perspectives covering. Stage 1 or early internationalization suffers from liabilities of foreignness plus there are costs of learning as well as adaptation. As a result, the incremental costs of internationalization are greater than the incremental benefits which drives performance down though it might be a very short window based on resource endowment or existing dynamic capabilities. During stage 2, benefits of internationalization are greater than the cost of internationalization. The typical cost elements of stage 1 might continue plus coordination and acquisition costs might be there but larger benefits such as leveraging knowledge acquired from abroad, accessing or “arbitraging” cheaper inputs, exploitation of firm-specific assets carried to each foreign market, accumulation of market power because of wide multinational presence, international scale, geographical diversification, and internationalization experience do exist. This is mainly driven by the RBV and the MBV as well. During stage 3, the peripheral expansion beyond 40 to 60 nations is detrimental to performance. In this stage, there is an escalation of managerial costs and information overload and global co-ordination costs increase sharply. However,

one needs to note that stage 1 and stage 3 are shorter periods while stage 2 is predominantly longer duration in the history of expansion.

The RBV and the MBV are the dominant theories in strategic management while the internalization theory is the dominant theory in IB. Reconciling all these three theories in TST as suggested by Matysiak and Bausch (2012) becomes the major thrust of the current work. By linking the discussions of Contractor (2007) with those of Matysiak and Bausch (2012), I build a proper theoretical rationale for the TST. Therefore, current research tracks the operationalization of DoI from Sullivan (1994) to Kirca et al. (2012). Therefore, merging these three perspectives into one coherent whole is the sole focus of current work. Contributing towards bridging of IB and strategy research is an interesting prospect for my research. Many researchers have considered this diffusion from the strategic management to IB, but current thesis aims to focus on how IB has contributed to the RBV literature. In doing so, I use DoI and OA together and see their impact in a panel regression enabling the synchronism of the fields. Based on internalization theory, once the competitive advantage is achieved in the domestic market, exploiting such an advantage is good by going abroad as soon as possible. Against this background, DoI is the key antecedent in understanding the performance implications of internationalizing firms.

Ambidexterity as a dynamic capability: The positioning of current work is based on the review paper by Di Stefano, Peteraf, & Verona (2014), which concludes that the dynamic capability literature diverged into two schools of thought. The first being that of Teece et al. (1997) and the second of Eisenhardt and Martin (2000). The former promotes an ability-based perspective on dynamic capabilities while the latter promotes a process-based perspective. The former discusses dynamic capabilities at the firm level while the latter discusses dynamic capabilities at the individual level and differentiates between moderate and high-velocity environments. As done by Di Stefano et al. (2014), my research positions exploration and exploitation as two wheels of the “organizational drivetrain”. The drivetrain used as a metaphor suggests that the two wheels of the drivetrains are “routines” and “simple rules”. However, in my conceptualization OA as a dynamic capability as defined by O'Reilly and Tushman (2008), “routines” are used for exploitation activities while “simple rules” are relevant for exploration activities. In this notion, ambidexterity acts as a dynamic capability by explaining how routines (exploitation) and simple rules (exploration) interact.

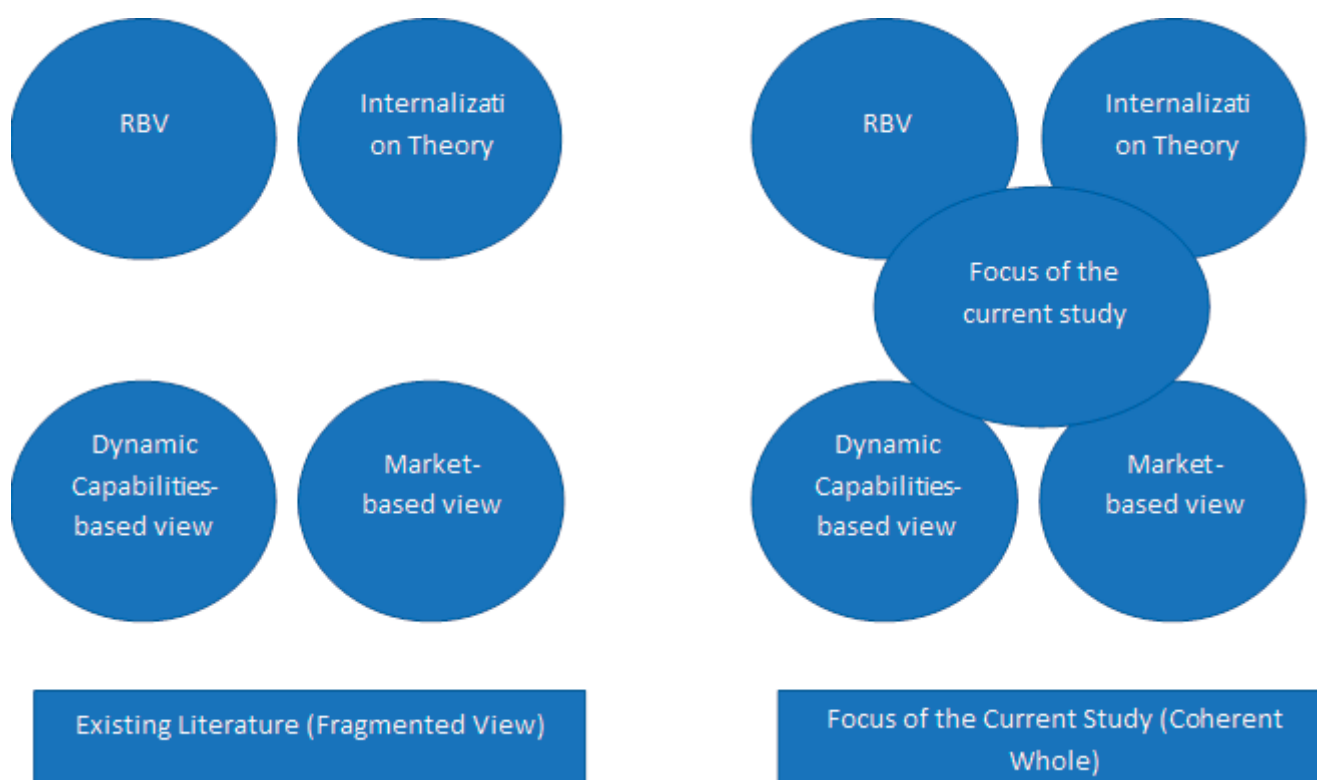


Figure 1. Existing Literature versus Focus of the Current Study¹

In the review done by Birkinshaw and Gupta (2013), the authors found the following issues in ambidexterity literature: the operationalization of ambidexterity varies enormously. The duality pairs, A & B representing exploration and exploitation respectively, vary in the operationalization enormously: seven studies used the product ($A * B$), three studies used the sum ($A + B$), four studies used a balance measure (absolute value of $A - B$), and two used both product and balance. The duality addressed is usually expressed as exploration/exploitation, though several earlier studies used different terminologies, such as alignment/adaptability, strong ties/bridging ties, and explorative/exploitative knowledge sharing. Apart from using relative exploration ($A/A+B$) (Uotila, Maula, Keil & Zahra 2009), to compare the existing literature, I use the product ($A*B$) of exploration and exploitation in the operationalization of the OA as a dynamic capability construct. Current research contributes to integrating two bifurcated domains of the DCV and helps to advance the development of the framework by combining divergent understandings (Di Stefano et al. 2014) into a coherent whole.

¹ RBV, internalization theory, and the MBV are a cornerstone for TST which explains DoI, competitive strategies, and FSAs. Dynamic capabilities based view is used to conceptualize OA as a dynamic capability.

Competitive Strategies and The RBV as sources of sustainable performance: Per Porter (1980) a competitive advantage is achieved through creating strong industry position. In contrast, competitive advantage, per Barney (1991), is created through the possession of resources to create a barrier to imitation. IB's most significant contributions to the RBV lie in the identification of international knowledge and experience as a valuable, unique, and hard-to-imitate resource that differentiates the winners from the losers and mere survivors in global competition (Peng & York 2001).

In many ways, this idea of local embeddedness, that is, idiosyncratic expertise gained through in-country learning despite the liability of foreignness, predates the formal emergence of the RBV (Johanson & Vahlne 1977, 2009), and has been well developed in the IB literature. It is not surprising that IB scholars can build on this idea to enrich and strengthen the RBV. Another approach to competitive advantage is having superior execution capabilities to create unique and winning business models thereby creating a barrier to execution (Madhok & Marques 2014). Recent exploration shows that internationalization is happening at a fast rate and global competition is rising, demanding competitive strength in the international market (Tan & Sousa 2015). Therefore, there is a need to understand how unique resources (Barney 1991) could be utilized for a sustainable competitive advantage in the global arena. The following section discusses the pivotal concepts used in the dissertation.

1.5 Definition of the Key Constructs

For understanding the current research, it is important to define key constructs used in this research. The key constructs are OA, DoI, competitive strategies, and FSAs. Table 1 summarizes the key constructs, authors, and definition.

Though the origin of exploration and exploitation logic dates to March (1991), I used the understanding derived from the review article by Birkinshaw and Gupta (2013). OA is defined as the balance of exploration and exploitation. OA is operationalized as relative exploration (exploration divided by the sum of exploration and exploitation) and a product of exploration and exploitation. DoI is defined as the cross-border activities either for value creation or value capture. Based on the mostly loaded measures of DoI (Sullivan 1994) and many others as listed in Table 1, I used DoI as the ratio of foreign sales to total sales (FSTS), the foreign assets to total assets (FATA) or a composite of FSTS and FATA.

For the competitive strategies, I followed Porter (1980) and Salavou (2015). When a firm seeks to achieve competitive advantage by lowering the cost and

achieving low-cost provider position compared to a competitor, it is called cost leadership strategy. The cost leadership is measured as total cost per employee (lower the better). When a firm seeks to achieve competitive advantage by developing innovative products and services and creating a brand image, it is called differentiation strategy. The differentiation strategy is measured as R&D intensity and sales and general administrative expenses (SGA) intensity. R&D intensity is the ration of R&D expenses divided by sales while SGA intensity is the sales and general administrative expenses divided by sales. When a firm pursues both cost and differentiation, it is called hybrid strategy. In this dissertation, I follow the conceptualization of Spanos et al. (2004) where hybrids are different than Porter's "stuck-in-the-middle" strategies. When both cost and differentiation strategies are above the sample mean, these are called hybrid for this dissertation.

When there is an advantage of intangibles and crucial for internationalization based on internalization theory perspectives, it is called FSAs. The measurement of FSAs is suggested to be R&D intensity and SGA intensity. Matysiak and Bausch (2012) clearly make a case for FSAs bringing RBV into focus. The authors argue that resources and capabilities are the origins of FSAs, as outlined and developed as a core concept of internalization theory (Hymer 1976; Buckley & Casson 1976). For MNEs to succeed in foreign markets FSAs are crucial which overcome the cost incurred by liabilities of foreignness (Zaheer & Mosakowski 1997).

Table 1. Definition of Key Constructs

Key Constructs	Authors	Definition
OA (two measures: relative exploration and product of exploration and exploitation)	Birkinshaw and Gupta (2013)	OA is defined as the balance of exploration and exploitation.
DoI	Sullivan (1994); Delios and Beamish (1999); Hitt, Hoskisson and Kim (1997); Thomas and Eden (2004); Berry and Kaul (2016); Lu and Beamish (2004); Contractor, Kundu and Hsu (2003).	DoI is defined as the cross-border activities either for value creation or value capture.
Competitive Strategies	Spanos et al. (2004); Porter (1980); Salavou (2015)	When a firm seeks to achieve competitive advantage by lowering the cost and achieving low-cost provider position compared to a competitor, it is called cost leadership strategy. When a firm seeks to achieve competitive advantage by developing innovative products and services and creating a brand image, it is called differentiation strategy. When a firm pursues both cost and differentiation, it is called hybrid strategy.
FSAs	Matysiak and Bausch (2012)	Matysiak and Bausch (2012) clearly make a case for FSAs bringing RBV into focus. The authors argue that resources and capabilities are the origins of FSAs, as outlined and developed as a core concept of internalization theory (Hymer 1976; Buckley & Casson 1976). For MNEs to succeed in foreign markets FSAs are crucial which overcome the cost incurred by liabilities of foreignness (Zaheer & Mosakowski 1997). When there is an advantage of intangibles and crucial for internationalization based on internalization theory, it is called FSAs.

1.6 The Research Process, Structure, and Content of the Thesis

The structure of the thesis is as shown in Figure 2. The goal of chapter 1 is to pinpoint the theoretical positioning and contributions by raising proper research question(s). As discussed earlier in this chapter, apart from research questions, an outline for main goal and sub-goals are created which guide the whole dissertation. Also, key methodological and contextual justification sets the scene for my work. To create a harmonious understanding of the major antecedents and moderators, a list of keywords is tabulated with key authors from which the study gets organized. In chapter 2, selected literature (top 20 highly cited papers for each construct and another 10 latest papers) are analyzed to develop an

understanding of theoretical argumentation and key contributions. For each construct a literature map is created which helps in spotting the research gaps and selecting the relevant theories. Based on this exploration, in Chapter 3 the derived conclusion from the Chapter 2 will be utilized to select the theories for the current study. Not only selecting the theories, in this chapter, I explain the rationale of using the operationalization of key constructs anchored in the proven theory. This chapter is the cornerstone of developing a plausible link between theory and measures thereby arguing the construct validity of the study. The major issues are summarized at the end of Chapter 3 which guides the following Chapter 4. In Chapter 4, based on the logical deductions from Chapter 3, I develop key hypotheses (main effects and moderating effects) and represent these relationships in a theoretical framework.

Once the hypotheses are outlined, the reasoning for the use of methodological choice is presented in Chapter 5. Chapter 5 argues for the choice of deductive reasoning and quantitative methods based on the research question. Also, while choosing panel regression methods, the chapter argues for System GMM in comparison to fixed effect, random effect, and instrumental variable approach such as 2SLS. In Chapter 6 main findings are reported based on the standard statistical reporting. Apart from tables as a reporting procedure, all main and moderating effects are plotted to make sure that the interpretation of the result is correct. In Chapter 7, the findings are summarized, compared with other existing studies, and discussed with the relevance of the theoretical positioning of the study. Chapter 7 also reports the contributions, managerial and policy implications.

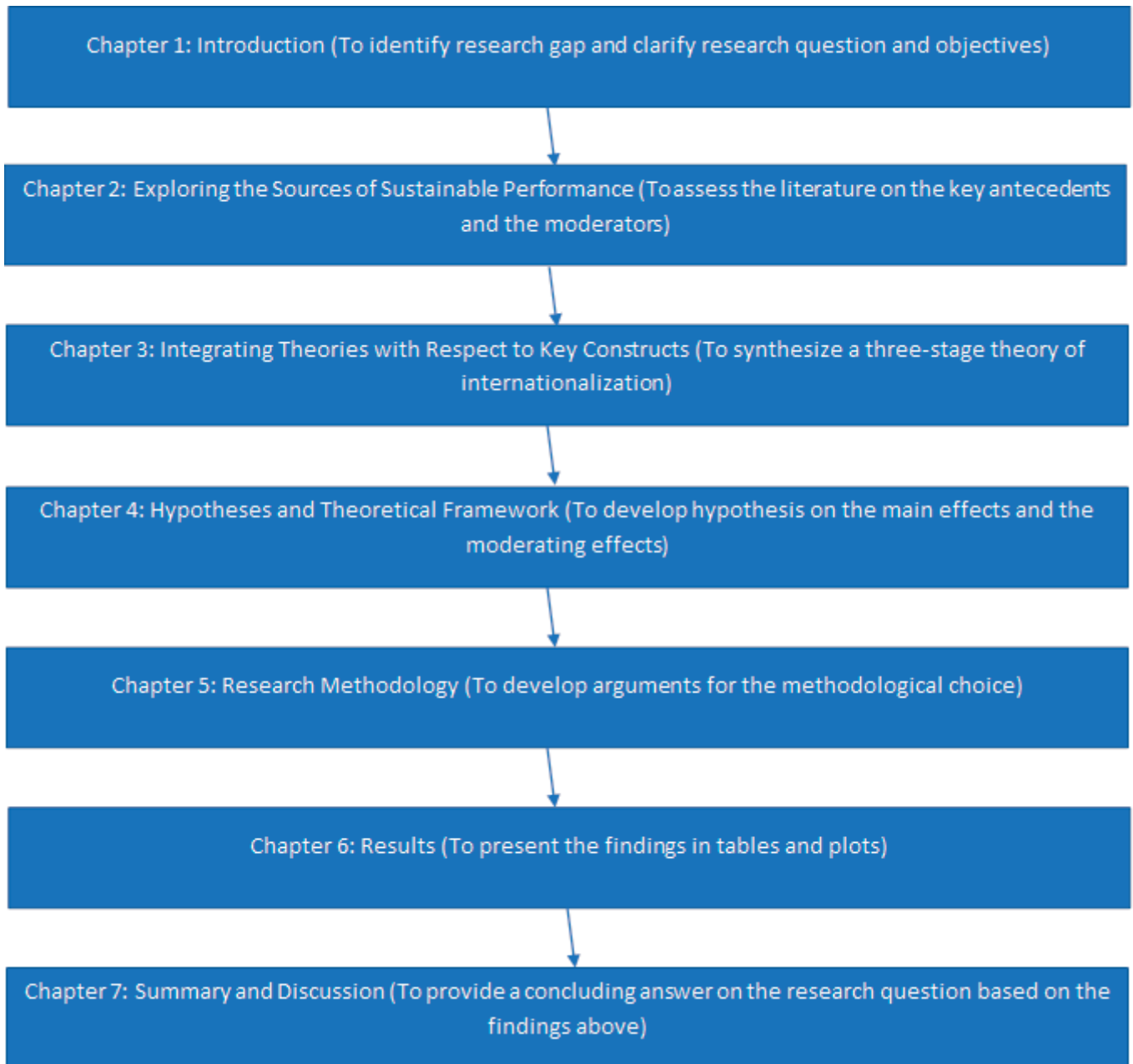


Figure 2. Chapter Summary and Structure of the Dissertation

2 LITERATURE REVIEW: EXPLORING THE SOURCES OF SUSTAINABLE PERFORMANCE

This section reviews the literature on the key constructs used in the study. The main constructs of the study are OA as dynamic capability, the DoI, FSAs, and competitive strategies. The literature review section starts with OA followed by literature related to competitive strategies, and finally covers the DoI literature and FSAs literature. The goal of this exploration of the literature is to figure out the most relevant theoretical concepts, empirical underpinnings, and methodological flaws for the constructs studied. By analyzing and, at the same time, synthesizing the existing literature into a coherent whole, I select the right theories and methods for the thesis.

I used the following literature review guidelines, as applied by Jones, Coviello and Tang (2011). First, I determined the criteria for the reliability of sources based on published works from the authority in the field, e.g., Sullivan, and Porter. Second, only peer-reviewed journal articles which are empirical, conceptual and literature review were selected. Third, exclusion criteria through theoretical relevance were created based on the studies in which the primary focus was not OA, exploration, exploitation, DoI, FSAs, and pure versus hybrid strategies.

Also, studies where the focus was SMEs or markets, and published works that were unavailable electronically were excluded. A few notable exceptions to this rule are the following papers: Bierly and Daly (2007); Sirén, Kohtamäki and Kuckertz, (2012); and Sirén and Kohtamäki (2016) which were conceptually, theoretically, and empirically very relevant to review. The search method and scope during the first stage were created based on searching across academic articles using the keyword search in respected databases including, but not limited to, Google Scholar, ProQuest, EBSCO and JSTOR. Also, great attention was paid to the citation, the abstract and title. Only the following keywords were used: OA, exploration, exploitation, the DoI, FSAs, pure versus hybrid strategies, and system GMM. While assessing the relevance of the papers, empirical papers were preferred over conceptual ones.

2.1 Organizational Ambidexterity

OA as a Dynamic Capability. To understand the key construct of OA as a balance of exploration and exploitation, I need to explain first the underlying measures,

i.e., exploration and exploitation. Gupta, Smith and Shalley (2006) argued that this stream of literature does not have a clear definition of exploration and exploitation. The burning question is, "what do exploration and exploitation really mean?" (Gupta et al. 2006:693). There is some level of understanding of the definition of exploration centered on learning and innovation. This could be expressed as development and acquisition of new knowledge. But exploitation is only the use of past knowledge or whether it also includes development and acquisition of new knowledge are not clear.

The literature on exploration and exploitation has two different schools of thought when defining exploration and exploitation. The first school of thought says that the key issue is that if the learning is in the existing old trajectory it is exploitative, otherwise it is explorative. The other school of thought says that all activities related to learning and innovation are grouped as exploration. If the old knowledge is used but without any learning trajectory, it is called exploitation. As March (1991:85) described, "The essence of exploitation is the refinement and extension of existing competencies, technologies, and paradigms while the essence of exploration is experimentation with new alternatives." Therefore, to resolve this puzzle and confusion in the literature, there is no better way than to go to the original source of March (1991) as suggested by Gupta et al. (2006) — that all activities include some learning. *In the current research, I use the definition of March (1991) and follow the argumentation by Gupta et al. (2006) that the plausible approach to distinguish between exploration and exploitation should be based on the type or amount of learning rather than on the presence or absence of learning.*

Following March (1991), I use firm as the unit of analysis. While developing the measures, I use keywords for exploration and exploitation developed and validated by Uotila et al. (2009) by following the original definition of March (1991). The definition problem in exploration and exploitation is not only the problem of one research stream. The research stream on the OA is also has definition and operationalization problems. Birkinshaw and Gupta (2013) postulate that OA has been applied to multiple conceptualization and phenomena over the years. This versatility of the concept itself makes the meaning and measurement problematic. Basing on Birkinshaw and Gupta (2013), I contribute to bringing a sense of perspective to this stream of literature. In doing so, it is very important to review the existing key definitions and choose or derive the definition I would like to use in current work. Gulati and Puranam (2009) argue that organizations are confronted with multiple types of dualities, such as exploration and exploitation (the core focus of current study), exploitation and

flexibility, adaptability and alignment, and integration and responsiveness. The challenge for a new researcher is then deciding which definition of OA to follow.

From the conception of organization following ambidexterity (Duncan 1976) to managing evolutionary and revolutionary change process (Tushman & O'Reilly 1996), the field of OA was in infancy. The major turning point occurred when March (1991) published his paper and the literature moved around balancing exploration and exploitation. The field grew further with the conceptualization of studying organizations' capacities for alignment and adaptability as contextual ambidexterity (Gibson & Birkinshaw 2004), departing from the original conception of structural ambidexterity. Birkinshaw and Gupta (2013) categorized the development of the field into three different eras: definition (1995-2005), growth (2005-2009), and consolidation (2009-2013). In line with their arguments, I look at the study of ambidexterity as a balance of exploration and exploitation, as the study of firms. Therefore, I follow the following definition: OA is the balancing of exploration and exploitation. I use relative exploration– $\frac{\text{exploration}}{\text{exploration}+\text{exploitation}}$ – (Uotila et al. 2009) as an operational definition. Similarly, another operational definition considers the OA to be exploration multiplied by exploitation.

As briefly outlined in the introduction, there is a divided school of thought in understanding whether exploration and exploitation have a direct link on performance or are there contingency effects such as moderators. There are various authors such as Raisch and Birkinshaw (2008) and Raisch et al. (2009) who support the view that there are moderation effects on the relationship of the exploration and exploitation of performance. Current research is a response to this research gap through the introduction of three moderating variables: cost leadership strategy, differentiation strategy, and hybrid strategy.

The literature review tables are divided into three areas: conceptual papers, review papers, and empirical papers. Table 2 outlines the papers which are conceptual in nature. Raisch and Birkinshaw (2008) conceptualized that structure, context and leadership are antecedents to the ambidexterity represented as organizational learning, innovation, organizational adaptation, strategic management and organizational design. The outcome variables are mainly accounting-based measures and market growth. Authors suggested moderators such as environmental dynamism, market orientation, resource endowment and firm scope. The influential paper on exploration and exploitation by March (1991) conceptualized these dichotomies. The author modeled two general situations involving the development and use of knowledge in organizations. The first is the case of mutual learning between members of an

organization and an organizational code. The second is the case of learning and competitive advantage in the competition for primacy. He suggested that exploitation is good for a short-run but self-destructive in the long-run. Balancing both creates competitive advantage. The turnover is good for knowledge creation, and slow socialization of new employees helps in creating variability in knowledge creation.

O'Reilly and Tushman (2008) conceptualized OA as a dynamic capability (Teece 2014) and even incorporating the senior team's substantive roles in this discourse. This conceptualization drives the work in this dissertation. The notion was studied in entrepreneurship literature differently. The simultaneous opportunity-seeking and advantage-seeking generate better performance. Small firms are good in the first while large firms are good in the latter (Ireland et al. 2003). Raisch et al. (2009)

Table 2. Conceptual Papers on OA (Balance of Exploration and Exploitation)

Author(s)	Title	Hypotheses	Findings
March (1991).	IV: exploration and exploitation DV: competitive advantage	Two general situations involving the development and use of knowledge in organizations are modeled. The first is the case of mutual learning between members of an organization and an organizational code. The second is the case of learning and competitive advantage in the competition for primacy.	Exploration is good for the short-run but self-destructive in the long run. Balancing both creates competitive advantage. Turnover is good for knowledge creation and slow socialization of new employee helps in creating variability in knowledge creation
Ireland, Hitt and Sirmon (2003).	A model of strategic entrepreneurship: The construct and its dimensions.	Simultaneous opportunity-seeking and advantage-seeking generates better performance. Small firms are good in the former while large firms are good in the later.	The authors think that strategic entrepreneurship balances both opportunity seeking and advantage seeking approaches.
Gupta, Smith and Shalley (2006).	The interplay between exploration and exploitation.	Explicating the meaning of exploration and exploitation; two ends of a continuum or orthogonal to each other; balancing exploration and exploitation; is specialization sufficient?	Future research agenda: first, micro- level studies are very scarce; second, multiple levels of analysis are not many; third, the challenges associated with the balancing of both (ambidexterity vs punctuated equilibrium)

Raisch and Birkinshaw (2008).	Antecedents, moderators and outcomes of ambidexterity.	Conceptual	Org antecedents: structure, context, leadership; OA: Org learning, innovation, org adaptation, strategic mgmt., org design; Moderators: environmental dynamism, competitive dynamics, MO, Resource endowment, firm scope; Outcome: Accounting, market, growth
O'Reilly and Tushman (2008);	Ambidexterity as a dynamic capability: Resolving the innovator's dilemma.	Ambidexterity as a dynamic capability to survive in the face of change.	Senior team's substantive roles are most important
Hitt, Ireland, Sirmon and Trahms (2011).	Strategic entrepreneurship: creating value for individuals, organizations, and society.	Input (individual knowledge and skills)-process (resource orchestration) -output (including creating value for customers, building wealth for stockholders, and creating benefits for other stakeholders, especially for society at large)	Multilevel outcomes

reviewed seven articles included in the special issue and concluded that OA leads to sustained performance. Authors conceptualized ambidexterity through either differentiation or integration, ambidexterity at the individual or firm level, static vs dynamic view on ambidexterity, and source of ambidexterity (internal or external). Their suggestion was to conduct a longitudinal research considering dynamic perspectives with multilevel analysis together with conditions for positive performance, such as size and resource endowment, environmental dynamism and industry contexts.

Apart from the conceptual papers discussed above, I selected the key literature review papers as listed in Table 3. The table lists the literature in the chronological order on the publication time. In the earlier literature review, Levitt and March (1988) found the literature was mainly focusing on organizational learning as routine-based, history-dependent, and target oriented. The approach to organizational learning was based on the encoding inferences from history into routines that guide behavior. In this notion, it follows the logic of appropriateness or legitimacy rather than from the logic of consequentiality or intention. In other words, the prevalent approach has been in matching procedures to situations rather than calculating choices.

Later Raisch et al. (2009) concluded that there was a clear need for longitudinal research which my dissertation aims to fulfill. The authors also concluded that there was a clear need of exploring moderating conditions which my dissertation

fulfills using competitive strategies as moderators. Though not my focus, an interesting approach on delineating antecedents of exploration and exploitation was suggested (Lavie, Stettner and Tushman 2010). Based on Birkinshaw and Gupta (2013), the main thrust of this dissertation to use OA as a balance of exploration and exploitation, which avoids an alarming situation in the literature which has been fragmented and OA has been used in many different approaches. Following O'Reilly and Tushman (2008), I use OA as a dynamic capability. Junni, Sarala, Taras and Tarba (2013) drives the main hypothesis of this dissertation as there is a possibility of a positive relationship between OA and performance and it depends on contextual and methodological conditions. I follow this recommendation in developing the hypothesis and later in the discussions as well.

Table 3. Literature Review (except conceptual) Papers of Exploration and Exploitation (Measures of Organizational Ambidexterity)

Author(s)	Title	Hypotheses	Findings
Levitt and March (1988)	Organizational learning	Literature review on organizational learning viewed as routine-based, history-dependent, and target oriented.	-Encoding inferences from history into routines that guide behavior. Follows the logic of appropriateness or legitimacy rather than from the logic of consequentiality or intention. Matching procedures to situations rather than calculating choices.
Raisch, Birkinshaw, Probst and Tushman (2009).	OA: Balancing exploitation and exploration for sustained performance.	-Ambidexterity either through differentiation or through integration? -Ambidexterity at individual or firm level -Static vs dynamic view on ambidexterity -Where ambidexterity comes from—internally or externally?	Longitudinal research is suggested. The need for dynamic perspectives. Multiple levels of analysis are suggested. Moderating conditions for positive performance such as size and resource endowment, environmental dynamism, industry contexts
Lavie, Stettner and Tushman (2010).	Exploration and exploitation within and across organizations.	Reviewing antecedents of exploration and exploitation, articulating balance and suggesting further research avenue	-Balance via organizational or temporal separation; balance via domain separation; contingency approach for balancing effects. -Use a single continuous variable to capture exploration-exploitation. -Model balance with a quadratic function that reaches its maximum value at an intermediate point. -Compare multiple operationalizations
O'Reilly and Tushman (2013)	OA: Past, present, and future	The relationship between OA to sales growth is positive, subjective ratings of performance, innovation, and firm survival. Especially suitable for market and technological uncertainty. Conceptualization of sequential, simultaneous and contextual ambidexterity.	Findings resonate with Chen and Katila (2008), Competing versus complementary view of exploration and exploitation activities. Definitional issues should be addressed; Ambidexterity should be conceptualized as dynamic capabilities. In this notion distribution of resources and sequence of decisions and routines are important
Birkinshaw and Gupta (2013).	Clarifying the distinctive contribution of ambidexterity to the field of organization studies.	There is a less clarity in meaning and measurement.	Brought the coherent perspective to the field of ambidexterity requesting for a greater focus. Key areas for unique contributions are: a) Where to juxtaposition on the exploitation frontier? b) How to reach the exploitation frontier c) How to push the exploitation frontier out?
Junni, Sarala, Taras and Tarba (2013).	OA and performance: A meta-analysis.	OA has a positive and significant relationship with performance. This relationship is largely moderated by contextual and methodological factors.	OA is important for non-manufacturing industries especially when perceptual performance measure is used and in a cross-sectional design.

As listed in Table 4, there are many cross-sectional studies and some longitudinal studies on the empirical front. Venkatraman, Lee and Iyer (2007) studied the impact of strategic ambidexterity on firm performance in a sample of 1005 software firms over a twelve-year period with a notion of simultaneous and sequential forms of ambidexterity as an organizational capability to balance exploration and exploitation. The operationalization of ambidexterity is based on time-paced patterns of product sales in different product markets. The findings suggested that sequential ambidexterity is a better predictor of sales growth. In a similar longitudinal study, Quintana-García and Benavides-Velasco (2008) investigated how technological diversification influences the rate and specific types of innovative competence measuring innovative competence through the number of total patents granted to the firm in a year; exploitation through the number of patents granted by the firm in a year that include one or more citations or self-citations and exploration by the number of patents granted to the firm in a year that cite no other patents. Their work had a sample of 525 US dedicated biotechnology firms (DBFs). All the hypotheses supported the idea that the exploratory innovative capability is more important for technological diversification than the exploitative capability.

The paper by Gibson and Birkinshaw (2004) is commonly referred, although the paper is a cross-sectional study. By creating a new measure for alignment and adaptability, the paper argues using a sample consisting of 4,195 individuals in 41 business units that contextual ambidexterity (context based on the combination of stretch, discipline, support and trust) is a mediator between these contextual features and performance. Using profit as a performance variable Sirén, Kohtamäki and Kuckertz (2012) explored a new frontier of mediation studies with exploration and exploitation with strategic learning as a full mediator. This relationship is moderated by the level of exploitation in the firm. Therefore, in the current research, I consider whether exploitation or the success trap is a problem or not.

In a sample of 206 manufacturing firms, the interaction between exploration and exploitation is positively linked to the sales growth rate while the relative imbalance between exploration and exploitation had a negative relationship with sales growth rate (He & Wong 2004). The interesting methodological approach in this paper is the use of Heckman's (1979) two-stage regression to detect a possible sample selection bias. Similarly, Bierly and Daly (2007) found that the linear relationship between exploration and performance and the concave relationship between exploitation and performance, indicating a managerial implication that after a point focusing on exploitation, leads to reduced returns. The moderating effect of a competitive environment is stronger in stable and

high-tech environments than in dynamic and low-tech environments. The relationship between exploration and performance is higher in high-tech environments compared to low-tech environments. These findings indicate a need for one or more moderating variables.

Table 4. Empirical Papers Reviewed on Organizational Ambidexterity and Performance

Author(s)	Title	Hypotheses	Measurement	Samples	Methods	Findings
Gibson and Birkinshaw (2004)	The antecedents, consequences, and mediating role of OA	Contextual ambidexterity (context based on the combination of stretch, discipline, support and trust). Ambidexterity is a mediator between these contextual features and performance.	Measure created for alignment and adaptability	Data collected from 4,195 individuals in 10 multinationals, and 41 business units (from Japan, USA, Canada, India, France, South Korea)	OLS regression	Supported the mediating role of OA.
Lavie and Rosenkopf (2006).	Balancing exploration and exploitation in alliance formation.	Do firms balance exploration and exploitation in their alliance formation decisions?"	Archival measures: exploration-exploitation with a combined continuous measure. Also, structure and attribute exploration. Accumulated exploration experience.	US software industry (SIC 7371-7374), from 1990 to 2001, Started with 547 firms, dropped 170 firms due to missing data.	Pooled time series	-Absorptive capacity and organizational inertia have impact on exploration and exploitation
Venkatraman, Lee and Iyer (2007) *	Strategic ambidexterity and sales growth: A longitudinal test in the software sector.	Simultaneous and sequential forms of ambidexterity as an organizational capability to balance exploration and exploitation.	Operationalized, both forms using time-paced patterns of product sales in different product markets.	a sample of 1005 GLOBAL packaged software industry firms from International Data Corporation (IDC) for 13-year period from 1990 to 2002	Longitudinal study	Hypotheses were supported.
Bierly and Daly (2007) **;	Alternative knowledge strategies, competitive environment, and organizational performance in small manufacturing firms.	IV: Knowledge strategy (exploration or exploitation) DV: Performance (subjective and objective) Moderators: external environment	Performance alpha = 0.91, Exploration alpha = 0.75, Exploitation alpha = 0.73	a sample of small manufacturing firms located in the mid-Atlantic region of the United States. Majority located in the state of Virginia,		-Linear relationship between exploration and performance; The concave relationship between exploitation and performance.
Quintana-García and Benavides-Velasco (2008).	Innovative competence, exploration and exploitation: The influence of technological diversification	This paper investigates how technological diversification influences the rate and specific types of innovative competence.	Innovative competence: Number of total patents granted to the firm in a year. Exploitation: Number of patents granted to the firm in a year that include one or more citations or self-citations.	525 research sample of US dedicated biotechnology firms (DBFs):	Longitudinal study	The exploratory innovative capability is more important for technological diversification than exploitative capability.

Sirén, Kohtamäki and Kuckertz, (2012).	Exploration and exploitation strategies, profit performance, and the mediating role of strategic learning: Escaping the exploitation trap.	Strategic learning as a full mediator. Level of exploitation moderates the link between exploration and strategic learning	The source of survey instruments of exploration and exploitation: Lubatkin, Simsek, Ling and Veiga (2006), Jansen, van den Bosch and Volberda (2006), Gibson and Birkinshaw (2004); Miller and Friesen (1982) adopted by Green et al. (2008).	206 Finnish software firms	PLS	Supported the hypotheses.
Lisboa, Skarmeas and Lages (2013).	Export market exploitation and exploration and performance: Linear, moderated complementary and non-linear effects.	Exploitation +; Exploration +; Exploration+ under high turbulence, Balancing exploration and exploitation+; Exploitation x Exploitation = Inverted U;	Survey (Multi-item scale) based on Danneels (2008) and Vorhies et al. (2011) and Netemeyer et al. (2003)	267 Portuguese export manufacturing firms	SEM	Exploitation +; Exploration -; Exploration +, under high turbulence; Balancing exploration and exploitation +
Stettner and Lavie (2014).	Ambidexterity under scrutiny: Exploration and exploitation via internal organization, alliances, and acquisitions.	Exploration and exploitation via internal organization, alliance, and acquisition modes undermines firm performance due to conflicting routines, negative transfer, and limited specialization	DV: Function of Market value Exploration and exploitation as one continuous variable.	190 US software firms	Two-stage analysis of fixed effect models	Balancing across modes a firm can avoid detriments to performance. Balance across modes is important compared to balance within modes.
Piao and Zajac (2016).	How exploitation impedes and impels exploration: Theory and evidence.	Exploitation and its effect on exploration and response to environmental changes	DV: Dummy (likelihood of exploration), exploration timing IV: Repetitive exploitation, incremental exploitation, proportion of incremental exploitation	Longitudinal data on US hard disk drive industry. 98 firms from 1980 to 1999 with 546 usable observations	Probit model with robust standard errors. One year lagged dependent variable as a control to counter unobserved heterogeneity based on (Heckman and Borjas 1980).	Repetitive exploitation can impede exploration and delay firms' responses to environmental changes.
Sirén and Kohtamäki (2016).	Stretching strategic learning to the limit: The interaction between strategic planning and learning.	What is the role of strategic learning in the strategic planning performance link?	5-point Likert scale The strategic planning scale (Bailey, Johnson, & Daniels, 2000; Collier et al., 2004) The strategic learning instrument (Sirén, 2012)	182 small and medium-sized Finnish software firms	STATA 12 OLS regression	-moderation effect of strategic learning in inverted U-shape. There is a learning effect up to an optimum point beyond which knowledge overload leads to negative performance.

There is a two-by-two typology that delineates four types described as harmonic, cyclical, partitioned, and reciprocal ambidexterity based on temporal and structural dimensions highlighting the need for mediation and moderation studies (Simsek et al. 2009). Exploration and exploitation are linked to performance. Environmental dynamism and competitiveness moderate the effectiveness of exploratory and exploitative innovation (Jansen, van den Bosch & Volberda 2006). Centralization is negatively related to exploratory innovation, formalization is positively related to exploitative innovation, and connectedness is an important antecedent to both types of innovations. Also, exploratory innovation is good in dynamic environments while exploitative innovation is good for a competitive environment. Lubatkin, Simsek, Ling and Veiga (2006) found a significant role of the top management team (TMT) in ambidexterity and relative performance.

On a different note, Rothaermel and Alexandre (2009) found an inverted U-shape between the relationship of the ambidexterity of technology sourcing mix and performance which is moderated by absorptive capacity (ACAP). On a similar note, the importance of strategic choice was evident in that the sequential ambidexterity had a significant impact on sales growth in a longitudinal study of a sample of software firms (Venkatraman, Lee & Iyer 2007). Overall, two key findings of the literature review based on table 5 are: use competitive strategies as moderator and model the non-linear effects of OA on performance in a longitudinal setting as the literature already has many cross-sectional studies.

Table 5. Organizational Ambidexterity literature on moderating effects

Author(s)	Title	Hypotheses	Measurement	Samples	Methods	Findings
Jansen, van den Bosch and Volberda (2006)	Exploratory Innovation, Exploitative Innovation, and Performance: Effects of Organizational Antecedents and Environmental Moderators	Focuses on the apparent differences of exploration and exploitation and examining implications on performance. Environmental dynamism and competitiveness moderate the effectiveness of exploratory and exploitative innovation.	Likert scale 1 to 7: for centralization and formalization) and informal (i.e., connectedness and coordination) mechanisms.	Sample size of 110	hierarchical regression analysis	Centralization <- exploratory innovation (dv) (-ve). Formalization <- exploitative innovation(dv) (+ve). Connectedness is an important antecedent to both types of innovations. Exploratory innovation <-for dynamic environments Exploitative innovation <- for competitive environment
Lubatkin, Simsek, Ling and Veiga (2006)	Ambidexterity and Performance in Small- to Medium-Sized Firms: The Pivotal Role of Top Management Team Behavioral Integration	The pivotal role of TMT in ambidexterity and RELATIVE performance.	Likert scale (1 to 5)	Multi-source survey data, including CEOs and TMT members from 139 SMEs.	maximum likelihood structural equation modeling.	TMT is pivotal in achieving ambidexterity.
Rothaermel and Alexandre (2009)**	Ambidexterity in technology sourcing: The moderating role of absorptive capacity.	IV: Firm's technology sourcing mix DV: Performance (innovativeness and financial)	Performance measured as the number of patents and ROE. Tech mix measured as organizational and technological ACAP proxied as R&D expenditure.	A random, multi-industry sample of U.S. manufacturing companies.		Technology sourcing mix and performance has an inverted U-shape relationship. ACAP moderates positively.
Simsek, Heavey, Veiga & Souder (2009)	A typology for aligning OA conceptualizations, antecedents, and outcomes.	Review article on the ambidexterity conceptualization.	Review article	Review article	Review article	Need for mediation and moderation studies.

The growth of the literature on OA has made the field more fragmented. In a review of the extant literature on OA by Birkinshaw and Gupta (2013) found a pervasive use of the concept of OA which created confusion in its meaning and measurement (see Table 6). There are three schools of thought

Table 6. Measures of Organizational Ambidexterity Adapted from Birkinshaw & Gupta (2013:292). Papers in Italics Added by the Author

OA Measured as a product	OA Measured as a balance	OA Measured as an addition	OA Measured as a Ratio
Gibson and Birkinshaw (2004)	He and Wong (2004)	Lubatkin, Simsek, Ling and Veiga (2006)	<i>Uotila et al. (2009) (Relative Exploration)</i>
Jansen, George, Van Den Bosch and Volberda	Lin, Yang and Demirkan (2007)	Jansen, Tempelaar, van den Bosch, and Volberda (2009)	<i>Moss, Payne & Moore (2014). (Strategic consistency of</i>
Tiwana (2008)	Rothaermel and Alexandre (2009)	Cao, Simsek, and Zhang (2010)	<i>Kim and Huh (2015) (Purely exploration)</i>
Im and Rai (2008)	<i>Uotila et al. (2009)</i>		
Morgan and Berthon (2008)	Boumgarden, Nickerson and Zenger (2012)		
Cao, Gedajlovic and Zhang (2009)	Fernhaber and Patel (2012)		
Tushman, Smith, Wood, Westerman and O'Reilly			
Jansen, Simsek and Cao (2012)			
Hill and Birkinshaw (2014)			

on the measurement of OA: it is measured as a product (9 papers), as a balance (6 papers), and it is measured as an addition (3 papers), as shown in table 6. Current thesis tests at least the product form of OA, which has the highest number of papers in the literature. I also test OA as a ratio through the conceptualization of relative exploration. There are a few studies on the mediation and moderation effect such as shown in Table 5, suggesting figuring out a better approach to select moderators. Departing from existing literature, I

use competitive strategies as moderators of the relationship between OA and performance.

The diverse application resulted in a lot of deviation from the original definition of exploration and exploitation by March (1991). The following theoretical groupings are present in the literature: the RBV, absorptive capacity, knowledge-based view, the behavioral theory of the firm, and evolutionary theory of the firm. Based on this finding, it is equally feasible to use any of these theoretical lenses, but for the suitability of current research question, I base my theoretical choice on the RBV (Barney 1991) and its sibling, the DCV (Teece et al. 1997; Teece 2007; Teece 2014).

2.2 Competitive Strategies: Pure versus Hybrid

The start of the strategic purity discourse (Porter 1980) to the emergence of new idea of hybridization: In a review of the competitive strategies literature, Salavou (2015) outlined the history of the idea of strategic purity and the emergence of the related idea of hybrid strategies moving the focus from corporate and functional levels to the business unit level. The conceptualization is based on the vertical axis representing the market scope and the horizontal axis with the source of competitive advantage (cost or differentiation). Per Porter (1980, 1985), the performance impact of strategic purity is present but not combined or hybrid strategies. He called them *stuck-in-the-middle*. However, my conceptualization, as stated in section 1.5 suggests that when both dimensions of cost and differentiation are the sample means or above they are called the hybrid. Porter (1980) suggested that when these values were at average or below then they are called *stuck-in-the-middle*.

Nevertheless, the latest studies, for example, Salavou (2015), hybrid (cost plus differentiation) is possible and even plausible. The review by Salavou (2015) groups contributions on strategic purity (e.g., McNamee & McHugh 1989; Kim & Lim 1988). Nevertheless, the possibility of hybrid strategies is possible since strategic purity might make a firm less responsive to market changes; it may, for instance, be in less active in developing new products, and fail due to competitor imitating and out-competing their strategic moves, less active on new product development, and fall into competitor imitating out their strategic moves. The emergence of hybridization was documented, for example, by Salavou (2015). Therefore, in my research, I explore the impact of all three strategies: cost, differentiation, and hybrid. It is very important to understand the difference between the concepts of hybrid and stuck-in-the-middle. *Hybrid emphasizes*

competitive behavior that emphasizes more than one generic strategy, and “stuck-in-the-middle” refers to an average emphasis on all generic strategies.

Following the latest review article, current exploration of competitive strategies is based on Salavou (2015). As outlined briefly above, the review article challenges the conceptual issues of hybrid strategies anchored on the original concept (Porter 1980). Going in depth into the history and coming with a revised idea of hybridization, the review article is comprehensive in nature. It also captures the literature beyond 2000 when there was a meta-analysis of the competitive strategies with a focus on the issue of the existence of strategic choices beyond three single-emphasis strategies. Salavou (2015) presents a critique on whether Thornhill and White (2007) have the right research question. The research question then was, “Does strategic purity pay?” Now the research question should be which strategies to pursue, pure or hybrid? My goal in this research is to focus on the latter approach as a unique contribution.

The literature on competitive strategies has been divided into strategic purity, as coined by Porter (1980) and hybrid strategies, validated later by authors such as Spanos, Zaralis & Lioukas (2004), in contrast to the stuck-in-the-middle proposition of Porter (1980). Salavou (2015:86) summarizes the existing literature on strategic purity and hybrid strategies. The following path in chronological order has been observed. There are multiple authors (Beal 2000; Gopalakrishna & Subramanian 2001; Spanos et al. 2004; Acquaah & Yasai-Ardekani 2008; Pertusa-Ortega, Molina-Azorín & Claver-Cortés 2009; Salavou 2013) who studied all three types of strategies (cost, differentiation, and hybrid). But studying these in the internationalization context and together with OA is rare in the existing literature.

Therefore, it is a plausible approach to study all the three types of strategies simultaneously in the presence of the DoI and OA. The strategic purity model *“creates strategic options based on theory, gives a model comprising three pure strategies at the business level, offers “black or white” strategic options, defends a taxonomical approach, and fits sectorial analysis”* Salavou (2015:89). The revised idea of *hybridization* has the following characteristics. The model *“creates strategic options based on facts, suggests many hybrid strategies at the business level, offers “gray shades” strategic options, defends a dimensional approach, and fits either to sectorial or multisectoral analysis”* Salavou (2015:89). Thus, my thesis aims to understand which type of strategies are relevant while internationalizing and while pursuing OA as a dynamic capability.

Firms can pursue either a pure (cost or differentiation) or a hybrid (cost plus differentiation) strategy (Porter 1980). Porter's strategic purity has been

researched well and he coined the word stuck in the middle for the hybrid type of strategies. Therefore, since current research scope follows two main streams of literature—IB and strategic management, I use both pure and hybrid strategies as contingency variables. Table 7 lists publications of the two schools of thought in competitive strategies. Since Porter's (1980) competitive advantage for sustainable performance has been the focus of many researchers, one school of thought argues purely for strategic purity (cost or differentiation) (Kim & Lim 1988; Thornhill & White 2007; Jácome, Lisboa & Yasin, 2002; McNamee & McHugh 1989). The other school of thought, where hybrid (cost and differentiation) strategies have been realized, also has numerous contributions (e.g. Hill 1988; Acquaah & Yasai-Ardekani 2008; Pertusa-Ortega et al. 2009).

In an elaborated example paper, on a Greek manufacturing sample, it was found that hybrid strategies perform better than pure ones, and industry-level effects measured as an industry entry barrier had an impact on performance (Spanos et al. 2004). Nevertheless, firm-specific factors outweigh the industry effects by more than twice on the profit variability. The authors used measures that measure realized strategies rather than strategic intentions. Their measure of low-cost strategy is employee productivity measured as value added per employee (higher meaning low cost). On the differentiation strategy, marketing differentiation is measured as advertising intensity, while technology differentiation is measured as technology intensity (investment in new equipment to sales). On the choice of a measure of the outcome variable, it is the return on invested capital that measures the true nature of competitiveness in a globalized world (Snowdon & Stonehouse 2006). Very interesting findings in a longitudinal study done during 2007–2009 on sustainable performance even during the financial crisis show that intangible strategic resources represented by innovation capability and stakeholder relations are important (Flammer & Ioannou 2015).

This stream of literature documents multiple operationalization of hybrid strategies and the study by Spanos et al. (2004) was one of the pioneering studies on this front. For this thesis, I have used the operationalization where both cost and differentiation strategies have above-the -mean value. An exemplar study was done by Thornhill and White (2007) on the strategic purity thought. As shown in table 7, there are many authors who supported this school of thought but the current exploration is the realization of hybrid strategies in contrast to *the stuck-in-the-middle* hypothesis of Porter (1980).

Table 7. Literature Review of Pure Vs Hybrid Strategies

Strategic purity (cost or differentiation)	Kim and Lim (1988); Thornhill and White (2007); Jácome, Lisboa and Yasin (2002); McNamee and McHugh (1989); Manev, Manolova, Harkins and Gyoshev (2015)
Hybrid (cost and differentiation)	Hill (1988); Campbell-Hunt (2000); Spanos and Lioukas (2001); Spanos et al. (2004); Kim, Nam and Stimpert (2004); Acquaah and Yasai-Ardekani (2008); Pertusa-Ortega, Molina-Azorín and Claver-Cortés (2009); Salavou and Halikias (2009); Hughes, Martin, Morgan and Robson (2010); Salavou (2013); Salavou (2015);

2.3 Degree of Internationalization

The DoI is the second construct used in the study. For clarity and reflecting on the nature of the sample of the current study, I did not use the term international diversification or imultinationality to avoid confusion to the reader. The internationalization literature has documented that there is a linear relationship between DoI and performance to U-shaped and inverted U-shaped relationships, but there has been a broader agreement (Glaum & Oesterle 2007) on the “3-stage theory” or sigmoid model (Contractor et al. 2003; Lu & Beamish 2004). Nevertheless, this debate on whether internationalization results into performance has been still ongoing (Hennart 2007). Based on the preceding debates, Glaum and Oesterle (2007) raised the major question of whether internationalization itself has a performance effect or not. The subsequent question then is how to define and operationalize internationalization, as these are crucial in accepting or rejecting the internationalization-performance hypothesis—whether linear, U-shape, inverted U-shape, or sigmoid.

Does internationalization (I) or DoI or international diversification lead to performance? These terms are used interchangeably in the current study. The research question related to the DoI and performance has perplexed the IB and strategic management literature over 40 years (Glaum & Oesterle 2007). There is a divided school of thought on whether there is a linear or curvilinear or U-shape or s-shape relationship between DoI and performance (Cardinal, Miller & Palich 2011; Kirca et al. 2011). This discrepancy in the literature is calling for longitudinal research (Verbeke & Forootan 2012). Hennart (2011) questioned the efficacy of these studies on the theoretical argumentation. Therefore, this thesis argues for the right types of theory and measures and their impact on the performance.

A literature review of 17 articles found that international diversification improves financial performance (Sullivan 1994). Of the 17 studies reported in Sullivan (1994), six studies report a positive, six an indeterminate, and five a negative relationship with chosen performance variables. There is no consensus on the measurement of DoI. There is a school of thought advocating a single measure and another school of thought that argues for composite measures of internationalization or DoI owing to the complex phenomenon of IB. The latter school of thought is mainly dominated by the paper by Sullivan (1994), published in *Journal of International Business Studies (JIBS)*. *Similar studies following this school of thoughts are many (e.g. Thomas and Eden 2004; Berry & Kaul 2016; Lu & Beamish 2004; Contractor et al. 2003)*. Most of the articles used FSTS and FATA as a measure of internationalization or the composite of both FSTS and FATA. *To be able to compare my findings with a larger pool of studies, I focus on using FSTS, FATA and composite of both as a measure of DoI as done by many authors, such as Delios and Beamish (1999) and Hitt, Hoskisson and Kim (1997) as shown in Table 8*. I develop an argument to use FSTS and FATA as a measure of internationalization and adapt this notion in the current study.

Table 8. Degree of Internationalization Measures

Table 8 and 9 needs to be compared together. Table 8 is an indicative table of the source of measurement while Table 9 is a map of the key hypotheses used in the studies. Due to highly loaded nature and the availability of the data only FSTS and FATA were used in my study.

Measure	Authors
FSTS	Delios and Beamish (1999); Hitt <i>et al.</i> (1997)
FATA	FATA: Ramaswamy (1993)
Number of countries	Lu and Beamish (2004); Tallman and Li (1996)
Diversity of foreign	Goerzen and Beamish (2003)
Composite measures	Thomas and Eden (2004); Sullivan (1994); Lee, Kim and Davidson (2015); Berry and Kaul (2016); Lu and Beamish (2004); Contractor <i>et al.</i> (2003)

To come up with a reliable measure, Sullivan (1994) argued that the reliability of the DoI is better after collecting data on nine attributes from 74 MNCs. The factor analysis revealed that there are five factors with a reliability coefficient of 0.79. These include the performance-based measure, FSTS, structural measures, FATA, overseas subsidiaries as a percentage of total subsidiaries (OSTS), attitudinal measures such as top manager's international experience (TMIE), and psychic dispersion of international operations (PDIO). Out of the five (FSTS, FATA, OSTS, TMIE & PDIO) derived by Sullivan (1994), I have chosen three best

measures with a tested index of internationalization of 74 US MNCs in which FSTS and FATA both have high loadings (FSTS .9137, FATA .8808) and communality (FSTS .8488 FATA .7125) with Eigen values 2.8133. Therefore, studying internationalization with the mostly popular and statistically loaded measure is justified.

Based on the learning from composite measures as suggested by Sullivan (1994), Lu and Beamish (2004) proposed a theoretical framework that caters to both benefits and costs of geographic expansion in multiple phases. The authors found in a sample of 1,489 Japanese firms over 12 years a horizontal S-shaped relationship between internationalization and performance. On the moderating effects, technology efforts have better performance in a moderating role but not the advertising. The measurement model is the most interesting contribution in their paper. The key finding of the research was that there was a horizontal S-shaped relationship between the DoI and performance.

In a replication study in I-P literature, Berry and Kaul (2016) revisited the Lu and Beamish (2004) paper in the context of US MNCs, hoping to replicate their S-curve hypothesis with the US data with a population from 1989 to 2007. They found support for neither the S-curve relationship nor the moderating effect of intangible assets. In a robustness analysis with a manufacturing only sample, there is a marginally significant U-shaped relationship which does not hold true when endogeneity is considered. Berry and Kaul's (2016) instrumental variable approach is noteworthy, which was only mentioned in Lu and Beamish (2004) without proper elaboration.

Table 9. The degree of Internationalization and Performance developed further from 2007 onwards (adapted from Cardinal, Miller, & Palich (2011:180). Updated by the author beyond the year 2007.

Relationships	Authors
Inverted U-shaped	Geringer, Beamish and DaCosta (1989); Sullivan (1994); Ramaswamy (1995); Allen and Pantzalis (1996); Hitt et al. (1997); Gomes and Ramaswamy (1999); Qian and Li (2002); Hsu and Boggs (2003); Goerzen and Beamish (2005); Li and Qian (2005); Flango and Sethi (2007); Qian, Khoury, Peng and Qian (2010); Chen and Hsu (2010);
U-shaped	Lu and Beamish (2001); Capar and Kotabe (2003); Contractor et al. (2003); Ruigrok and Wagner (2003); Thomas (2006); Chang (2007); Chang and Wang (2007); Contractor, Kumar and Kunda (2007); Yang and Driffield (2012)
S-Shaped	Sullivan (1994); Riahi-Belkaoui (1998); Contractor et al. (2003); Lu and Beamish (2004); Rugman and Oh (2010);
Other	Wan (1998); Qian (2002); Nachum (2004); Ruigrok, Amann, and Wagner (2007); Lee et al. (2015); Berry and Kaul (2016)

I benefitted from the adapted table from Cardinal et al. (2011), I have updated the table beyond 2007 tabulating the literature with author(s) and year as shown in Table 9 (for detailed refer to Cardinal et al. (2011: 180) which reports findings, detailed follow-up statistical tests, plots, unrestricted range, and incremental variance explained by the curvilinear term). As discussed before and earlier reviews, the key message here is that there is a divided school of thought in the internationalization-performance from the inverted U-shaped, U-shaped, an s-shaped and linear relationships.

After the review by Cardinal et al. (2011), the following two meta-analyses (see table 10) on internationalization-performance were published. Kirca et al. (2012) did a meta-analysis on I-P relationships demonstrating that it depends on the type of internationalization, the firm's strategic motivations, industry characteristics, and home country factors. *The surprise finding is that the firm size and internationalization stage are not significant moderators.* The major contribution of the meta-analysis is that it proposed a unified and contextual framework, as demanded by Contractor (2007). In addition, the paper builds a cumulative knowledge across industries and domains enabled by the meta-analysis. Also, the paper discusses for the first time the simultaneous effects of several previously unknown substantive factors on the I-P relationship. The meta-analysis drove current research context and enabled me to introduce the competitive strategies and FSAs as key moderators. Marano, Arregle, Hitt,

Spadafora and van Essen (2016) is the latest meta-analysis suggesting the role of formal and informal home country institutions, an issue for further research.

Table 10. Two Meta-Analysis Papers on Internationalization-Performance After 2011

Author(s)	Reported Findings	Theoretical Contribution	Methodological Contribution	Empirical Contribution
Kirca, Roth, Hult and Cavusgil (2012).	The key factors important for internationalization and performance relationships are type of internationalization, firm strategic motivations, industry characteristics, and home country factors.	A unified and comprehensive contextual framework as demanded by several authors (e.g., Contractor 2007). This has a unique introduction of context departing from the recent meta-analysis (Kirca et al. 2011).	Cumulative knowledge across industries and domains enabled by the meta-analysis.	Simultaneous effects of several previously unknown substantive factors on the I-P relationship.
Marano, Arregle, Hitt, Spadafora and van Essen (2016).	Firm's domestic "formal" and "informal" institutions are key moderators on the relationship between internationalization and performance. The meta-analytic sample comes from across 32 countries from 1972 to 2012 from 359 primary studies.	<i>-Bringing institution-based view of strategy into the IB literature.</i>	<i>- product-moment and partial correlations as effect sizes</i>	

The analysis of the literature with the arguments and critique for all four types of internationalization-performance relationships —linear, inverted U-shape, U-shape, and an S-curve was conducted by Cardinal et al. (2011). I follow this as a guidepost in my hypotheses development and testing. *Critique on the S-shape:* Cardinal et al. (2011) elaborated the critiques on all shapes of the DoI-performance relationships. However, as the main objective of this dissertation is to test the S-curve hypothesis, in the following section I discuss the issues related to S-curve related relationships. Similar arguments as of the inverted U-shape were used to criticize the S-model: most of the firms move to lower-psychic-distance countries during the initial phase implying nonexistence of a downward slope at the beginning.

Borrowing from the U-curve critiques, we can argue that apart from learning from mistakes and failure other ways of learning might be an advantage during

the early and later phase. One can argue that the S-model considers the U-shape and the inverted U-shape together. This argument is more plausible than the stand-alone version of the internationalization-performance hypothesis (Cardinal et al. 2011). The S-model studies also suffer from the problems like the U-shape studies and inverted U-shape studies, such as missing critical statistical tests, the absence of data plots, and unrestricted ranges of diversification. Without such a robustness check, generalizing the results is very risky.

To summarize, a very revealing and problematic finding from this literature review is that most of the curvilinear models exhibit restrictions of range for international diversification. Also, by restricting samples, the explanatory power of the studies is lowered. Also, there are no critical follow-up statistical tests in many of the studies. There are no plots in many of the studies, complicating the interpretation of these curvilinear relationships. Authors raise a serious concern about p-hacking although indirectly and publication biases to publish only significant findings might have left many non-findings without being reported (Cardinal et al. 2011).

A year after the publication of the Cardinal et al. (2011) review paper, *Global Strategy Journal* conducted a debate on internationalization-performance streams of literature, where Professor Farook Contractor took the arguments (Contractor 2012) supporting the existence of the relationship and Professor Alain Verbeke and a colleague took a position against the motion. The resulting point-counterpoint debate on this very pertinent question was reported by Tallman and Pedersen (2012), who outlined the arguments for and against the performance linkage of internationalization and performance (I-P).

In some streams of research, this linkage was studied under the banner of international diversification or DoI. His views since the publication of the S-curve hypothesis (Contractor et al. 2003) remained fixed on the three-stages of internationalization saying that inverted U-shape and U-shape results are the special cases of the S-model. Tallman and Pedersen (2012) raised a few pertinent questions, such as, is the problem with the existing theories and associated explanations of the phenomenon or is the problem on the operationalization of the key antecedent of international diversification? Do the problems lie on the link between the construct and the measure? Or is the grand theory of internationalization approach being simply too ambitious?

Supporting the motion, Contractor (2012) makes a thorough analysis of the benefits, costs, and limits of international expansion to support the S-curve hypothesis. The opposing stream of literature raises a question on the existence of a generalizable theory to explain I-P relationship (Verbeke & Forootan 2012)

due to endogenous nature of international diversification itself. The criticism exists, so are the MNCs increasing, generally regarded as a better profit making mechanisms compared to their domestic counterparts. The problem might lie in methodological choices, and the contingent variable approach should be considered. Contractor (2012) outlines eight rationales for the existence of I-P relationships. Among them, the positive benefit generating rationales include *economies of scale, FSAs, sourcing of cheaper inputs, risk reduction, and cross-border arbitrage*. These benefits are offset by *the organizational cost of bureaucracy, complexity, and distance*.

Altogether these benefits and costs make the diversification normally plausible. But Contractor (2012) had a concern about the 40 years of seemingly contradictory research because of heterogeneous samples and methodologies used. Therefore, adequate measures and contingent variables need to be considered in streamlining this literature. Contractor (2012) calls for longitudinal studies and the use of contingency variables which is the focus of this dissertation. The use of controls other than existing ones or confounding factors that might alter the shape of the I-P relationship is suggested.

The review of internationalization-performance (I-P) literature concluded that there are various streams of the literature based on theoretical arguments. As I have elaborated in the preceding discussions, the I-P literature has multiple theoretical argumentations and hence the mixed findings—from linear to nonlinear effects (Matysiak and Bausch 2012). As suggested by Matysiak and Bausch (2012), I also start with S-curve hypothesis (Riahi-Belkaoui 1998; Contractor et al. 2003; and Lu and Beamish 2004). The S-curve hypothesis as suggested by Lu and Beamish (2004) had slopes and inflection points moderated by FSAs.

Though the literature is divided into whether there is I-P relationship exists or not, this dissertation aims to test the underlying relations. The argumentation was based on the methodological grounds—mainly existing studies are having common method variance (CMV), endogeneity and unobserved heterogeneity problems. This small but interesting stream of literature becomes one of the cornerstones of this dissertation as I will elaborate on this later in the theoretical synthesis and hypothesis section in detail.

2.4 Role of Firm-specific Advantages

Recalling the definition from section 1.5, Matysiak and Bausch (2012) clearly make a case for FSAs bringing internalization theory and the RBV into focus. The

authors argue that resources and capabilities are the origins of FSAs, as outlined and developed as a core concept of internalization theory (Hymer 1976; Buckley & Casson 1976). For MNEs to succeed in foreign markets FSAs are crucial which overcome the cost incurred by liabilities of foreignness (Zaheer & Mosakowski 1997). When there is an advantage of intangibles and that becomes crucial for internationalization these are called FSAs. FSAs are measured as R&D intensity and SGA intensity. The role of FSAs has been emphasized in the literature and the summary of which could be found in the meta-analysis that suggests the existence of moderating or mediating effects of FSAs on the relationship between internationalization and performance (Kirca et al. 2012; Kirca et al. 2012).

As discussed in section 1.3 while discussing the main research question and sub-objective, the rationale for using FSAs as moderating variables is based on a meta-analysis (Kirca et al. 2011; Kirca et al. 2012), which suggests the notion of FSAs as a cornerstone in realizing internationalization benefits. This view is the cornerstone of internalization theory which is an important leg of theories in the TST as well, which brings the RBV, and the MBV together. Matysiak and Bausch (2012) argued that the S-curve shape of internationalization-performance relationship shifts either lower or higher depending on the level of FSAs. Similarly, Verbeke and Forootan (2012) suggest that in the absence of FSAs the internationalization-performance relationship does not exist. The underlying understanding of existing literature of FSAs does not fulfill the methodological flaws in the literature, which only summarize the existing findings with existing flaws.

As a benchmark paper to understand this methodological flaw, I took Lu and Beamish (2004) which make a noteworthy attempt to test FSAs as moderators between the DoI and performance relationships with the sound logic that the FSAs do not depreciate when applied to multiple markets resulting into economies of scope advantage. The theoretical rationale is divided into moderation versus mediation, but current work solely focuses on the moderation logic. However, Berry and Kaul (2016) found no such effect while handling endogeneity. Therefore, resolving these contradictory findings in a longitudinal setting would be interesting research approach as well.

2.5 Summary of the Literature Review

A summary of the literature and its applicability to current research context are presented below. When defining relative exploration, the formula suggested by Uotila et al. (2009) is $(\text{exploration} / (\text{exploration} + \text{exploitation}))$. This ratio is

truly an indicator of the balance between exploration and exploitation. While plotting the findings, the vertical axis is performance (Tobin's Q or ROA) while the horizontal axis is relative exploration. The relationship between relative exploration and performance is expected to be curvilinear. However, it would be equally important to test this relationship with other dependent variables, such as ROA. Tobin's Q and ROA are totally different ratios, one being the market-based measure and the other the accounting-based measure. Current research tests both and compares the findings.

The curvilinear relationship suggests that in the early phase the organization has slack resources to invest on exploration related activities, and there is an improvement in exploitation through exploitation focus resulting in a positive slope in the figure. After the optimum level of balance is passed, the slope gets negative due to a failure trap or an exploitation trap or both. A failure trap because there is sunk cost on too much of exploration, or on the other hand if the focus is too much on exploitation, the success trap continues and the firm fails to sense the new disruption and falls prey to it. Therefore, it is important to understand this rationale while developing the hypothesis later. As outlined through an S-curved relationship between the DoI and performance (Tobin's Q or ROA), the first negative slope is due to the liabilities of foreignness experienced in the path to internationalization. The second phase has a positive slope indicating the learning, economies of scale, and economies of scope due to internationalization or for the internationalization. This phase is in synchrony with the VRIN logic of the RBV. The third phase, then declining slope during the high DoI, suggests that there is a problem of costs of coordination and costs of complexity (Matysiak & Bausch 2012).

The discrepancies in the mixed findings are due to the neglect of the FSAs (which is used as a synonym for differentiation advantage in current research in an operational term) as the main driving force for the internationalization strategies and related performance. As discussed earlier, Tallman and Pedersen (2012) concluded the for and against debate on I-P relationship by outlining the need for new conceptual ideas and/or empirical approaches. To address their research call, in current research design, I tackle or argue for multiple but highly loaded measures, endogeneity issues as well as dynamic aspects. While reviewing the existing literature on the OA, DoI and competitive strategies, the literature is fragmented on their link to performance. One stream of literature supports linear relationships while another stream of literature claims non-linear relationships and even no relationship (e.g. Berry & Kaul 2016).

In the DoI stream of literature, there is a need to streamline the measurement used. I argue for aggregation of FSTS, FATA through a composite of both rather than suggested disaggregation (Berry & Kaul 2016). My approach to tackling this problem is developing hypotheses through a sound theoretical basis to contribute to the literature by the chosen antecedents and the performance variable(s). Based on the review above, there is a need to anchor these mixed findings on sound theoretical logic. This impetus has been realized through the articulation of a combined approach on the RBV and dynamic capabilities based view. The following section outlines the theoretical rationale behind the study. I elaborate these curvilinear and S-shaped relationships from the theoretical lenses of the RBV, the MBV, and the internalization theory.

3 SYNTHESIS OF THE LITERATURE REVIEW FROM THE THEORETICAL PERSPECTIVE

The literature review in the previous chapter revealed that the relevant theories to understand the main antecedents (OA and DoI) and moderating variables (competitive strategies and FSAs) are the TST anchored in the RBV, internalization theory, the MBV, and the dynamic capabilities-based theory of the multinational enterprise (MNE). Focusing on the nature of these antecedents and the need to assess their impact on the long-term performance, I use ROA and Tobin's Q as dependent variables.

To link the competitive strategy into the mainstream discussion of internationalization and OA, I chose the competitive strategies to understand the moderating effects. In the following sections, I first outline the TST with an eye to its applicability to current research context. Following that, I bring the competitive strategies into the discussion that aims to explain the rationale of strategic postures in internationalization and in exploration and exploitation activities. Third, I bring together OA as dynamic capabilities as this is the cornerstone in explaining the differential advantage either through DoI or through OA. Then I outline the choice of performance variables (ROA and Tobin's Q). The final section outlines the summary of the theoretical choice in the context of my research constructs and the related logical argumentation.

3.1 Three-Stage Theory of Internationalization

As is evident in the TST, during the early phase of expansion or during the later phase of expansion, the firm faces lower performance. However, during the middle stage of expansion, there is a net positive benefit effect during internationalization (see the synthesis in section 2.3 and 2.5). However, building onwards from Contractor (2007), current work enhances the understanding of puzzling findings in the discourse in the IB and strategic management literature by studying the internationalization phenomenon from three theoretical perspectives: the RBV, the MBV, and internalization theory. The former two are dominant theories in strategic management while the latter is the dominant theory in IB. Reconciling all these three theories in the TST becomes the major thrust of the following section as suggested by Matysiak and Bausch (2012). By linking Contractor's (2007) discussions with those of Matysiak and Bausch (2012), I build theoretical positioning for the TST anchored in internalization theory, the RBV, and the MBV as discussed in section 1.4.

Internationalization literature with an operationalization of internationalization or DoI is divided into diverging schools of thought. In the year 2007, two prominent proponents of internationalization got immersed into a debate— The Evolutionary or TST (Contractor 2007) of Internationalization versus TCE (Hennart 2007) perspective. Current work follows the former approach through the articulation of positive and negative benefits of internationalization, as done by Contractor (2007) using the lens of the theory of the firm and the multinational enterprise. Also, to avoid confusion in interpreting the regression coefficients (see Cardinal et al. 2011), the relationships are plotted.

A review article of internationalization-performance (I-P) literature concluded that the I-P literature has multiple theoretical argumentations and hence the mixed findings from linear to nonlinear effects (Matysiak & Bausch 2012). As suggested by Matysiak and Bausch (2012), I also start with the S-curve hypothesis (Riahi-Belkaoui 1998; Contractor et al. 2003; and Lu & Beamish 2004). In the case of an inverted U-shape, I argue for it being a special case of the S-curve hypothesis depending on the level of internationalization in the sample firms. Matysiak and Bausch (2012) argued that without FSAs as suggested by internalization theory, internationalization is an orphan in the business family as argued by many other authors (for example, Verbeke & Brugman 2009; Hennart 2011).

Matysiak and Bausch (2012) argued that past research did not follow the proper theoretical lens which resulted in mixed findings in the 40 years of research. Therefore, reconciling three theoretical lenses— the RBV, the MBV, and internalization theory—have been considered in this thesis. The reason for the choice of these theories is that the strategic management literature normally does not have multi-country dimensions which are very important for the IB literature. At least the effect sizes visible in strategic management literature for an antecedent might not be the same in the international setting. Therefore, the antecedents at the domestic level may not be as just a replica for IB.

However, the perennial focus on the performance makes strategic management literature worth considering. The IB field is not free from its weaknesses either. The dominant view of internalization theory is focused on "exploitation seeking but not on rent-seeking" (Matysiak & Bausch 2012:179). Therefore, linking all three theories is thought to be a plausible approach in explaining the TST. The crucial thinking of RBV (Barney 1991) is the firm as the unit of analysis where resources are imperfectly mobile resulting in competitive advantage. Most of the studies in strategic management are based on large company samples, which are multinationals in general. But these studies do not control for country effects. On

the other hand, resources and capabilities are the sources of FSAs which were argued as a core foundation of internalization theory (Buckley & Casson 1976). When RBV and internalization theory are linked together the condition for both rent-seeking and exploitation seeking rationales are fulfilled: VRIN resources and capabilities nurturing the FSAs.

Similarly, integration and local responsiveness determine the second stage of market expansion. In market-based thinking, the Structure-Conduct-Performance (SCP) paradigm is active where firms are assumed to be homogeneous while the industry-level factors are heterogeneous. In the firm-level thinking as argued by RBV, the firms have resource heterogeneity generating rent. Current work bridges the SCP and RBV paradigms in one study. On the measurement, the review by Matysiak and Bausch (2012) found that around 80 percent (50 of 63) of the studies use internationalization as an explanatory variable (e.g., FATA, FSTS, a count measure of foreign subsidiaries or of countries with foreign subsidiaries, or a composite or survey). Using these measures and regressing with various performance variables (ROA, ROS, Tobin's Q, ROE, etc.) the literature has mixed findings—non-findings, linear, U-shaped, Inverted-U shaped, and horizontal S-shape—for elaborated discussions, see tables 1 and 2 in Matysiak and Bausch (2012).

The horizontal S-shaped relationship, as suggested by multiple authors (Riahi-Belkaoui 1998; Contractor et al. 2003; and Lu & Beamish 2004) and elaborated later by Contractor (2007) drives current work as discussed earlier. Also, as discussed before, in the first phase, due to the liabilities of foreignness there is a negative slope that turns into a positive slope during the second phase, where learning and the exploitation of economies of scale and economies of scope take effect. The final phase has, again, a negative slope which was argued to be because of distance resulting into coordination challenges and associated complexity. Some authors suggest that this is due to agency cost based on agency theory, where managers internationalize to maximize their benefits. Thus, TST to study the S-curve hypothesis is, in summary, the key understanding of the discussion above.

3.2 Competitive Strategies and Their Effect on the Degree of Internationalization

As discussed in the literature review section, there is a divided school of thought on strategic purity (Porter 1985) and hybrid strategies (Porter 1985, Gabrielsson, Seppälä & Gabrielsson 2016). In the original conceptualization, hybrid strategies

were called the “stuck-in-the-middle” strategies. Later developments (Spanos et al. 2004) have found the context where such hybrid strategy could be realized. Current work considers previous research and the idiosyncrasies of the national context. Another approach to take into consideration is that firm-specific factors explain more than twice as much profit variability as do industry factors. By using industry effects as controls, I follow the suggestions by Spanos et al. (2004) that it would be interesting to focus on firm-specific factors.

On the use of multiple measures and replication study, recalling the discussion in the literature review, Berry and Kaul (2016) revisited the Lu and Beamish (2004) paper in the context of US MNCs hoping to replicate their S-curve hypothesis on the US data with a population from 1989 to 2007. They did not find support for the S-curve relationship nor for the moderating effect of intangible assets. On a robustness analysis with manufacturing only sample, there is a marginally significant U-shaped relationship which does not hold true when endogeneity is considered. Their instrumental variable approach is noteworthy, which was not elaborated on by Lu and Beamish (2004). The mixed findings discussed here might be due to the reasons stated by Hennart (2011), where he reviewed the definition of internationalization in the M/P literature. Per his review, the measurement of internationalization is mainly taken as foreign market penetration, a presence of foreign production, and country scope, which rarely represent the theoretical arguments they are aiming to represent.

3.3 Organizational Ambidexterity as a Dynamic Capability

As discussed before, the expected curvilinear effect between OA and performance is based on OA as a dynamic capability conceptualization. Too low a level or, for that matter, too high a level of relative exploration (balance of exploration and exploitation) results in inferior performance. As discussed in section 2.5, the positive slope in the first phase is the use of slack resources and exploitation effects although there is an optimum point. The negative slope, when too much of exploration is pursued, is due to the failure trap and misuse of resources or due to the exploitation trap or success trap, as suggested by March (1991). Therefore, to benefit from such resource management, OA as a balance of exploration and exploitation (Uotila et al. 2009) should be considered as a dynamic capability (O'Reilly & Tushman 2008). This conceptualization, if pursued well, releases the companies from the exploitation trap and, for that matter, the failure trap. While sensing and seizing opportunities, exploration and exploitation-related activities

should be considered together. Reconfiguring resources demands even proper balance of exploration and exploitation activities.

OA as a dynamic capability view (O'Reilly & Tushman 2008) is one of the guiding conceptualizations for current work. The quest for survival during the change has mesmerized researchers for a long time. The population ecology view argues for environmental selection, which says that most organizations fail in the long run due to organizational inertia. However, another school of thought argues for learning and adaptation as a possible avenue for survival during change or long-term performance. Underlying this hypothesis, there are two equally popular streams of literature in strategic management discourse—dynamic capabilities-based (DCAP) view and OA. DCAP is the cornerstone for competitive advantage where the ability to reconfigure assets as existing capabilities is important. Similarly, OA suggests for a simultaneous exploration and exploitation approach for long-term performance. However, these ideas have not been empirically validated in a longitudinal study. Therefore, I conduct this research to highlight the impact of OA as a dynamic capability. One limitation of the current study is that it does not bring the role of top management into the equation as the analysis is done at the firm level. Future studies should pursue this research avenue.

As the literature develops further in the conceptualization and integration of the DCAP view to achieving competitive advantage in the face of change, the latest addition to the literature has considered the phenomena from the lens of organizational change theory (Andreeva & Ritala 2016). In this logic, the organizational change was proposed as a *generic capability* (which is generalizable) in contrast to domain-specific capabilities. Borrowing from this logic and applying OA as a synonym to organizational change, I position OA as a generic capability like organizational change management capability, as demanded by a further research call by Andreeva and Ritala (2016).

There is a broad agreement (e.g. March 1991; Uotila et al. 2009) in the OA literature that firms generally need both exploration and exploitation for long-term success, and a proper balance between the two is a central strategic choice that the firms need to make. While environmental contingencies to the exploration–exploitation balance, such as environmental dynamism, competitiveness, and uncertainty, have received a good amount of attention (Auh & Menguc 2005; Jansen, Van Den Bosch & Volberda 2006; Lin, Yang & Demirkan 2007; Uotila et al. 2009), there is relatively little research studying how the importance of the two modes of adaptation depends on the competitive strategies that firms pursue.

The literature in the RBV discusses the demand side view of value creation. In the thinking of exploration and exploitation, exploration is linked to value creation while exploitation is linked to value capture. While studying the balance of exploration and exploitation, I pursue both divided schools of thought of the RBV, i.e., this approach enables a study on value creation and value capture simultaneously. The discussion is based on the latest critique on the RBV by Priem, Butler and Li (2013). This simultaneous pursuit is a clear contribution from current research on the emerging RBV paradigm in strategic management and, for that matter, IB. This is a key perspective which incorporates consumer heterogeneity in value creation and complements the existing RBV (Barney 1991), enabling a smooth link from the demand side view of the RBV to determine the corporate-level or business-level strategies that generate differential performance and related strategic decisions (Priem et al. 2013). The RBV has been complemented by the DCAP view (Teece et al. 1997; Teece 2007; Teece 2014). Based on the latest thinking on the the DCAP of the MNE (Teece 2014), current work is anchored with the RBV but at the same time complemented by the dynamic capabilities view which considers the RBV, internalization theory and entrepreneurial management as a coherent whole.

3.4 Competitive Strategies and its Effect on Organizational Ambidexterity

To examine the role of competitive strategies, I explore the short-term and long-term orientation through the lens of exploration and exploitation, especially the balance of exploration and exploitation. The literature on exploration (opportunity-seeking) and exploitation (advantage-seeking) are divided on their link to performance. As discussed in preceding sections, there is a possibility of moderating and mediating effects of contingency variables (Raisch et al. 2009; Simsek et al. 2009; Raisch & Birkinshaw 2008). In response to this, I argue that the competitive strategies (overall cost leadership, differentiation, and hybrid strategies (Porter 1980) have a moderating effect between relative exploration or similar operationalization of OA (as a product of exploration and exploitation) and performance. Studying balance of exploration and exploitation together with competitive strategies is a key approach to understanding the competitive supremacy.

There are two main generic approaches to competitive strategy: cost leadership and differentiation (Porter 1985). While subsequent research built on, expanded and challenged Porter's arguments (Salavou 2015; Spanos et al. 2004), the dominant way to characterize firms' overall orientation to competitive strategy is

still in terms of their position in the cost versus differentiation continuum (e.g. Thornhill & White 2007). Firms focusing on costs need exploitation in their operations, which leads to the importance of exploitation, while firms focusing on differentiation need innovation in their operations. Firms focusing on differentiation need to find unique ways to create value for their customers. This necessitates them to engage in exploratory learning to find ways of value creation not utilized by their competitors. The cost versus differentiation orientation of firms can be considered in two distinct domains: technologies and markets (Spanos et al. 2004). Therefore, I use technology and market differentiation based on two measures, R&D intensity and SGA intensity. Similarly, cost per employee is used as a measure of cost leadership. When both cost and differentiation are pursued, it is called hybrid strategy. These strategies are expected to be the key moderators between OA as a dynamic capability and performance.

3.5 Relevance of Theoretical Arguments for the Constructs in the Dissertation

The Porterian school of thought is built on creating a position in the industry by the competition logic of a barrier to entry. Similarly, the RBV is based on the logic of possession of key resources which create a barrier to imitation and thereby a competitive advantage. Last but not the least, in a dynamic environment, the dynamic capabilities based view (Teece et al. 1997; Teece 2007, 2014) is recommended where adaptation to integrate and reconfigure skills, resources, and functional competencies are possible.

To build a rationale from the primary data based perspectives, I followed a very convincing survey-based study done from the managerial perspective asserting that the extant academic findings on the impact of globalization on firm performance are real (see Bowen, Baker, and Powell 2015). This survey-based study supports the face validity of the globalization from the primary data perspective which justifies the use of extant FSTS and, for that matter, FATA measures and their impact on performance as a roughly valid proxy for the measurement purpose to compare the existing research.

The RBV (Barney 1991) and especially the demand-side view of the RBV (Priem et al. 2013) is critical in driving the exploration logic as well as differentiation advantage. Similarly, the supply side of the RBV (Barney 1991) drives the exploitation measure in parallel to overall cost leadership strategy. When invoking the RBV, it implies the extended view together with dynamic

capabilities. Therefore, RBV and DCV are two sides of the same coin. Competitive strategies just create a moderating effect to enhance the role of these theories.

Solesvik (2015) is the latest entry on the RBV discourse on the Barney (1991) school of thought. The argument to position RBV as a new paradigm of strategic management is anchored primarily on the existing research since Penrose (1959). Solesvik (2015) postulates two major issues with respect to RBV as a paradigm thinking. First, the RBV and the DCV are better suited to explain sustainable performance compared to industrial organization (IO) theories. Second, RBV together with supporting theories is quite popular in strategic management although it has not replaced I/O economics completely. Per Solesvik (2015), the RBV with the DCAP qualifies as a new theory of the firm.

Capabilities geared towards current pursuits are exploitation oriented while capabilities for the future innovation are exploration oriented. Balancing both is most important if a firm aims to survive in a changing business environment. Luo (2001) is one of the authors who brought the dynamic capability debate into internationalization. Per him, the three essential ingredients of dynamic capability—capability possession (distinctive resources) to gain competitive advantage, capability deployment (resource allocation) for mitigating the liabilities of foreignness, and capability upgrading (dynamic learning) for evolutionary development—have become a necessary condition in international expansion.

Per Li (2010), looking at cross-border alliance as a co-exploitation and co-exploration this emerging paradigm shift from exploitation to exploration has been a new theoretical lens in understanding internationalization. This is the justification for using OA as dynamic capabilities view to understand both the internationalization and competitive strategies. As defined earlier, the operational definition of OA is twofold. The first is the relative exploration which is defined as the ratio between exploration divided by the sum of both exploration and exploitation. Similarly, the most popular form of ambidexterity is the simultaneous pursuit of both exploration and exploitation, which is operationalized as the product of both exploration and exploitation.

In the earlier literature, DoI was explained through the TST anchored in the internalization theory, the RBV, and the MBV. Positioning the study on the dynamic capabilities and the RBV, this thesis links strategic management, marketing, and IB literature to give a broader perspective on competitive strategies and internationalization. In strategic management, these ideas are like that of Prahalad and Hamel (1994). Thus, OA as a dynamic capability (O'Reilly

III & Tushman 2008) positions itself on the creation of bridge in the IB and strategic management literature.

Even companies from manufacturing sectors are moving towards blending services into their products. Therefore, the key assumption here is to consider the whole sample as service-dominant-logic-based companies. Thus, positioning the study on the dynamic capabilities and the RBV, this thesis links strategic management, marketing, and IB literature to give a broader perspective on competitive strategies and internationalization. The following section discusses the dependent variable in detail, after which I combine these constructs and postulate the hypotheses and later into a theoretical framework.

3.6 Accounting-Based vs. Market-Based Performance Measures

Measurement of performance in IB studies has been fragmented without any standardized approach (Verbeke and Brugman 2009). There is no consensus on which proxy to use for performance although ROA, ROI, and ROE have been accepted generally. These measures are good for short-term performance but not for the long-term performance linked to motives for internationalization or balancing of exploration and exploitation. Asset-seeking motives and market-seeking motives will have a totally different profitability impact over time. Some strategic assets can even act as options that are not visible in short-term profitability at all.

I link the competitive strategies thinking as contingencies to the I-P and OA-P relationships. This differentiates the technology differentiation motive, the marketing differentiation motive, cost leadership motives, and hybrid strategic choices. Marketing differentiation might be the result of economies of scope in sharing technological and marketing knowledge combined with cost leadership strategies. Technology differentiation might be possible through R&D developments in subsidiary networks. Also, cost leadership could be possible through specialized affiliates with distinct bundles of resources in the MNE's internal network ((Verbeke & Brugman 2009). Past studies used accounting-based, market-based, and operational measures. ROA is an example of an accounting-based measure which only captures historical performance. Tobin's Q is a market-based measure with a forward-looking view in place. I shall use both variables to test whether there is I-P relationship and/or OA-P relationship and contingency effect of competitive strategies.

Next, the outline of the critical view of accounting based measures is presented. Verbeke and Brugman (2009) have a very critical view of accounting-based measures. They argue that accounting-based performance measures do not consider the intangible assets (investments in R&D and marketing). These assets are treated as expenses rather than assets. *Aiming to resolve this problem, I am using R&D intensity and SGA intensity as differentiation strategy and modeling them as moderators.* Verbeke and Brugman (2009) see the conceptual problem more severe than the preceding problem. The cornerstone of internalization theory in the preceding discussions is that the market for intangible assets is subject to market failure and related internationalization is subject to capture value through the internalization of such intangible assets. *Though this problem has been studied by many DoI-P studies where intangibles were treated as controls or as FSAs, my approach is to take them as strategic weapons through differentiation strategy conceptualizations and test these as FSAs separately also.*

As suggested by Lu and Beamish (2004), I also used both accounting-based and market-based financial performance. The first measure is ROA calculated as the ratio of net income to total assets. The second measure is Tobin's Q, a ratio defined as the market value of assets divided by the book value of the assets. I followed the strategic management literature which followed Tobin's Q as a dependent variable. Recent studies have used the market-based measure such as argued in *Strategic Management Journal* (SMJ) by Uotila et al. (2009), and in *Journal of Entrepreneurship Theory of Practice* (ETP) by Keil, Maula and Syrigos (2015). To be consistent in defining the measure, I use the definition of Tobin's Q from Bebchuk and Cohen (2005) which says that Tobin's Q is the ratio of market value of assets divided by the book value of assets. To conclude, the study of both antecedents in this thesis and their impact on performance is controversial in the literature, the conflict triggered mainly by the choice of operationalization of the antecedents and the choice of performance variables. To compare with the existing literature, I use the ROA and Tobin's Q as two dependent variables representing short-term and long-term impacts. Based on the theoretical discussions above, the following chapter develops the hypothesis and builds a theoretical framework of this dissertation.

4 HYPOTHESES AND THEORETICAL FRAMEWORK

In this chapter, I develop several hypotheses—first main effects and later moderation (interaction) effects. As outlined in chapter 3, the main constructs are OA and DoI. The moderating (interaction effect) constructs are competitive strategies (cost, differentiation and hybrid). Also, I develop a hypothesis for the moderating effect of FSAs. After outlining the hypotheses, I develop a theoretical framework showing the relationships between the constructs.

4.1 Relative Exploration, Organizational Ambidexterity and Performance

My work joins a small but important research stream which departs from the cross-sectional design. Such as, Uotila et al. (2009), in a longitudinal study, found that 80% of the firms less prioritized exploration and over prioritized exploitation in their sample. One of the conceptualizations that could be replicated (based on a transparent research design) in multiple contexts based on the original definition of exploration-exploitation (March 1991) is the relative exploration logic validated by Uotila et al. (2009). OA has multiple measurement approaches and my first operationalization is based on relative exploration while second measured as a product of exploration and exploitation is worth exploring in a longitudinal research design.

The major implications of '*strategy as a vector*' (Burgelman 2002) to the theory of organizational adaptation and in that sense on the balance of exploration and exploitation (March 1991) is that in the long run '*coevolutionary lock-in*' triggers strategic inertia resulting in a 'competency trap'. This diverts an organization from an internal ecology of a strategy making model to the classical rational actor model, resulting in performance decline and in some cases, organizational failure. If a firm follows an extremely focused induced strategy, it leads to '*coevolutionary lock-in*' resulting into no exploration activities and the sole focus on exploitation leads to an 'exploitation trap' or 'competency trap' or 'success trap'.

Another theme that supports the exploration and exploitation related notion is called '*red queen effect*' (Barnett and Hansen 1996), taken as an analogy from evolutionary theory. The organizational learning ecology argues that when a firm reacts to competition, it takes actions to improve its performance. However, these learning benefits generated by the action triggers learning in the competing

firm also. When the competitor is a stronger learner, the cycle triggers the learning process in the focal firm also. This becomes a self-fulfilling prophecy resulting in a learning race. The recently experienced learning supports adaptation logic, but old experience results into maladaptation as it drives the 'competency trap'. Also, if the number of competitors is many, the effect of learning is maladaptive. Therefore, though it is easier to recommend following balancing exploration and exploitation or an autonomous strategy process or an induced strategy process how to balance such a process is challenging.

The research agenda (Burgelman 2002) focused on exploring how a balance of variation reduction (induced strategy/exploitative learning) or variation increase (autonomous strategy/explorative learning) are plausible. The challenge for top management is the issue of attention—whether to allocate resources to the former or the latter. During the Grove era at Intel, his induced strategy approach made March's (1991) notion valid by converging individual beliefs and organizational code. There was turnover, but the socialization was rapid, resulting in exploitative learning in the expense of explorative learning.

To avoid such a 'competency trap', the strategic context should be balancing both induced and autonomous processes where exploration is possible. In this logic, experimentation should be promoted rather than using an efficiency-driven approach for profitability in the short-term. The investments done in exploration activities will be returned in the long run, and in many cases, there will be a loss also. But when the exploration is coupled with exploitation, the potential for quicker returns could be possible.

Reflecting on this logic, I hypothesize that to be successful in the long-run, companies need to have a strategy where relative exploration is possible, which is the ratio of exploration divided by the sum of exploration and exploitation. Here, structural separation is not the issue, but rather developing ambidextrous managerial competencies. Therefore, when supporting the exploration logic embedded in an autonomous strategy process "an organization's long-term adaptation, spanning multiple generations of CEOs, may therefore critically depend on maintaining the strategic renewal capability of its internal ecology of strategy making" (Burgelman 2002:44).

Also, I use one more dependent variable (ROA) for robustness and theorizing. The comparing and contrasting of accounting-based measures with those of market-based measures would be plausible.. Therefore, my first set of hypotheses are the following:

Hypothesis 1a. There is a curvilinear (inverted U-shaped) relationship between relative exploration and long-term firm performance (Tobin's Q)

As this dissertation models the performance with two dependent variables, the following hypothesis postulates the relationship between OA and ROA.

Hypothesis 1b. There is a curvilinear (inverted U-shaped) relationship between relative exploration and firm performance (ROA).

A test of OA operationalized as the product of exploration and exploitation with both dependent variables, i.e., Tobin's Q and ROA in an excellent hypothesis as there are no similar studies in a longitudinal setting with computer-aided text analysis-based (CATA) measures. The premise for studying these hypotheses implies that there is an optimum point for performance and this needs to be the target of the strategists and managers alike. Therefore, balancing exploration and exploitation to an optimum level is recommended. When the balance is at a lower level, performance suffers. When the balance is at a higher level, then too, performance suffers. The first phenomenon is because the firms are in exploitation trap. The latter occurs because the firms are into the failure trap due to too much exploration

As listed in Table 6, there are 9 papers which tested OA as a product of exploration and exploitation. These papers are: Gibson and Birkinshaw (2004), Tiwana (2008), Im and Rai (2008), Jansen, George, Van Den Bosch and Volberda (2006), Morgan and Berthon (2008), Cao, Gedajlovic and Zhang (2009), Tushman, Smith, Wood, Westerman and O'Reilly (2010), Hill and Birkinshaw (2014), and Jansen, Simsek and Cao (2012). To limit the scope of this dissertation, rather than testing all the operationalization, I test this very popular operationalization (product of exploration and exploitation) of OA (mostly used) with Tobin's Q and ROA (both being unique in panel data setting) and expect to have a curvilinear relationship in a longitudinal setting in contrast to existing cross-sectional and linear relationships.

From the notion of high exploitation or high exploration resulting in learning traps (Levinthal & March 1993) or the exploitation trap when in the pursuit of profit (Sirén et al. 2012), the solution is to look for a balance of exploration and exploitation, as suggested by the two ends of the continuum of exploration and exploitation (Gupta et al. 2006). In this conceptualization, an optimum level of learning is best for the organizations, not the highest possible level of learning. However, empirical tests of this inverted U-curve are relatively limited. Current longitudinal research design provides a natural opportunity to test the rare

Inverted-U shaped relationship between relative exploration and performance (Tobin's Q).

Therefore:

Hypothesis 1c. There is a curvilinear (inverted U-shaped) relationship between OA and firm performance (Tobin's Q).

Hypothesis 1d. There is a curvilinear (inverted U-shaped) relationship between OA and firm performance (ROA).

4.2 Degree of Internationalization and Performance

As we have seen in the preceding discussions, the internationalization–performance (I-P) literature has multiple theoretical argumentations and hence the mixed findings—from linear to nonlinear effects (Matysiak & Bausch 2012). As suggested by Matysiak and Bausch (2012), I also start with the S-curve hypothesis (Riahi-Belkaoui 1998; Contractor et al. 2003; and Lu & Beamish 2004). As discussed before in literature review section, the theoretical choice and relevance of theory with the construct, in case there will be an inverted U-shape, it can be argued to be a special case of the S-curve hypothesis. The system GMM as an analysis method is suitable to do the proper analysis that handles endogeneity, controls for unobserved heterogeneity thereby making a step closer to claim causality on the DoI and performance.

Verbeke and Brugman (2009:267) outlined triple testing as a quality check of the internationalization studies. The three groups for testing are multinationality, performance, and MP linkage. For testing these three groups the authors outlined another three categories per each group. For multinationality, the tests include value chain, the DoI vs. diversification, and related vs. unrelated diversification. For performance, the tests include investment motives, measurement issues, and dynamic aspects. For MP linkage, the tests include a time period, PM relationship, and endogeneity.

While mapping the triple testing of M-P relationships by Verbeke and Brugman (2009:267) on 9 dimensions, not a single study scored fully. Sullivan (1994) scored 4 as 'yes' and another 5 as 'no'; Riahi-Belkaoui (1998) scored all 9 as 'no'; Contractor et al. (2003) scored 2 as 'partly' while 7 scored as 'no'; Lu and Beamish (2004) scored 2 as 'partly' while 6 conditions as 'no'; Thomas and Eden (2004) scored 2 as 'yes', 1 as 'partly', and 6 as 'no'; Li (2005) scored 1 as 'partly' and 8 as 'no'; similarly, Chang and Wang (2007) scored 1 as 'yes' while 1 as

‘partly’, and 7 as ‘no’; and last but not the least Ruigrok et al. (2007) scored 9 as ‘no’. The major lesson from this discussion is “were key conceptual and measurement challenges addressed?” (Verbeke & Brugman 2009: 267). Most of the studies did not address the necessary theoretical conceptualization of the internationalization concept.

Recently, Berry and Kaul (2016), in their replication study of Lu and Beamish (2004), found a conflicting result demonstrating that there is no S-curve relationship between internationalization and performance. Nevertheless, they looked at this issue from the US MNC’s perspective, which has a large domestic market. The major limitation of Berry and Kaul (2016) as a replication study is that they used only one dependent variable (ROA), whereas Lu and Beamish (2004) used both ROA and Tobin’s Q.

In contrast, Nordic countries do not have a large domestic market and the firms aspiring to be large in the long run must internationalize. Therefore, the rationale of the S-curve hypothesis becomes interesting to test—first a negative slope of performance due to liability of foreignness, followed by a positive slope of performance due to learning and economies of scale, and finally third phase with a negative slope demonstrating a complexity problem related to co-ordination problems plus an agency-cost driven by agency theory, where managers internationalize to maximize their benefits. The agency theory becomes a problem as managers internationalize not for the sake of company performance or the shareholder’s value, but to maximize their own benefit. However, as evident in the discussions on the role of FSAs, the S-curve hypothesis is valid in the presence of FSAs.

Stage 1 or early internationalization suffers from liabilities of foreignness plus there are costs of learning as well as adaptation. As a result, the incremental costs of internationalization are greater than the incremental benefits which drives performance down though it might be a very short window based on resource endowment or existing dynamic capabilities. During stage 2, benefits of internationalization are greater than the cost of internationalization. The typical cost elements of stage 1 might continue plus coordination and acquisition costs might be there but larger benefits such as leveraging knowledge acquired from abroad, accessing or “arbitraging” cheaper inputs, exploitation of firm-specific assets carried to each foreign market, accumulation of market power because of wide multinational presence, international scale, geographical diversification, and internationalization experience do exist. This is mainly driven by the RBV and MBV as well. During stage 3, the peripheral expansion beyond 40 to 60 nations is detrimental to performance. In this stage, there is an escalation of

managerial costs and information overload and global co-ordination costs increase sharply (Contractor 2012). However, one needs to note that stage 1 and stage 3 are shorter periods while stage 2 is predominantly longer duration in the history of expansion. When profitability is the focus, the role of FSAs as moderators become very important based on the rationale suggested by the internalization theory, a strong leg of TST in my theoretical positioning. Therefore, I hypothesize:

Hypothesis 2a. There is an S-shaped relationship between the DoI and firm performance (Tobin's Q)

Hypothesis 2b. There is an S-shaped relationship between the DoI and firm performance (ROA).

4.3 Moderating Effect of Competitive Strategies on Relative Exploration and Performance

In the balancing act of exploration and exploitation, the major assumptions on applying competitive strategies (cost, differentiation, hybrid) are that the strategies need to be balanced in such a way that they support the OA positively. In the absence of balancing these strategies, one may fall prey to OA. I use two measures of the differentiation strategy commonly used in the literature: R&D intensity (Spanos et al. 2004) and sales, general and administrative expense (SGA) intensity based on advertising intensity logic, as suggested by Spanos et al. (2004) since data for advertising intensity are not available.

Also, I argue that SGA intensity is a better measure as it covers sales, general and administrative expenses. There are mainly two main generic approaches to competitive strategy: cost-leadership and differentiation (Porter 1985). While subsequent research built on, expanded and challenged Porter's arguments (Salavou 2015), the dominant way to characterize firms' overall orientation to competitive strategy is still in terms of their position in strategic purity (Thornhill & White 2007). Firms focusing on costs need exploitation in their operations, which leads to the importance of exploitation, while firms focusing on differentiation need innovation in their operations. Firms focusing on differentiation need to find unique ways to create value for their customers. This necessitates them to engage in exploratory learning to find ways of value creation not utilized by their competitors. The cost-versus-differentiation orientation of firms can be considered in two distinct domains: technologies and markets (Spanos et al. 2004).

Benner and Tushman (2003) illustrated that exploration and exploitation are linked to the productivity dilemma. Their contingency view suggests that the process management (i.e., cost leadership) approach is good for stable environments but do not support innovation (i.e., differentiation strategy) or, for that matter, exploration orientation. The idiosyncratic nature of conceptualizing exploration and exploitation as dynamic capabilities demands that the cost-leadership oriented process management activities must not rule out the exploratory activities but rather have a flexible environment for experimentation and tolerance for failure and learning. This is possible with the ambidexterity approach—relative exploration and OA in our conceptualization.

The history of differentiation or cost advantage through information technology is not new. Since the 1985 publication “*How information gives you competitive advantage*” in *Harvard Business Review*, the implication of standardizing processes across companies lead to productivity gains. Those who captured this wave have been successful. The second wave came during the 80s and 90s when the internet revolutionized coordination and integration across firms and across individual activities. The implications were profound, as outlined in Porter (2001). The latest wave of digitalization or servitization of manufacturing through products transformed towards systems and systems of systems will have dramatic implications through a dramatic improvement in product functionality and performance (Porter & Heppelmann 2014). Thus, technology differentiation is changing the landscape of competitive advantage.

In a similar study, the strategy–performance premise suggests there exists a pivotal role for ambidextrous innovation (Hughes et al. 2010). Without confusing the terminologies, I take the underlying importance of studying the ambidexterity theme together with competitive strategy. Very interestingly, the theoretical foundation for the study is also based on the the RBV, as is mine also. Their findings suggest that innovation ambidexterity is crucial in developing marketing differentiation, cost leadership advantages, and performance. The key aspect of the findings is that marketing differentiation is very important indeed (Hughes et al. 2010). Morgan, Kaleka and Katsikeas (2004) found that the RBV enabled competitive strategies are crucial for export venture performance. While discussing the competitive strategies, the focus has been on the cost-leadership strategy and marketing differentiation strategy.

Therefore, I hypothesize as follows:

Hypothesis 3a. Technology differentiation positively moderates the relationship between relative exploration orientation and the performance (Tobin’s Q)

Hypothesis 3b. Technology differentiation positively moderates the relationship between relative exploration orientation and the firm performance (ROA)

Hypothesis 3c. Marketing differentiation positively moderates the relationship between relative exploration orientation and the performance (Tobin's Q)

Hypothesis 3d. Marketing differentiation positively moderates the relationship between relative exploration orientation and the firm performance (ROA)

As discussed before, two operationalization of the OA are relative exploration and a product of exploration and exploitation. I argue that these variables become highly important if used together with pure or hybrid strategies. The RBV suggests that VRIN resources are crucial for the success of the firm. Relative exploration orientation is a mechanism where VRIN resources are utilized or created in tandem. Such an orientation is a limited dynamic capability that sustains long-term performance with a focus on exploration and differentiation at the same time. Therefore, the three theoretical lenses—competitive strategies, the RBV, and the DCAP-based view—are plausible lenses to understand the phenomenon under discussion.

The Porterian view on the role of information technology, the Internet, and the Internet of Things (IoT) is that there is not only a differentiation advantage, but there is a huge cost saving in the digitalization and servitization drive. A study of 2,351 firms shows that there is a significant relationship between strategic purity and performance (Thornhill & White 2007). Their findings are in line with much of the scholars. If strategic purity matters, then exploring this phenomenon as a moderation effect on OA seems fascinating as there are no competitive strategies as moderation effects to my knowledge. As there is no literature to back it up, the underlying assumptions in these hypotheses are based on my own experience and synthesis of the theoretical part in section 3.5.

The articulation of this research gap, positions the study as one of the pioneering ones in the competitive strategies discourse. Also, testing these strategic choices in a longitudinal setting, makes the approach even interesting. In such a setting, exiting methodological flaws prevalent in survey-based research designs will be eliminated, unobserved heterogeneity is tackled and endogeneity concerns are avoided. Current work resolves the obvious research gap to resolve a simple strategy quest whether strategic purity is important? The first part of the strategic purity (differentiation strategy) was covered in previous hypotheses (3a to 3d), and in the following hypotheses, I outline the overall cost-leadership part based on the similar logic as before. Therefore,

Hypothesis 3e. Overall cost leadership positively moderates the relationship between relative exploration orientation and the firm performance (Tobin's Q)

Hypothesis 3f. Overall cost leadership positively moderates the relationship between relative Exploration orientation and the firm performance (ROA)

As outlined in the literature review section, it was found that hybrid strategies perform better than pure ones, and industry-level effects measured as an industry entry barrier had an impact on performance (Spanos et al. 2004). Nevertheless, firm-specific factors outweigh the industry effects by more than twice on the profit variability. The authors used measures that measure realized strategies rather than strategic intentions. Their measure of low-cost strategy is employee productivity measured as value added per employee (higher meaning low cost). On the differentiation strategy, marketing differentiation is measured as advertising intensity, while technology differentiation is measured as technology intensity (investment in new equipment to sales). On the choice of a measure of the outcome variable, it is the return on invested capital that measures the true nature of competitiveness in a globalized world (Snowdon & Stonehouse 2006). Very interesting findings in a longitudinal study done during 2007–2009 on sustainable performance even during the financial crisis show that intangible strategic resources represented by innovation capability and stakeholder relations are important (Flammer & Ioannou 2015).

As discussed in the preceding part, the Porterian view on the role of information technology, the Internet, and the Internet of Things, does not only support differentiation advantage or cost advantage but it has potential for hybrid (cost plus differentiation) advantage as well. Although there is a stream of literature on strategic purity as discussed above, in line with current research approach, Gabrielsson et al. (2016) used the RBV as one of the theoretical lenses while exploring the role of hybrid strategy. The globalization phase of the industry and distinctive resources drive the hybrid competitive strategy which in turn mediates the link to sustainable performance. Though this paper studied the mediation effect of hybrid strategy, the current approach is to explore the moderation effect created by such a strategic choice. While looking at this effect in the presence of long-term versus short-term orientation, which is the scope of current research, the relative exploration (Uotila et al. 2009) and performance link is positively moderated by hybrid strategies.

Hypothesis 3g. Hybrid strategies positively moderate the relationship between relative exploration orientation and the firm performance (Tobin's Q)

Hypothesis 3h. Hybrid strategies positively moderate the relationship between relative exploration orientation and the firm performance (ROA)

4.4 Moderating Effect of Competitive Strategies on Organizational Ambidexterity and Performance

There is a broader agreement in the literature that OA has a positive relationship with performance especially when the survey-based research design is cross-sectional in nature. When the design is survey-based and cross-sectional in nature, there is a tendency for CMV bias. Current work is a response to the research call (e.g., Junni, Sarala, Taras & Tarba 2013) to tackle CMV and conduct longitudinal research. I explore the impact of OA measured as OA (the product of exploration and exploitation) and its impact on firm performance when moderated by competitive strategies.

To build a plausible approach, I rely on both academic and practitioner's literature. The research in this stream of literature shows a great progress, and a meta-analysis was performed to establish the broader agreement on the impact of OA on performance (Junni et al. 2013). Nevertheless, the findings suggest that this broader understanding of the link between OA and performance is moderated by contextual factors and methodological choices. Current research answers to the need for key contextual factors and key methodological choice departing from earlier methodological traditions.

The contingency factor is the competitive strategy. *In line with the arguments discussed before while operationalizing OA as relative exploration, in this section, I look OA operationalized as a product of exploration and exploitation which is the most common approach in the literature.* This is chosen because I would like to compare current findings with the broader literature on OA. The contingency factors in the theoretical model presented in previous sections are cost, differentiation, and hybrid strategy based on the Porterian school of thought. These moderators enhance the relationship between OA and performance.

OA conceptualized as a dynamic capability (O'Reilly & Tushman 2008) solves Christensen's (1997) innovator's dilemma. Survival on a changing business landscape is vital in a dynamic business environment. This very survival can be explained by two perspectives: organization ecology and organizational adaptation as outlined earlier in the choice of theories and in the introduction section. The first perspective says that companies are mostly inert, and in the long run fail. The second perspective assumes learning and adaptation are

feasible. The latter view has developed into two key themes, mainly dynamic capabilities and OA. In conceptualizing OA as a dynamic capability, the thrust is on the importance of learning and adaptation or renewal. For this conceptualization to perform well, the competitive strategies adopted by a firm matter the most. Therefore, technology differentiation and marketing differentiation drive exploration activities. Therefore, exploitation and innovation as a trade-off is a thing of the past (O'Reilly & Tushman 2008). Based on the discussion above, the following hypotheses can be proposed. While discussing performance, I test hypotheses on Tobin's Q and ROA. Therefore:

Hypothesis 4a. Technology differentiation positively moderates the relationship between OA and the long-term performance (Tobin's Q)

Hypothesis 4b. Technology differentiation positively moderates the relationship between OA and the firm performance (ROA)

Hypothesis 4c. Marketing differentiation positively moderates the relationship between OA and the long-term performance (Tobin's Q)

Hypothesis 4d. Marketing differentiation positively moderates the relationship OA and the firm performance (ROA)

Having antecedents in consideration is already a great place to start, but these antecedents (OA and the DoI) do not create iterative and temporary competitive advantages in the absence of strategic postures, such as cost, differentiation, and hybrid strategies, to achieve a sustainable competitive advantage. Therefore, the purpose of this work is to understand the contingency effect of competitive strategies. Surviving during change needs a new recipe to restore the competitiveness of the firms. Following only 'implementation' as a savior will not be fruitful.

Although there is a clear departure from the I/O economics in assuming firm heterogeneity, I have mixed both I/O economics and RBV paradigms. In attempting such a study, however, I have relied on Porter (1991), where firm heterogeneity has been considered in contrast to earlier versions of competitive strategies. Therefore, I argue that competitive strategies have a moderating effect on the relationship between OA and performance. If we focus only on resource heterogeneity and do not consider industry (for that matter the competitor) effects, our inference will be short-sighted. Departing from earlier moderation studies, such as the moderating effect of environmental dynamism, I think the firm's strategic posture determines whether its resource and capabilities result in a competitive advantage (i.e. performance). However, one needs to be very

careful in dealing with standalone antecedents of OA as a dynamic capability and DoI. Pursuing both would be plausible in the presence of a proper strategic posture.

On the other hand, if the firms are following purely exploration strategy, they incur sunk cost, driving the profitability lower. Simultaneous pursuits of exploration and exploitation, if done well, results in sustainable performance. To relate these with sample firms from the Nordic NASDAQ index, the sheer size of the large-cap or mid-cap companies would not have been possible if they have not balanced both exploration and exploitation. In this notion, overall cost leadership moderates the relationship between OA and performance. The overall cost leadership strategy drives exploitation activities. Therefore,

Hypothesis 4e. Overall cost leadership positively moderates the relationship between OA and the firm performance (Tobin's Q)

Hypothesis 4f. Overall cost leadership positively moderates the relationship OA and the firm performance (ROA)

Simultaneous pursuit of OA is costly, as one must allocate resources for both exploration and exploitation. The art of optimizing cost while pursuing both exploration and exploitation is vital if one would like to be competitive in the market. To build that strength, I argue that if this condition does not hold true then the overall performance is jeopardized. Normally, when companies are maximizing profit in the short run, they are focusing on exploitation strategy which triggers exploitation trap. In the long-run the strategy to explore and exploit results into sustainable performance.

As discussed in the preceding hypotheses 3g and 3h the underlying assumptions to pursue both cost and differentiation strategies at the same time is costly. However, as discussed in hypotheses 4e and 4f the relationship between OA and performance is expected to be positively moderated by the hybrid strategies. This is because, as evident on the balancing act of exploration and exploitation, the balancing act in strategic choice is extremely important. Following only cost or differentiation strategy might lead to sustainable performance but the hybrid strategies might be better suited for raising the performance higher. In this notion, hybrid strategies moderate the relationship between OA and performance. The hybrid enhances the balance of both exploration and exploitation.

As discussed earlier also, testing the effect of hybrid strategies in a longitudinal setting with CATA-based measures of OA is a unique contribution of this thesis.

Therefore, the following moderating relationship of OA as a dynamic capability is the central hypothesis driving the dissertation. Strategic purity hypotheses have been tested in different settings or in cross-sectional designs but hybrid strategies are being tested first time in a longitudinal setting in this dissertation. Therefore, there is a paucity of existing literature to provide reasoning on this hypothesis but I will elaborate these issues in the findings, summary, and discussion section later.

Hypothesis 4g. Hybrid strategies positively moderate the relationship between OA and the firm performance (Tobin's Q)

Hypothesis 4h. Hybrid strategies positively moderate the relationship between OA and the firm performance (ROA)

4.5 Moderating Effect of Competitive Strategies on the Degree of Internationalization and Performance

Technology differentiation and marketing differentiation strategies are supposed to be one of the key strategic choices in pursuing internationalization. Key intellectual property rights generated by patents, or branding become the driving force for going international through the employment contracts as a scalability instrument compared to market contracts. In this notion, a firm internalizes its key differentiating products and services to emerge as a multinational. Similar studies have been attempted in the past but with different notions. In this dissertation, I am testing both notions of differentiation and FSAs. Based on the learning from composite measures as suggested by Sullivan (1994), Lu and Beamish (2004) proposed a theoretical framework which caters to both benefits and costs of geographic expansion in multiple phases. On a similar type of study (Lu & Beamish 2004), the noble finding of the research is that there is a horizontal S-shaped relationship between the DoI and performance which is positively moderated by intangible assets, such as technology but not the advertising.

As illustrated in detail in the literature review section, Berry and Kaul (2016) revisited the Lu and Beamish (2004) paper in the context of US MNCs hoping to replicate their S-curve hypothesis on the US data with a population from 1989 to 2007. They did not find the support for the S-curve relationship nor for the moderating effect of intangible assets. In a robustness analysis with a manufacturing only sample, there is a marginally significant U-shaped relationship which does not hold true when endogeneity is considered. Their instrumental variable approach is noteworthy but was not elaborated upon in Lu

and Beamish (2004). However, a note of caution on this replication is that only ROA as a dependent variable was tested, but not Tobin's Q. Therefore, the comparison is not on an equal footing.

The theoretical section and literature review section of this thesis clearly suggests using the FSTS, the FATA, and a composite of FSTS and FATA as measures of the DoI. When the term DoI is used in the hypotheses below, all three measures of the degree of DoI are expected to be tested. Based on the rationales discussed above, from the Lu and Beamish (2004) which reported a positive moderating effect of R&D intensity but no effect of advertising intensity, the following hypotheses are proposed to test whether these intensities are valid or not. Departing from Lu & Beamish (2004), I expect advertising intensity also positively moderates the DoI-performance relationship.

Hypothesis 5a. Technology differentiation positively moderates the relationship between the DoI and the long-term performance (Tobin's Q)

Hypothesis 5b. Technology differentiation positively moderates the relationship between the DoI and the firm performance (ROA)

Hypothesis 5c. Marketing differentiation positively moderates the relationship between the DoI and the long-term performance (Tobin's Q)

Hypothesis 5d. Marketing differentiation positively moderates the relationship between the DoI and the firm performance (ROA)

Stage 1 or early internationalization suffers from liabilities of foreignness plus there are costs of learning as well as adaptation. As a result, the incremental costs of internationalization are greater than the incremental benefits which drives performance down though it might be a very short window based on resource endowment or existing dynamic capabilities. During stage 2, benefits of internationalization are greater than the cost of internationalization. The typical cost elements of stage 1 might continue plus coordination and acquisition costs might be there but larger benefits such as leveraging knowledge acquired from abroad, accessing or "arbitraging" cheaper inputs, exploitation of firm-specific assets carried to each foreign market, accumulation of market power because of wide multinational presence, international scale, geographical diversification, and internationalization experience do exist. This is mainly driven by the RBV and MBV as well. During stage 3, the peripheral expansion beyond 40 to 60 nations is detrimental to performance. In this stage, there is an escalation of managerial costs and information overload and global co-ordination costs increase sharply. However, one needs to note that stage 1 and stage 3 are shorter

periods while stage 2 is predominantly longer duration in the history of expansion (Contractor 2012).

Internationalization is costly, but at the same time, it generates economies of scope and economies of scale on top of learning benefits. Therefore, the strategic posture of overall cost leadership is highly beneficial in internationalization. The logic discussed before in hypotheses (3e, 3f, 4e, and 4f,) with relative exploration, OA and strategic purity (Thornhill and White 2007) is valid in the context of the new antecedent called the DoI. This is because both antecedents are meant for sustainable performance. Studying both together has been positioned as a unique contribution of this study. The S-curve hypothesis between DoI and performance shifts to a higher level when competitive strategies such as differentiation, cost, or hybrid strategies are pursued at the same time. However, the effect sizes might be totally different for each strategic choice. The moderating effect of cost leadership on the relationship between DoI and performance link to have a greater impact are set by the motives for internationalization and hence the strategic posture.

Arguing for the strategic purity school of thought and claiming the failure of twenty-five years of empirical research, Thornhill and White (2007) have argued that strategic purity—pursuing one type of generic strategy over another—pays. This major claim is made based on a rigorous sample of 2,351 businesses. Studies discussed before on hybrid strategy are not as rigorous as the one by Thornhill and White (2007). The way strategies are measured are different in different papers. Therefore, comparing these findings is not possible in a literal sense. Therefore, I take all three types of strategic choices, cost, differentiation, and hybrid, into consideration as contingency variables. This sets the context of the current study. There is a divided school of thought and there is no agreement on the conversation of whether strategic purity or hybrid strategy is good. In general, the current approach is to utilize this theoretical divide as a moderating variable on the main effects of DoI and performance.

On the use of multiple measures and replication study, recalling the discussion in the literature review, Berry and Kaul (2016) revisited the Lu and Beamish (2004) paper in the context of US MNCs hoping to replicate their S-curve hypothesis on the US data with a population from 1989 to 2007. They did not find support for the S-curve relationship nor for the moderating effect of intangible assets. On a robustness analysis with manufacturing only sample, there is a marginally significant U-shaped relationship which does not hold true when endogeneity is considered. Their instrumental variable approach is noteworthy, which was not elaborated on by Lu and Beamish (2004). The mixed findings discussed here

might be due to the reasons stated by Hennart (2011), where he reviewed the definition of internationalization in the M/P literature. Per his review, the measurement of internationalization is mainly taken as foreign market penetration, a presence of foreign production, and country scope, which rarely represent the theoretical arguments they are aiming to represent.

Therefore:

Hypothesis 5e. Overall cost leadership positively moderates the relationship between the DoI and the firm performance (Tobin's Q)

Hypothesis 5f. Overall cost leadership positively moderates the relationship between the DoI and the firm performance (ROA)

As discussed in the literature review section, on the conflicting findings on this relationship from linear to non-linear, such as the inverted U-shape and the U-Shape and even the S-curve hypothesis (Matysiak & Bausch 2012), the moderating effect of competitive strategies would be interesting to explore. This debate is not only about theoretical foundations but about methodological foundations (such as how to measure DoI, how to tackle CMV, endogeneity, and unobserved heterogeneity) as well. By following earlier studies to some extent and adding the moderating effect of competitive strategies and FSAs into the equation, the purpose of this study becomes clearer and focused.

As outlined in the theoretical positioning and linked with cost leadership section the three-stage theory suggests that the stage 2 where the DoI-P link is mostly linear gets boost with moderating effect of hybrid strategies where both cost and differentiation strategies are followed. This is a clear departure from the existing literature which is mainly focused on strategic purity. However, in a longitudinal setting my research suggests that there is a clear possibility of realizing hybrid strategies as beneficial in the long-run. In the short-run this might not be beneficial as it incurs cost to follow dual strategies. But the benefits of which is realized in the long run.

In the current model, FSAs are measured as R&D intensity and SGA intensity which are also the measures for differentiation advantages. To study the key nature of pure and hybrid strategies, I take the approach suggested by Slavou (2015)—the latter being the key moderating variables in this context. Internationalization only based on differentiation advantage is not the only way, as suggested by existing literature. The major change concluded by Matysiak and Bausch (2012) is to consider FSAs (based on internalization theory and the RBV)

which are similar to differentiation advantage together with cost leadership as moderators between the DoI and performance.

As discussed in the literature review section, there is a divided school of thought on strategic purity (Porter 1985) and hybrid strategies (Porter 1985, Gabrielsson, Seppälä & Gabrielsson 2016). In the original conceptualization, hybrid strategies were called the “stuck-in-the-middle” strategies. Later developments (Spanos et al. 2004) have found the context where such hybrid strategy could be realized. Current work considers previous research and the idiosyncrasies of the national context. Another approach to take into consideration is that firm-specific factors explain more than twice as much profit variability as do industry factors. By using industry effects as controls, I follow the suggestions by Spanos et al. (2004) that it would be interesting to focus on firm-specific factors. As suggested by Matysiak and Bausch (2012), my proposition is that the DoI should be examined as the result of a specific strategic choice, that is interpreted in this work as cost advantage, differentiation advantage or both (Porter 1980). My aim is to integrate the MBV and the RBV to examine the DoI-performance relationship and related contingency factors—the latter being the contribution of this thesis.

Building on the hybrid school of thought from the competitive strategies literature (e.g. Spanos et al. 2004) in contrast to strategic purity (Thornhill and White 2007), I test this moderating effect as a motive for internationalization. As discussed in hypotheses (5a to 5f), the underlying theme on these hypotheses is that competitive strategies raise the performance level to higher level when modeled as moderators. In the existing literature, the main effects of DoI-P, which is expected to be an S-curve, might only be realized in the presence of these moderators like competitive strategies and FSAs (will be covered in the following section). Therefore, a combined pursuit of hybrid (cost and differentiation) strategies in many cases might be plausible as it gives exploitation and competitive edge through disruptive innovation, marketing-related intangibles, and being different from competitors in each market. Therefore:

Hypothesis 5g. Hybrid strategies positively moderate the relationship between the DoI and the firm performance (Tobin's Q)

Hypothesis 5h. Hybrid strategies positively moderate the relationship between the DoI and the firm performance (ROA)

4.6 Moderating Effect of Firm-Specific Advantages

As discussed in section 2.4, the rationale for using FSAs as moderating variables is based on a meta-analysis (Kirca et al. 2011; Kirca et al. 2012). Similarly, Verbeke and Forootan (2012) suggest that in the absence of FSAs the internationalization-performance relationship does not exist. Lu and Beamish (2004) make a noteworthy attempt to test FSAs as moderators between the DoI and performance relationships with the sound logic that the FSAs do not depreciate when applied to multiple markets resulting into economies of scope advantage. Therefore, I argue that FSAs are the moderating effects that shift the DoI–P relationships to a higher or a lower level depending on what type of FSAs you have. In operationalization term, these are R&D intensity and SGA intensity. The conceptual and theoretical rationale is much more important than the operationalization, though.

There is a large group of researchers who have contributed in explaining the role of FSAs in the emergence of multinational enterprises where the logic was derived from internalization theory (Buckley & Casson 1976). Not only accounting-based measures such as ROA but also the share price value of internationalization is conditional to FSAs (Morck & Yeung 1991). In a meta-analysis, Kirca et al. (2011) specially tested the moderating and mediating roles of FSAs. The conceptualization is based on the logic that with the internationalization, the public good of such FSAs is enhanced in direct proportion to the scale of a firm's markets. "In other words, the value of firm-specific assets, intangible ones should increase with the DoI because the exploitation of and returns to their exploitation are greater when their scope of use is greater" (Kirca et al. 2011:52).

The unique approach to my research is to remove existing methodological flaws as discussed earlier and test these moderating effects in the longitudinal setting for a unique context of Nordic large-cap and mid-cap companies. The research setting is unique in a sense because of unavailability of the data for a longer duration.

Therefore:

Hypothesis 6. There is a positive moderating effect of FSAs on the relationship between the DoI and performance.

4.7 Theoretical Model

Departing from the standalone studies to study OA or internationalization, I study these antecedents together as shown in Figure 3. As discussed above, the multiple antecedents are OA and DoI. Previous studies have studied these antecedents separately, but with mixed findings. Studying internationalization, without understanding the exploration and exploitation orientation is not a comprehensive approach. Also, performance depends on past performance, which needs to be controlled through lagged dependent variable as a control variable to rule out unobserved heterogeneity from the model. Therefore, lagged dependent variable as a control is recommended.

These main effects are already worthy contributions to the literature when studying multiple antecedents together, studying the contingency effect of competitive strategy and FSAs makes the theoretical framework very interesting from the theoretical perspective. It brings together I/O economics and firm heterogeneity inherent in the RBV (Barney 1991). On a very noteworthy conceptualization, departing from DoI as a moderator hypothesis, I position the theoretical framework on the FSAs as a moderator when DoI is an independent variable.

My quest is to understand the prevailing puzzle in the strategic management (OA and competitive strategies) and IB (DoI) literature through the lens of the three key theories discussed in the section 1.5—the RBV, the DCAP, and competitive strategies. The antecedents (OA conceptualized as relative exploration or OA and DoI) are expected to have an inverted U-shaped and an S-shaped relationship to performance, respectively. And there is a moderating effect of competitive strategies (cost, differentiation and hybrid) and FSAs, as shown in the theoretical model. R&D intensity, the lagged dependent variable, and size (number of employees) are used as controls in the model.

The important aspect of this theoretical model is the *combined effect* of two antecedents (OA and DoI). I test the hypothesis with multiple operationalization of OA and performance variables (Tobin's Q and ROA). The major value, apart from the methodological contribution to test the antecedents, comes from the moderating effect of competitive strategies. To the best of my knowledge, this thesis is one of the firsts to consider this key moderating effect.

The intention to use balancing of exploration and exploitation as the main effect is anchored in March's (1991) premise, which gives strong evidence for performance links. This makes positioning DoI or relative exploration as main effects logical. But going through multiple standalone papers does not resolve

this dilemma. To conclude in deciding the direction of influence, I relied on Kim and Huh (2015) which uses exploration as the main effect with competitive strategies as moderators. The focus of the current study is on the simultaneous study of OA and DoI. For both antecedents, the logical moderating effects are the type of competitive strategies and FSAs. Therefore, it is easier to rule out reverse causality in the theoretical framework. Theoretically, performance is a dependent variable. Past performance may predict future performance, but I model this aspect by using a lagged dependent variable as a control variable.

Figure 3 shows the theoretical labels for each construct. Though not comprehensive, it gives some guidance on which theories drive which constructs. For example, OA is mainly conceptualized on DCAP theory. Similarly, DoI is conceptualized from TST. Competitive strategies are explained mainly by the RBV and MBV but TST could be linked to explain it. FSAs are explained mainly by the internalization theory and the RBV. The multi-theory perspective positions this dissertation as a synthesis of key theoretical paradigm in the strategic management literature and IB. However, developing and red-thread for the thesis has been equally daunting due to such a complex theoretical approach. Despite that limitation, this theoretical framework is worth testing with two dependent variables (ROA and Tobin's Q) as shown in the figure 3.

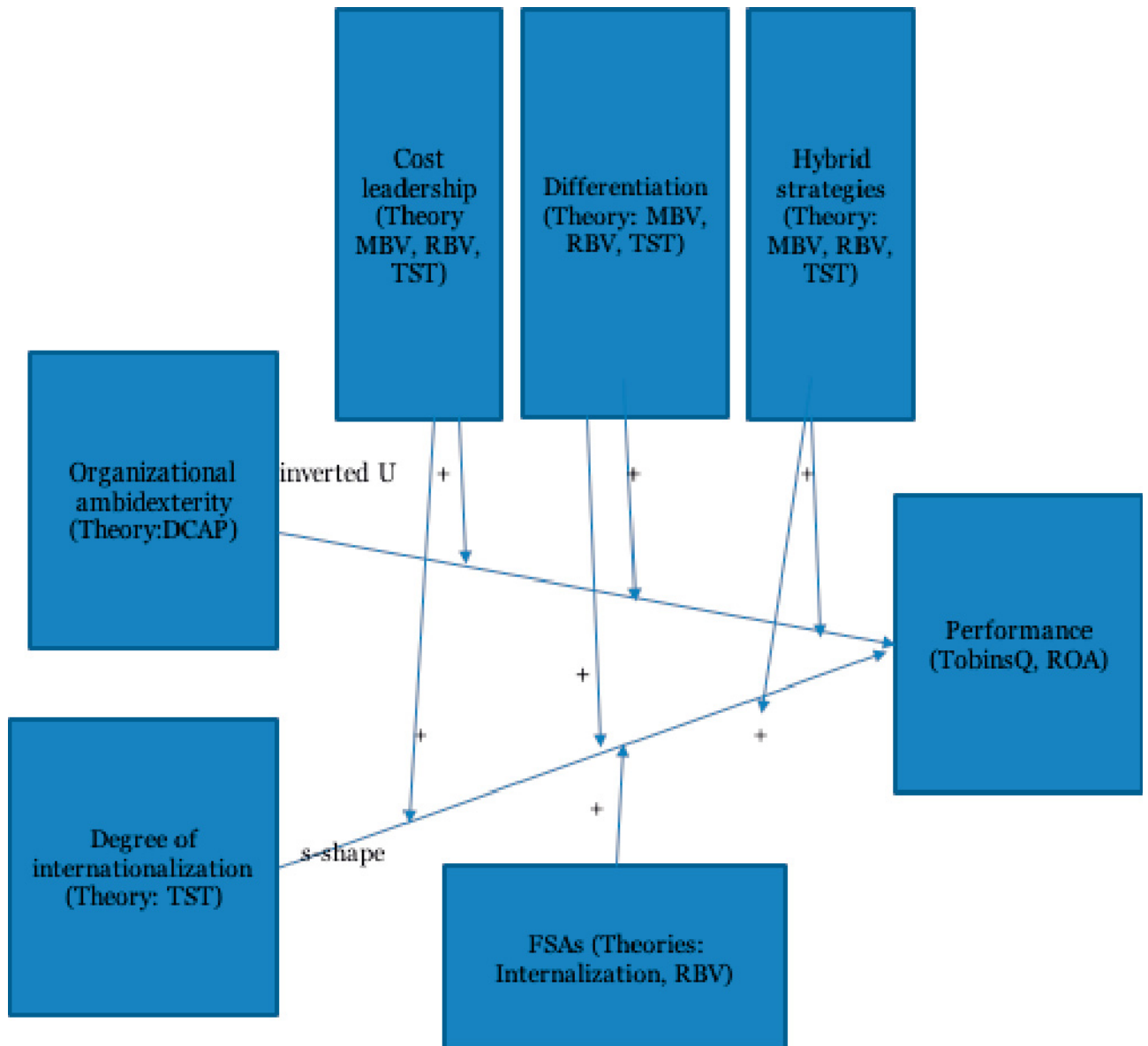


Figure 3. OA, DoI, Competitive Strategies, and FSAs for Sustainable Performance

5 RESEARCH METHODOLOGY

This chapter covers the research approach and method where methodological choice is discussed followed by computer-aided text analysis (CATA) as a measurement method. Then the system generalized method of moments (GMM) as an analysis method, assessment of measurement error variance, data sources and sample, the operationalization of variables, and descriptive statistics are outlined.

5.1 Research Approach and Method

There are three approaches in doing social science research: qualitative, quantitative and mixed method. Due to the nature of the research question and related research design, I followed quantitative approach. This dissertation follows the deductive reasoning in contrast to inductive reasoning, as the hypotheses are developed first and the empirical analysis is performed later. The research process is based on theory testing or deductive reasoning. The process goes first with articulating the research problem based on the existing literature that supports the development of the theoretical model.

In general, the OA literature suffers from cross-sectional studies and low level of generalization. In a meta-analysis, Junni et al. (2013) concluded that the OA literature suffers from methodological weaknesses. The IB literature has been labeled as suffering from endogeneity (Reeb, Sakakibara and Mahmood 2012) and CMV (Chang, Van Witteloostuijn & Eden 2010). To do a proper research design, I followed the prescription provided by Aguinis and Vandenberg (2014), who guide researchers to the prevention strategy through proper research design rather than the cure for poor research design.

Incorporating the role of theory and related measurement issues, one is positioned to deliver a plausible result. Foremost, the role of theory is important even before the research design and measurement issues. Here the focus is on the reasoning level—deductive approaches, tackling important issues, and extracting practical relevance at an early stage. The research design level suggestions include using statistical power analysis, designing the research instrument properly, tackling inferences about causality, and pervasive use of control variables in a proper manner. Last but not the least, the major challenge is tackling the measurement issues through techniques to improve the link between

theoretical concepts and measurement items. In current research design, I followed all seven principles suggested by the authors.

The issue of endogeneity in IB has been highlighted by Reeb et al. (2012). Ideally, in IB it would be logical to examine the impact of internationalization on ROA through random assignment of some firms to be MNCs and other firms to be domestic. In randomized controlled experiments, these are called treatment and control groups, respectively. Here, the key assumption is that the randomly selected firms are used for the assignment. Imagine IB research and feasibility of such random assignment nor there is always a possibility for the categorical choice of either, or. In absence of such a possibility, generally cross-sectional studies for cause and effect are conducted resulting in a problem of interpretation (Reeb et al. 2012).

Not only from the leadership journals but also from the *Journal of International Business Studies* (JIBS) editors have been calling on researchers to avoid CMV (Chang et al. 2010) and endogeneity (Reeb et al. 2012). Chang et al. (2010) reported the pervasive problem of CMV-induced due to the findings from analyzing survey data based on same-respondent replies. "Common method biases arise from having a common rater, a common measurement context, a common item context, or from the characteristics of the item themselves" (Podsakoff, MacKenzie, Lee & Podsakoff 2003:885). To tackle this problem, current research design made it possible to use the lagged dependent variable in the analysis. In a cross-sectional survey, normally, it is not possible unless and until the researcher conducts a follow-up survey with the measurement of the dependent variable separately.

Another major issue in IB research is building trust in research findings. Lately, the proper use of control groups and control variables have been proposed to rule out rival explanations (Cuervo-Cazurra, Andersson, Brannen, Nielsen & Reuber 2016). I have responded this call by using theory-driven control variables in the analysis. I followed the suggestions to rule out alternative explanations on three fronts: in empirical analysis, theory building, and research design.

5.2 Longitudinal Research Design and Computer-Aided Text Analysis

Why a longitudinal research design and computer-aided text analysis? Based on the research questions, I chose quantitative research method against qualitative research methods. To have a dataset to run a panel regression, not all variables were listed in the archival sources. Therefore, I used a noble and

unobtrusive approach to the measurement of exploration and exploitation through computer-aided text analysis (CATA) of annual reports as suggested by Uotila et al. (2009). This approach enabled me to consider a panel data of a decade. Such panel analysis with competing methodology such as survey-based measurement would not be feasible without CMV problem (Chang et al. 2010).

One of the interesting works in CATA is by Short, Broberg, Cogliser & Brigham (2009). The major premise of their approach is to guide researchers on the validity of the construct, which is a major challenge in organization sciences. Content analysis has been a good alternative approach in contrast to survey design in the case of hard-to-measure constructs of interest. Short et al. (2009) proposed CATA as a key approach to content analysis to avoid human coder errors and to save cost and effort in doing research. In this approach, the benefit lies in its capacity to process large samples with high speeds and reliability. To create the moderating effect to answer the research questions outlined above and to fulfill the research gap, it is very important to define the keywords used in the thesis. For this purpose, I have used deductive keyword lists from Uotila et al. (2009) and used the keyword in context (KWIC) approach to updating those keywords in the used corpus.

CATA adopted as the main measurement approach to major antecedent provided a great benefit to longitudinal research design without retrospective bias. Also, through the lagged variable approach, I could solve the CMV problem to some extent prevalent in IB and strategic management literature alike. CMV in surveys unlike my research design undermines the capabilities of the respondent, makes the task of responding accurately more difficult, reduces the motivation to respond accurately, and makes it easier for respondents to satisfice (MacKenzie & Podsakoff 2012). Post-estimation analysis has been the most popular research design to handle this problem. Through the longitudinal research design and lagged variable approach, I have eliminated the mostly prevalent CMV problem (Podsakoff, MacKenzie & Podsakoff 2012; Green, Tonidandel & Cortina 2016) found in cross-sectional survey-based methods.

The latest paper on the CATA by McKenny, Aguinis and Short (2016) elaborated on the use of CATA based on multiple sources. CATA has been proposed as an alternative to existing methods such as surveys and interviews. CATA is preferred because of the inherent nature of the method in terms of internal, external, construct, and statistical conclusion validity (Aguinis & Vandenberg, 2014)—releasing researchers from the prevalent CMV, endogeneity, and unobserved heterogeneity problems. This thesis uses an innovative approach to operationalize the key construct (i.e., (OA)) through CATA.

To measure OA, as discussed before, I used keyword analysis (see Appendix V) of annual reports to measure exploration and exploitation as developed and operationalized by Uotila et al. (2009). The procedure followed to validate the keywords is based on the approach like that suggested by Short et al. (2009). The CATA- approach enables the possibility to conduct a longitudinal analysis, a next to impossible task through traditional approaches such as cross-sectional surveys due to the inherent retrospective bias. There are several benefits apart from enabling a longitudinal research design. First, the possibility of a longitudinal design enables to test causal relationship (Keil et al. 2015). Second, Krippendorff (2012) suggested that CATA is a superior technique in all dimensions, as shown in Table 11.

Annual reports are used as the corpus needed for the analysis. Annual reports provide the firm-level perception of exploration orientation and exploitation orientation as these are an unobtrusive and consistent form of firm communication across years, making longitudinal research possible (Keil et al. 2015). Maula, Keil and Zahra (2013) used annual 10-K filings like my source and listed numerous advantages over other types of corporate documents. This helps further the analysis as missing data might be a nuance in many panel data sources. "Alternative sources of information, such as letters to shareholders, press releases or speeches by senior executives, are not available as consistently for all firms in the sample" (Maula et al. 2013:935). Following the procedure suggested by Uotila et al. (2009), I used keywords for exploration and exploitation. After doing the keyword in context (KWIC) analysis (Krippendorff 2012), I ran the CATA to count the total number of words, exploration words, and exploitation words. These words are used as the basis to calculate the measures in two forms: relative exploration and OA (multiplication of exploration and exploitation).

Table 11. Traditional versus CATA-based research design

Key Dimensions	Traditional approach (Interviews or surveys)	Approach in this dissertation
Longitudinal research	Very difficult due to retrospective bias in the survey-based	Easier to implement
Replicability of research	Very difficult	Very easy (Krippendorff 2012)
Reliability	Low	High (Krippendorff 2012)
Obtrusiveness	High	Low ((Krippendorff 2012)
Consistency of data	Low (Eggers & Kaplan 2009: 468)	High
Safety	Low	High (Duriau, Reger & Pfarrer
Scalability	Low	High (Duriau, Reger & Pfarrer 2007)
Cost effectiveness	Costly	Low cost (Duriau, Reger & Pfarrer
Collaboration	Difficult	Easy (Duriau, Reger & Pfarrer 2007)
Triangulation	Challenging	Possible

There is a broader agreement that content analysis is a proven method in management research. While studying entrepreneurial orientation and firm performance in large organizations over time, Gupta and Gupta (2015) elaborately argued why content analysis in annual reports is a good measure. The argumentation is that content analysis resembles the saying and doing, as demonstrated by Australian organizations (Devinney & Kabanoff 1999). Based on such sources, I argue that annual reports and their content analysis indicate a good source of measurement of exploration and exploitation orientation, and, for that matter for a derived construct of OA.

5.3 Analysis Method: System Generalized Methods of Moments

Why System GMM? While developing a causal relationship between antecedents and performance, the noble approach is the instrumental variable approach. However, finding a suitable instrumental variable that fits the research design is not always feasible. Therefore, to tackle the unobserved heterogeneity and endogeneity problem inherent in panel regression, System GMM as a method is suggested where time and industry dummies are used as instruments, lagged dependent variable is used as a control variable.

I test the hypothesis by following the latest specification and argumentation to use system GMM (Keil et al. 2015). There are five key reasons, as shown in Table 12, for the system GMM estimator to be the robust estimator for this dissertation.

First, the type of data demands this method as current data is panel data with few time periods and many companies. Second, the dependent variable is driven by the previous levels of performance. This requires the use of a lagged dependent variable as a control. Third, the panel data is inherent with heteroscedasticity and autocorrelation that needs to be controlled. Fourth, my explanatory variables can be correlated with past and current realizations of the error term. And fifth, the method is prudent for the most prevalent control for unobserved heterogeneity.

The major methods in panel data design are fixed effect and random effect modeling in the presence of the Hausman test to choose between fixed or random effects. However, due to the nature of the panel data, as reported in Table 12, I follow system GMM. Roodman (2015) outlines the history and use of the system GMM. Following Roodman's (2015) recommendations, I use the system GMM for this research with Stata command `xtabond2`. This command can fit two closely related dynamic panel data models—Arellano-Bond (1991) and Arellano and Bover (1995) but fully developed in Blundell and Bond (1998) estimator. The first treats the model as a system of equations for each time period. Differing in instruments, the specification is divided into predetermined and endogenous variables.

The inherent problem with the original Arellano-Bond estimator is that lagged levels are deemed to be poor instruments for first differences and was improved by Arellano and Bover (1995) by choosing predetermined and endogenous variables in levels and instrumenting with suitable lags of their own first differences. This version was improved by Blundell and Bond (1998). The original estimator is named “difference GMM”, and the latter ones as “system GMM”. The latter can have one- and two-step options and standard error corrections implemented by Windmeijer (2005). Therefore, I use the two-step option in the modeling.

There are inherent benefits of using a lagged dependent variable as a control. Lagged dependent variables (Wooldridge, 2009: p. 310-312) can be used with time series and panel data where many observations in multiple times are used. Lags refer to time-related to other variables. In current data, when I lag data by one year, say for all variables measured in 2014, I use the value from 2013 in the analysis. In arguing for causality, the second condition, called temporal precedence, can be handled through a lagged variable. Lagging a variable means using a value from an earlier time point, and in this way, we can include an earlier value of the dependent variables as an explanatory variable in the regression analysis. Wooldridge explains that lagged dependent variables can be used to account for unobserved effects that persist over time. Lagged dependent

variables are very useful and very commonly used when longitudinal data are available and the purpose is to control for stable omitted causes or historical effects (Wooldridge, 2009:311–313). The system GMM uses lagged variables on the specification itself.

Table 12. Differentiating Advantages of System GMM (Developed from Keil et al. 2015)

Key issues in panel data analysis	Does System GMM Handle it?
Panel data with few time periods and many companies	Yes
The dependent variable is driven by the previous levels of performance and the need for lagged dependent variable as a control	Yes
The panel data is inherent with heteroscedasticity and autocorrelation that needs to be controlled.	Yes
Perhaps the explanatory variables are correlated with past and current realizations of the error term	Yes
Need to control for unobserved heterogeneity	Yes

Girod and Whittington (2016) argue the use of system GMM to avoid the endogeneity issue while using lagged dependent variables. Apart from the possibility of introducing individual effects, system GMM deals with endogenous regressors. As argued by Girod and Whittington (2016), the method makes possible the use of predetermined but not strictly exogenous regressors, such as past performance. Following the guidelines by Roodman (2009), Girod and Whittington (2016) suggested using collapse option in controlling the proliferation of instruments in system GMM. I follow these guidelines in my analysis. Another issue discussed in the context of panel data is serial correlation or autocorrelation (Wooldridg 2009:350), which occurs when a variable correlate with itself over time. The system GMM not only handles first-order serial correlation but goes one step further to handle second-order serial correlation. Following prior research (Uotila et al. 2009), industry and year controls were treated as exogenous variables, and all the other variables were treated as predetermined. Due to many variables and years in current data, I limited the number of instruments to the first available lagged levels to avoid overfitting bias.

Semadeni, Withers and Trevis Certo (2014) highlighted the dire state of endogeneity in strategic management research. Endogeneity makes the ordinary least squares (OLS) regression estimator biased, and not many papers in the field tackle this genuine problem. Some papers that have used the instrumental variable approach to solving this problem have not been able to find good instrumental variables either, making the estimates even biased. One of the statistical methods in the absence of good instruments is called GMM and its variant is called system GMM as used by Wintoki, Linck and Netter (2012). The authors have successfully benefitted from the dynamic nature of internal

governance choices as they are very valuable instruments to address the main causes of endogeneity, unobserved heterogeneity, and simultaneity. With a panel data of 6,000 firms from 1991 to 2003, the findings suggested that there is no causality between board structure and current firm performance. The claim is noteworthy because it rules out the major cause of endogeneity using system GMM as a method.

Following the recommendations by Wintoki et al. (2012), another very interesting paper on a longitudinal study of S&P 500 firms for the period from 1999 to 2007 is by Keil et al. (2015), which also used the system GMM. In both papers, the key assumptions to use system GMM is justified, as suggested by Arellano and Bond (1991). This thesis also has similar assumptions to those reported by Keil et al. (2015). The thesis has more companies (269) compared to few time-period (i.e. 10 years), the dependent variable is driven by the past performance, and this should be controlled for by inserting a lagged value in the estimation. This must control for the generally inherent problem of heteroscedasticity and autocorrelation of independent variables most probably linked with past and current realizations of the error terms.

Above all, system GMM is good in handling unobserved heterogeneity (Keil et al. 2015). Since these conditions are similar in current work, I follow the analysis procedure suggested by Keil et al. (2015). Due to the nature of the research setting outlined above, using the fixed-effects estimator is not justified in handling all the challenges at hand, and I opted for dynamic GMM (Arellano & Bond, 1991; Roodman 2015) and argued by Keil et al. (2015) as well. I used the two-step estimator option, as suggested by Windmeijer (2005), to handle for panel-specific autocorrelation and heteroscedasticity (Keil et al. 2015).

The difference GMM estimator is not a suitable option in this case but the system GMM estimator is, to get the benefit of time-invariant regressors, such as industry dummies. The major issue in using GMM is to select variables as predetermined and exogenous ones. Following Keil et al. (2015), predetermined variables are all independent and control variables while year and industry dummies are treated as exogenous. The first lag of the predetermined variables and the current values of the exogenous variables are used as instruments. Following Roodman's recommendations, I checked whether instruments are lower than several groups used in the analysis.

5.4 Reliability and Validity: Measurement Error Variance

CATA is a method of measurement of constructs by converting text into numbers through the count of keywords. CATA was proposed as an alternative to survey methods, which can enable longitudinal research design and can avoid CMV through lagging of variables. Despite this benefit, the CATA approach suffered from measurement error variance for a long time, but a solution was proposed by McKenny et al. (2016). Per the authors, there are three types of measurement error variance in a CATA-based research design: transient error, specific factor error, and algorithm error.

A transient error occurs when the language used in texts produced at different points in time differ substantially. A specific factor error occurs due to the choices made in compiling word lists. An algorithm error surfaces when two CATA software packages produce different scores using the same measures and texts. For each error, the reliability estimates suggested by McKenny et al. (2016) are the following: test-retest reliability for transient error, parallel form reliability for specific factor error, and interrater agreement for algorithm error. The test-retest reliability assesses the consistency of language from texts produced at two points in time. The parallel form reliability assesses the extent to which human and CATA coding produces similar results. The interrater agreement assesses the extent to which two CATA software packages produce the same score. (see Table 13 for the process for the assessment).

First, I calculated correlation coefficients for the exploration and exploitation at two points in time to assess transient error. Second, through the manual coding of a randomly selected (10%) subsample of annual reports, I estimated the correlation between manual coding and CATA. I followed the definitions of March (1991; Uotila et al. 2009) to develop the coding guidelines and I conducted the manual coding at the word or phrase level. For the assessment of algorithm error, two CATA packages must be used. My baseline test is based on CAT scanner while RStudio is used for the comparison purpose.

As demonstrated in table 13, the transient error is only 15.92%, the specific factor error is 31.77%. But algorithm error is little high at 32.9%. However, Krippendorff's alpha above 0.667 is acceptable. Therefore, the data satisfies all needed criteria as outlined by McKenny et al. (2016). The numbers in parenthesis are adapted from the latest paper by McKenny et al. (2016). Current findings on

the transient error are in the ballpark range, as found by McKenny et al. (2016). But specific factor error detected by them is too high in contrast to mine. Their manual coding guidelines and mine are completely different. Therefore, the results are also different. The current approach supports the findings with only 36.07% (vs 81%) specific factor error. A surprising finding (perhaps due to the crude modeling in Rstudio) is that the algorithm error is quite high for current data 32.9% (vs. 2%). As mentioned above, though high the Krippendorff's alpha is in the good and acceptable range. Therefore, as the reliability and validity are established, now I can proceed for further statistical analysis and reporting of the findings.

Table 13. Findings of this Dissertation on the Assessment of Error Variance (Numbers in parenthesis are benchmark numbers adapted from Appendix B (McKenny et al. 2016))

Error Source	Type of Reliability Estimate	Ambidexterity Dimension	Reliability Estimate	Percent of Variance Due to Measurement
Transient Error	Test-retest	Exploration	0.8627 (0.84)	13.73% (16%)
		Exploitation	0.8189 (0.76)	18.11% (24%)
		Mean test-retest	0.84(0.8)	15.92% (20%)
Specific Factor	Parallel forms	Exploration	0.6823 (0.09)	31.77% (91%)
		Exploitation	0.5963 (0.30)	40.03% (70%)
		Mean parallel forms	0.64 (0.19)	36.07% (81%)
Algorithm Error	Krippendorff's alpha	Exploration	0.716 (0.96)	28.4% (4%)
		Exploitation	0.626 (1.00)	37.4% (0%)
		Mean Krippendorff's alpha	0.671** (0.98)	32.9% (2%)

* a percent of variance due to measurement error = $(1 - \text{reliability estimate value}) * 100$.

**Krippendorff's alpha above 0.667 is acceptable.

To compare with the latest CATA-based measures and their reliability estimates plus percent of variance due to measurement error, I adapted McKenny et al. (2016) as a benchmark, as done in Table 14. In contrast to table 13 above (which was compared with Ambidexterity itself), Table 14 below is a comparison of two prominent CATA-based measures, entrepreneurial orientation (EO) and market orientation (MO). The percent of variance due to the transient error of current data is 15.92% (versus EO=49%; MO=47%). This shows that used measures are consistent over time and the data source is good compared to EO and MO measures and their data sources. The percentage of variance to specific factor

error of current data is 36.07% (versus EO =57%; MO=34%). This shows that that the manual coding guidelines followed by me are better compared to EO and MO approach taken by McKenny et al. (2016).

Table 14. Results of Assessment of Error Variance (Numbers in parenthesis are benchmark numbers for entrepreneurial orientation and market orientation, respectively, adapted from McKenny et al. (2016) ***

Error Source	Type of Reliability Estimate	Ambidexterity Dimension	Reliability Estimate	Percent of Variance Due to Measurement
Transient Error	Test-retest	Exploration	0.8627	13.73%
		Exploitation	0.8189	18.11%
		Mean test-retest	0.8408 (EO =0.51;	15.92% (EO=49%;
Specific Factor Error	Parallel forms	Exploration	0.6823	31.77%
		Exploitation	0.5963	40.03%
		Mean parallel forms	0.64 (EO =0.43; MO=0.66)	36.07% (EO =57%; MO=34%)
Algorithm Error	Krippendorff's alpha	Exploration	0.716	28.4%
		Exploitation	0.626	37.4%
		Mean Krippendorff's alpha**	0.671** (EO =0.89; MO=0.84)	32.9% (EO =11%; MO=16%)

* a percent of variance due to measurement error = $(1 - \text{reliability estimate value}) * 100$.

Krippendorff's alpha above 0.667 is acceptable. * To understand how the error has been reduced in my research, kindly see to the Appendix V for elaborated discussion.

The only challenging error in current data is variance due to algorithm error, which is 32.9% (versus EO =11%; MO=16%). Therefore, there is room for improvement by selecting better tools with matching algorithm compared to RStudio. However, CAT Scanner is a proven software and it has been used by McKenny et al. (2016) as a benchmark tool and I reported findings from the analysis done by CAT Scanner.

5.5 Data Sources, Sample and Operationalization

Data Sources and Sample. I selected a sample of large-cap and mid-cap Nordic companies (except Norway) listed in Nordic NASDAQ index. Current sample, therefore, included several of the most prominent companies from Sweden, Finland, and Denmark. Norway, while being a member of the Nordic countries, is an outsider to the EU and so not included in Nasdaq Nordic index calculations.

Sweden, Finland, and Denmark are very similar to each other in terms of the business environment in which the companies exist (Benito, Grøgaard & Narula 2003).

In the Nordic stock exchange, companies with market capitalization of EUR 1 billion or more are considered large-cap companies, while those with the market capitalization of EUR 150 million or more are considered mid-cap companies. I chose not to base the sample selection based on the old marketing paradigm of goods provisioning, but on the new marketing paradigm of service provisioning, as goods manufacturers are also increasingly bundling services in their offerings, making the distinction between manufacturing and service firms less relevant. Based on the latest development in service-dominant logic (SDL) (Vargo & Lusch 2004; 2008), the marketing paradigm is moving towards intangible resources, the co-creation of value, and relationships. Therefore, servitization (bundling services with products) of manufacturing firms is the trend, and I test this phenomenon during the analysis.

I constructed a panel data set of the sample companies over the period from 2005 to 2014. Data was collected from FactSet (annual reports for content analysis and other archival measures), Orbis (to cross-check the companies), and *Talouselämä* database. From the Nasdaq, Nordic stock exchange index, end of 2014 (reported in 2015 index) there were 296 firms listed under the categories large cap (≥ 1 billion EUR market capitalization) or mid cap (≥ 150 million EUR market capitalization). During data collection, I found 27 firms whose annual reports were not accessible or they had substantially missing data. Out of the missing data on the large-cap companies, there were 5 from Sweden, 2 from Denmark. Out of the missing data on the mid-cap companies, there were 13 from Sweden, 4 from Denmark, and 3 from Finland. Also, FSTS, FATA data were missing for six companies out of which four were from Iceland. Therefore, the firms from Iceland were deleted together with other missing companies. Therefore, the final sample consisted of 260 companies in the Nasdaq Nordic large- and mid-cap indices. The sample consists of three countries, as shown in Table 15 with Sweden having the highest percentage of companies and observations (56.92%), followed by Finland with 24.62% and Denmark stands at 18.46%.

Table 15. Country Distributions

Country	Number of firms	Frequency	Percent	Cumulative
DK	48	480	18.46	18.46
FI	64	640	24.62	43.08
SE	148	1480	56.92	100
Total	260	2600	100	

Table 16 shows the distribution between large cap and mid cap companies. Large cap companies form 38.84% of the sample while mid-cap companies form 61.15%. This shows that the results are mainly influenced by mid-cap companies. However, I analyze large-cap and mid-cap companies separately later.

Table 16. Large Cap and Mid Cap Companies, Observations in each Country

Country	Number of Large Cap Firms	Large Cap Observations	Number of Mid Cap Firms	Mid Cap Observations
DK	20	200	28	280
FI	28	280	36	360
SE	53	530	95	960
TOTAL	101	1010	159	1590
% of total	38.84%		61.15%	

Characteristics of Total Sample and by Breakdown. This section reports the basic sample characteristics of the total sample. Figure 4 (a) shows the level of OA operationalized as relative exploration and OA. The first bar is of relative exploration while the second bar is of OA (product of exploration and exploitation). Similarly, Figure 4 (b) shows the multiple measures of DoI (FSTS, FATA, and composite DoI). The pattern shows that the FSTS and FATA ratios are 0.47 and 0.43 respectively. But the composite DoI is the average of the previous two so the value is in the order of 0.45.

Figure 4 (c) shows differentiation strategies (technology and marketing) measured as R&D intensity and SGA intensity. The mean value for technology differentiation is 0.5 while marketing differentiation is 2.94. Figure 4 (d) shows the level of cost leadership (0.61) and hybrid strategies (0.11). FSAs are measured as R&D intensity and SGA intensity. This demonstrates the role of intangibles in

the sample. Not only R&D and patents are important, but also the advertising and branding.

The sample characteristics by country of origin, industry type, market capitalization, and temporal dimension are summarized in Table 17. Both differentiation advantage and FSAs are operationalized through R&D intensity and SGA intensity. On the country level, Finland seems to be well balanced in balancing exploration and exploitation compared to its counterparts. Similarly, Finland scores well above its counterparts on the DoI as well. One explanation for this phenomenon could be the state sponsorship of R&D initiatives and internationalization promotion programs such as TEKES and FinPro. Also, Finland has created one of the successful multinational brands such as Nokia Wartsila, UPM and others reflecting the policy success at the national level.

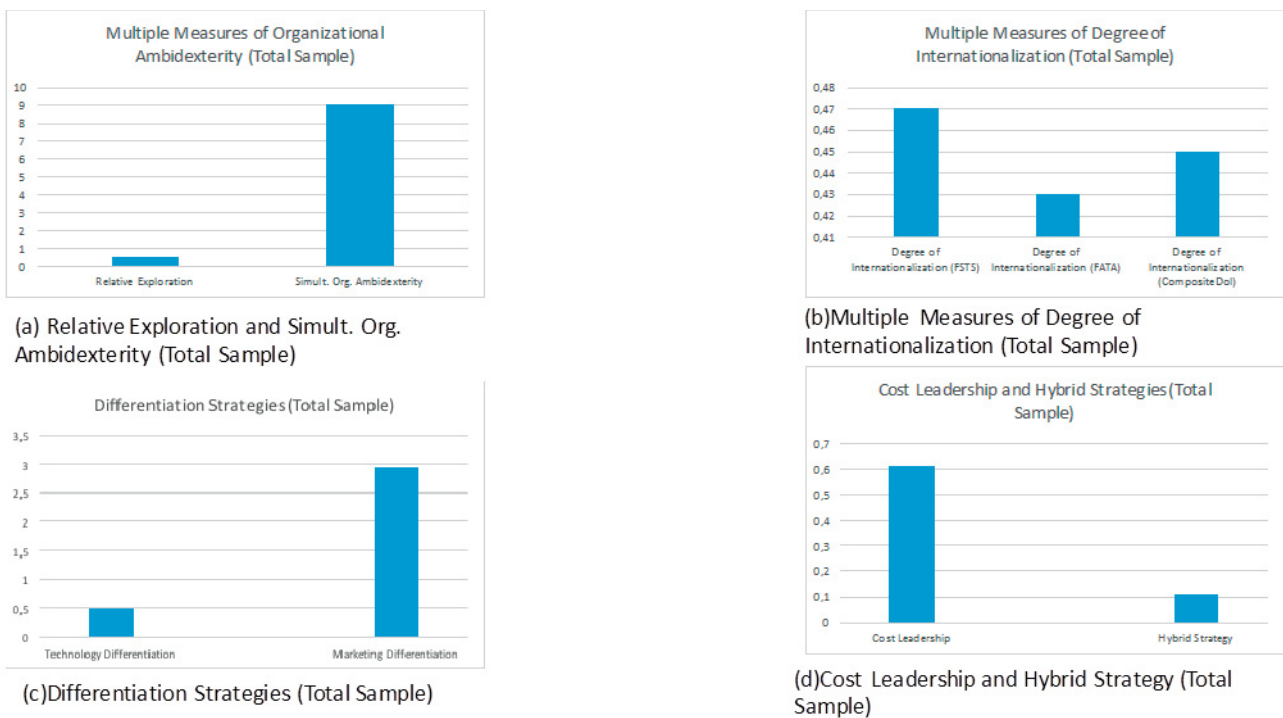


Figure 4. Sample Characteristics of Main Antecedents: Organizational Ambidexterity and Degree of Internationalization

Other Nordic countries have been doing similar innovation and internationalization activities as well but perhaps the effectiveness of such programs is reflected in Finland (Autio & Rannikko 2016) better than its counterparts. Denmark follows the differentiation strategy and hybrid strategy to its best compared to its counterparts. Finland follows the cost leadership strategy to its best compared to its counterparts. Denmark could be the benchmark

country for FSAs or differentiation strategies. The differences in the type of strategic focus in each country suggest that the sample firms in each country might be in the different phase of innovation and internationalization phase. In the case of Denmark, the sample might be younger than other counterparts, still developing differentiation advantage and in that matter FSAs to its fullest before embarking into internalizing in the global scale. This seems to be the pattern of Finnish firms in average as they have followed cost-leadership strategy with internationalization focus in their strategy. Therefore, cross-country learning from their best practices would be a plausible approach.

On the sectoral analysis manufacturing firms balance exploration and exploitation well and internationalize better compared to service firms. While manufacturing, follows differentiation and cost leadership, service sector follows the hybrid strategy. Manufacturing sector values FSAs more than service sector. The manufacturing sector is more R&D driven and in that matter, FSAs and differentiations are the norms in contrast to the service sector. However, to be successful in the service sector, one needs to balance both cost plus differentiation where branding is crucial for long-term survival. This seems to have a face validity; therefore, I am not looking for academic papers nor cases to support this explanation. However, if we take an example of Nokia, my ex-employer, I see a relevant pattern of it being FSAs focused but slowly turning into hybrid company or servitization in the long run.

Mid-cap companies balance exploration and exploitation better compared to large-cap companies. On the contrary, large cap companies internationalize better than mid-cap companies when DoI measured as FSTS. On the composite level, mid-cap firms are slightly better. Mid-cap companies are better off in all dimensions of competitive strategies and they also value FSAs slightly more than large cap companies. The inclination towards the higher score in the favor of mid-cap companies suggested that the mid-cap companies are still agile and developing innovative solutions, in contrast, to large-cap where inertia and success trap is already starting to be visible. This becomes evident as large-caps are internationalizing better suggesting they are just reaping the benefits without investing in the future solutions. Therefore, large-cap firm managers need to wake up before it's too late to turn the ship around from success trap or exploitation trap or myopia of learning or strategic inertia.

On the temporal dimension, the samples showed that companies were balancing exploration & exploitation and internationalizing better after 2008 compared to before 2008. Before 2008, firms followed overall differentiation strategy, valued FSAs more, while cost leadership and hybrid strategies were the choices after

2008. This is interesting to note that the year 2008 is the year of financial crisis. Perhaps that is the exogenous effect which made most of the cost-cutting and firms were forced to perform better amidst shrinking sales. Therefore, the expenses in differentiation and in that matter FSAs were not visible but still they followed the hybrid strategy to the level they can but focused mainly on cost leadership strategy.

Operationalization of Dependent, Independent, Moderating and Control Variables. In the latest review of editor's and reviewer's comments, Green et al. (2016) concluded that the issue of measurement is one of the vital concerns while evaluating a research manuscript. Owing to these findings, I have used multiple robust measures anchored into theoretical reasoning and backed by existing literature. I have followed the advice given by Green et al. (2016) in selecting and validating the measures. I have defined the concept of measurement based on the theoretical construct. I understand that the data analysis part could be repaired but the measurement issues cannot be fixed later. Therefore, a due care was taken while selecting the measures and sources for the same.

Dependent variable. I used Tobin's Q and ROA to measure a firm's long-term and short-term performance respectively. Because of the different variable, and often uncertain time lags with which exploration and exploitation have been argued to influence firm performance, I chose to use a market-based performance measure to examine the effects of exploration and exploitation not only on the firm's current performance but also on the market's expectations of its future performance. Tobin's Q is therefore used as the measure of performance which captures both short-term and long-term performance (Lubatkin & Shrieves 1986, Uotila et al. 2009). Tobin's Q is defined as the market value divided by the book value of assets (Brown & Caylor 2006), and this is also the approach that I have utilized to operationalize Tobin's Q in the current analysis. All analyses are repeated with ROA as a measure just to explore the robustness of the study.

Independent variables. The main independent variables, relative exploration and OA were measured using the content analysis approach as used by Uotila et al. (2009). Content analysis of annual reports is an alternative to self-informant based cross-sectional survey methodology in three fronts. As discussed in section 5.2, first, survey methodology based research is prone to a single key informant in each firm. Content analysis of annual reports facilitates the collection of data issued on behalf of the management board, including CEO, in contrast to a single informant. Second, key informants are typically not easily reachable in survey-based research, whereas annual reports as a data source are readily accessible for publicly listed companies. Third, annual reports are normally available from the past year without a retrospective bias to construct a panel of data. The traditional approach to content analysis is based on human coders. However, various studies have utilized computer-aided text analysis and human coding and found the results are comparable (King & Lowe 2003; Laver, Benoit & Garry 2003). Consequently, I adopted the CATA method following Uotila et al. (2009). The annual reports are analyzed with the keywords identifying exploratory and

exploitative actions (see Appendix V) validated by Uotila et al. (2009) and anchored in the original definition of exploration and exploitation (March 1991), as listed in table 18. The total sums of the counts of exploratory and exploitative words in an annual report, representing the corresponding company-year, are used as the measures for exploration and exploitation, respectively. Relative exploration is calculated as $\text{exploration} / (\text{exploration} + \text{exploitation})$. OA is calculated as the product of exploration and exploitation. DoI was calculated by the following formula: foreign sales divided by total sales (FSTS) or foreign assets divided by total assets (FATA), composite as the sum of FSTS and FATA divided by 2.

Moderating variables. To measure the firms' competitive strategies, I follow prior research and capture the firms' orientation towards differentiation and cost leadership using the investment patterns from their accounting data. The degree of differentiation in the firms' competitive strategies is measured using two dimensions of differentiation: technology differentiation and marketing differentiation (Spanos et al. 2004). In line with Spanos et al. (2004), a firm's technology differentiation is operationalized as its R&D intensity though their measure was the ratio of investment in new equipment to revenue, measured as a logarithm of their R&D expenses divided by sales. Spanos et al. (2004) used a firm's advertising intensity to measure their marketing differentiation, but because of the scarcity of available advertising data, I followed Arora and Dharwadkar (2011) and used Selling, General, and Administrative (SGA) intensity as a comparable proxy for marketing differentiation, measured as a logarithm of the firm's SGA expenses divided by sales. Similarly, cost leadership is measured as below the sample mean of cost per employee coded as 1 otherwise 0. The cost leadership measure is a bit dubious in a cross-industry setting. Clearly some industries are more employee intensive than others. However, looking at the sample, it clearly shows that on average the firms are employee intensive with a mean value of 7.49 and standard deviation of 2.19. The minimum value is 1.61 while maximum value is 11.72. In order, not to get spurious results, log of number of employees have been used as a control variable. Therefore, the measure for cost-leadership is reasonable however it is not a perfect measure in such a setting. As Spanos et al. (2004) noted in their analysis, I follow similar guidelines and focus on the realized strategies but not the intended ones. FSAs are measured as R&D intensity and SGA intensity. Hybrids are operationalized when differentiation is above the sample mean while cost per employee is below the sample mean.

Control variables. I followed the latest thinking to use theoretical rationale by Green et al. (2016) while choosing control variables. As discussed in the previous

section, lagged dependent variable is used as a control to account for the impact of past performance on the current performance and unobserved heterogeneity. Similarly, the size of the firm is taken as a control based on previous studies which are in general used to control for the effect of the size. And to control for the too much emphasis on the innovation activities, R&D intensity is taken as another control variable. However, whenever R&D intensity is modeled as a moderator, it has been removed as a control in the model. The model reports the betas for R&D intensity as default which are reported in the model 3s in all the tables. Lu and Beamish (2004) is an example paper which uses same variables as control and moderator in the models. Firm size was measured as the logarithm of the number of employees. I also included year controls as well as industry controls operationalized as dummy variables at the 2-digit SIC code level. Table 18 summarizes the constructs, measures and sources used in my work. I used one percent Winsorization for all continuous variables.

Table 18. Constructs, Measures and Sources

Construct	Measure	Author(s)	Method/Source/Definition
FSA's/ Differentiation	R&D intensity (R&D expenses/sales)	Spanos et al. (2004) based on the similar logic of technology intensity used by the authors.	Archival data (R&D expenses/Sales) multiplied by 100.
FSA's/Differentiation	SGA intensity (SGA expenses/sales)	Spanos et al. (2004) based on the similar logic of advertising intensity used by the authors. Arora and Dharwadkar (2011)	Archival data (Sales General and Administrative expenses/sales). This variable has been multiplied by 100 while running the model.
Cost leadership	Cost per employee (Total cost divided by number of employees operationalized as below the sample mean being the cost leadership)	Author's own operationalization	Archival data
Hybrid Strategy	Above mean value of differentiation and below the mean value of cost per employee.	Gabrielsson et al. (2016)	Archival
Relative Exploration	Exploration/(exploration+Exploitation)	March (1991); Uotila et al. (2009)	Computer aided text analysis.
OA	Product of Exploration & Exploitation	9 authors used this measure as reported in Table 6 in section 2.1.	Computer aided text analysis.
Performance	Tobin's Q, ROA (Earnings divided by total assets)	Uotila et al. (2009); Brown and Caylor, (2006); Contractor et al. (2003); Lu and Beamish (2004)	Archival data (Tobin's Q=Market value/Book value)
DoI	FSTA, FATA, Composite DoI (FSTA + FATA) divided by two.	Sullivan (1994); Capar and Kotabe (2003); Geringer, Beamish and daCosta (1989); Tallman and Li (1996). FATA (Ramaswamy 1993)	Archival data (Foreign sales/Total Sales); foreign assets to total assets. Composite DoI (FSTA + FATA) divided by two.

5.6 The System GMM Model Fit Criteria

The following criteria are utilized in evaluating the results from the GMM based on Roodman (2006; 2009). If any of these criteria is violated, the results should be interpreted with caution. There are mainly three criteria before accepting the model for testing the hypotheses. First, the Hansen J-test statistics for over-identifying restrictions should have not significant p-values as shown in table 19. Here the null hypothesis is that the over identifying restrictions are valid and here we cannot reject the null hypothesis—the basic condition to use the system GMM findings. Second, the number of instruments should be less than several groups. Third, the Arellano-Bond test for autocorrelation (AR2) should have not significant p-values implying there is no autocorrelation. The summary of the criteria is listed in Table 19. In reporting the findings, I use the above-mentioned guidelines without rewriting these in each interpretation of the model.

Table 19. System GMM model fit Criteria (Developed from Roodman (2006, 2009))

Parameter	Criteria	Meaning
Time span and number of observations	“small T, Large N”	Meaning few time periods and many observations
Exogeneity of independent variables	Not strictly exogenous	Meaning they are correlated with the past and possibly current realizations of the error; fixed effects; and heteroscedasticity and autocorrelation within individuals.
Hansen J-test statistics for over-identifying restrictions	Should be not significant p values ^b	For these models, we cannot reject the null hypothesis that the overidentifying restrictions are valid
Number of instruments	Should be greater than number of groups	To control for proliferation of instruments
Arellano-Bond test for autocorrelation (AR2) ^a	Should be not significant p values	No serial correlation

^a The *p*-value of the AR(2) test for autocorrelation in the error structure is never significant. This means we can confidently reject the null hypothesis of autocorrelation in the second-differenced errors, which means no lags of the dependent variable that are used as instruments are endogenous. The GMM estimator is, therefore, consistent.

^b Since the *p*-values of this first Hansen test are never significant, we can conclude the instruments and lag structure we use are valid.

5.7 Descriptive Statistics

The summary of descriptive statistics for the key variables is presented in Table 20. The dependent variable Tobin's Q had a mean of 6.34 and standard deviation(SD) of 9.81. The range for the minimum to maximum is 0.39 and 67.35. Another dependent variable ROA had a mean of 8.68 and SD of 9.67. The range for minimum and maximum is 0.10 to 58.58. R&D intensity (ln) had a mean value of 0.50 and SD of 1.03. The range for the minimum to maximum is 0.02 to 6.12. The number of employees (ln) is the measure for size which had a mean of 7.48 and SD of 2.19. The range for the minimum to maximum is 1.61 and 11.72.

The major variable relative exploration had a mean of 0.55 and SD of 0.16. The range for the minimum to maximum is 0.04 to 0.97 as it is a ratio. DoI had three measures FSTS (mean=0.47; SD= 0.39), FATA (mean=0.43; SD=0.33), and Composite DoI (mean=0.45; SD=0.32). The measure for marketing differentiation is SGA intensity (mean=2.94; SD=0.86). Similarly, the measure of cost leadership is the cost per employee (mean=0.61; SD=0.49). The measure for hybrid strategy had a mean of 0.11 and SD of 0.32. Table 20 lists the correlation matrix among the variables. In system GMM, the level of multicollinearity and autocorrelations are reported in two parameters AR1 and AR2 in each table with the findings later in the results section.

The pattern shows that correlations are in good level which implies that regressions will be significant in most of the cases. Wherever the normality of histograms was not good, those variables were log transformed to get closer to normal distribution. Also, all related OLS assumptions (correct model, no perfect collinearity, homoscedasticity, and normal distribution of errors) were tested before running the analysis.

Table 20. Descriptive Statistics and Correlations

Variable	Mean ^b (Overa II)	S.d. (overall/ between)	Min (overall/ between)	Max(overa II/between)	1	2	3	4	5	6	7	8	9	10	11	12
1 Tobin's Q ^a	6.34	9.81/8.50	0.39/0.39	67.35/63.14	1											
2 ROA ^a	8.68	9.67/7.37	0.10/0.25	58.58/44.04	0.32	1										
3 R&D intensity (log) ^a	0.50	1.03/0.98	0.02/0.0 2	6.12/5.67	0.18	0.28	1									
4 Size (log) ^a	7.49	2.19/2.17	1.61/1.60	11.72/11.72	-0.19	-0.32	0.08	1								
5 Rel Explore	0.55	0.16/0.14	0.04/0.17	0.97/0.96	0.05	0.02	0.08	-0.18	1							
6 Org. Amb. (log)	9.11	1.71/1.37	1.61/4.00	11.72/13.12	0.14	0.14	0.07	0.35	-0.02	1						
7 DoI FSTS	0.47	0.39/0.32	0.01/0.01	0.99/0.96	0.10	0.04	0.13	0.43	-0.17	0.17	1					
8 DoI FATA	0.43	0.33/0.30	0.01/0.01	0.99/0.98	0.01	0.04	0.00	0.44	-0.14	0.18	0.62	1				
9 DoI Composite	0.45	0.32/0.27	0.01/0.01	0.99/0.97	0.11	0.10	0.09	0.51	-0.20	0.22	0.89	0.87	1			
10 SGA intensity (log) ^a	2.94	0.86/0.88	0.10/0.10	5.71/5.50	0.25	0.34	0.65	-0.13	-0.03	0.18	0.04	0.01	0.01	1		
11 Cost leadership ^a	0.61	0.49/0.42	0/0	1/1	0.01	0.03	0.09	0.20	0.16	0.03	0.02	0.07	0.04	0.20	1	
12 Hybrid strategies ^a	0.11	0.32/0.28	0/0	1/1	0.15	0.16	0.68	-0.04	-0.10	0.08	0.13	0.03	0.12	0.50	0.14	1

^a Winsorized at the 1% level. ^b Mean represents the mean value of all available data points

6 RESULTS

The System GMM analysis was conducted based on the GMM model fit criteria outlined in section 5.6. The analysis showed some significant results and a few surprising results as well. The following section reports the findings in tables and later presents those in plots.

6.1 Relative Exploration, DoI as FSTS: Main and Moderating Effects with Tobin's Q as a Dependent Variable

This section discusses the findings when DoI is measured as FSTS and OA as a dynamic capability is measured as a relative exploration. Apart from Betas, the parentheses include standard errors as shown in Table 21, superscripts indicate the level of significance (+ $p < 0.1$ level, * $p < 0.05$ level, ** $p < 0.01$ level, *** $p < 0.001$ level). The model 1 reports the control model where lagged dependent variable, R&D intensity, and size have been used as control variables. The main effects of relative exploration on Tobin's Q (see model 2) has first the positive slope (beta= 3.86***) and the square of exploration has a negative slope (beta=-3.23***).

As hypothesized, the betas for DoI and performance show non-significant effects. However, these effects become significant in the presence of FSAs (both R&D intensity and SGA intensity). The model 3 has the first positive slope (beta=3.87***), then negative slope (beta=-3.22***), and finally positive slope (beta=1.39***). Similarly, the model 4 has the first positive slope (beta=3.97***), then negative slope (beta=-4.76***), and finally positive slope (beta=2.75***). The findings suggest that there is an inverted U-shaped relationship between OA and Tobin's Q and an S-curve relationship between DoI and performance which supported the hypotheses postulated in chapter 4.

The main effects suggest that there exists an optimum level of OA on the performance curve. When OA is lower than an optimum level or higher than an optimum level there is lower performance. Too much of OA has a negative relationship suggesting that one needs to be aware of failure trap of too much of exploration. On the other hand, if it is lower than the optimum, it suggests that firms are focusing on too less on the innovation activities resulting into success trap or exploitation trap. The thrust for strategy making needs to be achieving a balance point where the performance peaks as suggested by an inverted U-shape.

Similarly, an S-curve relationship between DoI and performance suggests that in the early stage due to liabilities of foreignness the cost of internationalization is higher than the revenue effect. As I modeled the net effect of cost and revenue as suggested by TST, this effect becomes positive during the second stage when economies of scale and economies of scope, learning effects, and effect of FSAs take place suggesting the next positive effect as shown in the second order coefficient in DoI. But the third stage has a negative slope suggesting that the large level of DoI has a detrimental effect on the performance as co-ordination and agency costs become higher than the benefits it gives by going international.

The moderating effects are reported in subsequent models—model 3 reports the effect of technology differentiation, model 4 reports the effect of marketing differentiation, model 5 reports the effect of cost leadership, and model 6 reports the effect of hybrid strategies. Technology differentiation, marketing differentiation, and hybrid strategies have a positive moderating effect on the relationship between OA and performance. There is no significant moderating effect of cost leadership on the relationship between OA and performance which is a surprise finding from the hypothesized significant relationship. When the independent variable is DoI, the moderating effects of technology differentiation, marketing differentiation, cost leadership, and hybrid strategies are significant which support all the hypotheses on the moderation effects of competitive strategies on the relationship between DoI and performance. These impacts will be plotted later and the interpretation and discussion will be done in subsequent chapters

Table 21. GMM Regression of DoI (FSTS) and Relative Exploration with Tobin's Q

Variables	Model 1 (Control)	Model 2 (RelativeExp & DoI)	Model 3 (Moderating effect of Tech Differentiation)	Model 4 (Moderating effect of Marketing Differentiation)	Model 5 (Moderating effect of cost leadership)	Model 6 (Moderating effect of hybrid)
<i>Explanatory variables</i>						
Relative Exploration		3.86 (0.67)***	3.87 (0.33)***	3.97 (0.60)***	1.02 (0.44)*	2.22 (0.50)***
(Relative Exploration) ²		-3.23 (0.62)***	-3.22 (0.30)***	-4.76 (0.63)***	-1.72 (0.34)***	-2.65 (0.42)***
DoI (Measured as FSTS)		-0.06 (0.34)NS	1.39 (0.16)***	2.75 (0.19)**	2.15 (0.20)***	3.17 (0.18)***
DoI x DoI		-0.28 (0.41)NS	-1.30 (0.21)***	-1.49 (0.17)*	-1.68 (0.20)***	-3.25 (0.21)***
DoI x DoI x DoI		-0.37 (0.15)*	0.11 (0.08)+	1.15 (0.06)***	0.15 (0.07)*	0.60 (0.07)***
(Relative Exploration) x (R&D intensity)			0.02 (0.07)+			
(DoI) x (R&D intensity)			0.59 (0.03)***			
(Relative Exploration) x (SGA intensity)				1.95 (0.12)***		
(DoI) x (SGA intensity)				0.78 (0.03)***		
(Relative Exploration) x (Cost leadership)					0.34 (0.21)NS	
(DoI) x (Cost leadership)					0.11 (0.08)+	
(Relative Exploration) x (Hybrid strategies)						2.62 (0.22)***
(DoI) x (Hybrid strategies)						0.74 (0.04)***
SGA Intensity				2.02 (0.08)***		
Cost leadership					-0.35 (0.12)**	
Hybrid Strategies						-2.71
Tobin's Q _(t-1)	0.74(0.02)***	0.82 (0.00)***	0.84 (0.00)***	0.81 (0.00)***	0.84 (0.00)***	0.85 (0.00)***
Size, ln	-0.42 (0.11)***	0.17 (0.02)***	0.11 (0.01)***	-0.13 (0.02)***	-0.10 (0.01)***	0.14 (0.01)***
R&D intensity, ln	0.31 (0.09)*	0.43 (0.03)***	0.86 (0.04)***	0.57 (0.01)***	0.35 (0.02)***	0.69 (0.01)***
N	2600	2600	2600	2600	2600	2600
Wald χ^2	9637.95***	963430.04***	8.23e+07***	5.67e+09***	2.14e+08***	2.08e+08***
Hansen (p values)	0.04	0.22	0.27	0.94	0.51	0.25
Z ₁ or AR1(p values)	0.01	0.09	0.09	0.13	0.092	0.09
Z ₂ or AR2(p values)	0.19	0.37	0.37	0.32	0.374	0.37
Number of Groups	247	192	192	204	204	204
Number of Instruments	76	156	188	166	192	192

+ p < 0.1 level, * p < 0.05 level, ** p < 0.01 level, *** p < 0.001 level For each variables betas are reported first and in the parenthesis standard error is reported. For Model statistics the interpretation guidelines are listed in the table 19.

6.2 Relative Exploration, DoI as FATA: Main and Moderation Effects with Tobin's Q as a Dependent Variable

This section summarizes the findings when DoI is measured as FATA and OA as a dynamic capability is measured as a relative exploration as shown in Table 22. Apart from Betas, the parentheses include standard errors. Superscripts indicate the level of significance (+ $p < 0.1$ level, * $p < 0.05$ level, ** $p < 0.01$ level, *** $p < 0.001$ level). The model 1 reports the control model where lagged dependent variable, R&D intensity, and size have been used as control variables. The main effects of relative exploration on Tobin's Q (see model 2) has first the positive slope (beta= 6.48***) and the square of exploration has a negative slope (beta=-5.89***).

As hypothesized, the betas for DoI and performance show non-significant effects. However, these effects become significant in the presence of FSAs (both R&D intensity and SGA intensity). The model 3 has the first negative slope (beta=-9.37***), then positive slope (beta=22.71***), and finally negative slope (beta=-14.78***). Similarly, the model 4 has the first negative slope (beta=-0.71***), then positive slope (beta=2.94***), and finally negative slope (beta=-2.20***). The findings suggest that there is an inverted U-shaped relationship between OA and Tobin's Q and an S-curve relationship between DoI and performance which supported the hypotheses postulated in chapter 4.

The main effects suggest that there exists an optimum level of OA on the performance curve. When OA is lower than an optimum level or higher than an optimum level there is lower performance. Too much of OA has a negative relationship suggesting that one needs to be aware of failure trap of too much of exploration. On the other hand, if it is lower than the optimum, it suggests that firms are focusing on too less on the innovation activities resulting into success trap or exploitation trap. The thrust for strategy making needs to be achieving a balance point where the performance peaks as suggested by an inverted U-shape.

Similarly, an S-curve relationship between DoI and performance suggests that in an early stage due to liabilities of foreignness the cost of internationalization is higher than the revenue effect. As I modeled the net effect of cost and revenue as suggested by TST, this effect becomes positive during the second stage when economies of scale and economies of scope, learning effects, and effect of FSAs take place suggesting the next positive effect as shown in the second order coefficient in DoI. But the third stage has a negative slope suggesting that the

large level of DoI has a detrimental effect on the performance as co-ordination and agency costs become higher than the benefits it gives by going international.

The moderating effects are reported in subsequent models—model 3 reports the effect of technology differentiation, model 4 reports the effect of marketing differentiation, model 5 reports the effect of cost leadership, and model 6 reports the effect of hybrid strategies. There is no significant moderating effect of overall cost leadership strategy on the relationship between OA and performance which is a surprise finding from the hypothesized significant relationship. When the independent variable is DoI, the moderating effects of technology differentiation, marketing differentiation, cost leadership, and hybrid strategies are significant which support all the hypotheses on the moderation effects of competitive strategies on the relationship between DoI and performance. The moderating effects are reported in subsequent models—model 3 reports the effect of technology differentiation, model 4 reports the effect of marketing differentiation, model 5 reports the effect of cost leadership, and model 6 reports the effect of hybrid strategies.

Table 22. GMM Regression of DoI (FATA) and Relative Exploration with Tobin's Q

Variable	Model 1 (Control)	Model 2 (Rel Expl & DoI)	Model 3 (Moderating effect of Tech Differentiation)	Model 4 (Moderating effect of Marketing Differentiation)	Model 5 (Moderating effect of cost leadership)	Model 6 (Moderating effect of hybrid)
<i>Explanatory variables</i>						
Relative Exploration		6.48 (1.19)***	8.88(0.60)***	13.63 (1.06)***	2.19 (0.88)*	6.69 (0.87)***
(Relative Exploration) ²		-5.89 (1.17)***	-8.16 (0.65)***	-14.38 (1.12)***	-4.63 (0.77)***	-6.85 (0.84)***
DoI (Measured as FATA)		-18.30 (1.48)NS	-9.37 (0.79)***	-0.71 (0.04)+	-16.31 (0.93)***	-12.08 (0.67)***
DoI x DoI		39.80 (2.97)***	22.71 (1.80)***	2.94 (0.98)+	32.45 (2.08)***	26.98 (1.46)***
DoI x DoI x DoI		-23.85 (1.78)***	-14.78 (1.15)***	-2.20 (0.13)+	-18.73 (1.34)***	-16.61 (0.91)***
(Relative Exploration) x (R&D intensity)			2.44 (0.11)***			
(DoI) x (R&D intensity)			1.01 (0.07)***			
(Relative Exploration) x (SGA intensity)				0.53 (0.13)***		
(DoI) x (SGA intensity)				0.09 (0.08)+		
(Relative Exploration) x (Cost leadership)					4.44 (0.34)NS	
(DoI) x (Cost leadership)					1.93 (0.16)***	
(Relative Exploration) x (Hybrid strategies)						1.44 (0.54)**
(DoI) x (Hybrid strategies)						1.76 (0.21)***
SGA Intensity				-0.21 (0.09)*		
Cost leadership					-4.19 (0.25)***	
Hybrid strategies						-2.14 (0.28)***
Tobin's Q _(t-1)	0.74 (0.02)***	0.79 (0.00)***	0.79 (0.00)***	0.82 (0.00)***	0.78 (0.00)***	0.79 (0.00)***
Size, ln	-0.42 (0.11)***	0.56 (0.04)***	0.57 (0.03)***	0.23 (0.02)***	0.47 (0.03)***	0.49 (0.02)***
R&D intensity, ln	0.31 (0.09)*	0.74 (0.04)***	-1.03 (0.06)***	0.35 (0.02)***	0.80 (0.03)***	0.87 (0.02)***
N	2600	2600	2600	2600	2600	2600
Wald χ^2	9637.95***	3.43e+06***	4.66e+08***	1.62e+10***	6.951e+07***	1.23e+10***
Hansen (p-values)	0.04	0.80	0.66	0.99	0.93	0.94
Z ₁ or AR(1)(p values)	0.01	0.11	0.11	0.17	0.12	0.11
Z ₂ or AR(2)(p values)	0.19	0.28	0.28	0.33	0.28	0.28
Number of Groups	247	176	188	204	204	204
Number of Instruments	76	156	176	151	176	176

+ p < 0.1 level, * p < 0.05 level, ** p < 0.01 level, *** p < 0.001 level, NS Non-significant. For each variables betas are reported first and in the parenthesis standard error is reported.

6.3 Relative Exploration, DoI as a Composite: Main and Moderating Effects with Tobin's Q as a Dependent Variable

This section summarizes the findings when DoI is measured as the composite of FSTS and FATA and OA as a dynamic capability is measured as a relative exploration as shown in Table 23. Apart from Betas, the parentheses include standard errors. Superscripts indicate the level of significance (+ $p < 0.1$ level, * $p < 0.05$ level, ** $p < 0.01$ level, *** $p < 0.001$ level). The model 1 reports the control model where lagged dependent variable, R&D intensity, and size have been used as control variables. The main effects of relative exploration on Tobin's Q (see model 2) has first the positive slope (beta= 6.97***) and the square of exploration has a negative slope (beta=-4.84***).

As hypothesized, the betas for DoI and performance show non-significant effects. However, these effects become significant in the presence of FSAs (both R&D intensity and SGA intensity). The model 3 has the first positive slope (beta=3.44***), then negative slope (beta=-4.35***), and finally positive slope (beta=1.52***). Similarly, the model 4 has the first positive slope (beta=8.74***), then negative slope (beta=-0.42***), and finally negative slope (beta=-0.50***). The findings suggest that there is an inverted U-shaped relationship between OA and Tobin's Q and an S-curve relationship between DoI and performance which supported the hypotheses postulated in chapter 4.

The main effects suggest that there exists an optimum level of OA on the performance curve. When OA is lower than an optimum level or higher than an optimum level there is lower performance. Too much of OA has a negative relationship suggesting that one needs to be aware of failure trap of too much of exploration. On the other hand, if it is lower than the optimum, it suggests that firms are focusing on too less on the innovation activities resulting into success trap or exploitation trap. The thrust for strategy making needs to be achieving a balance point where the performance peaks as suggested by an inverted U-shape.

Similarly, an S-curve relationship between DoI and performance suggests that in the early stage due to liabilities of foreignness the cost of internationalization is higher than the revenue effect. As I modeled the net effect of cost and revenue as suggested by TST, this effect becomes positive during the second stage when economies of scale and economies of scope, learning effects, and effect of FSAs take place suggesting the next positive effect as shown in the second order coefficient in DoI. But the third stage has a negative slope suggesting that the

large level of DoI has a detrimental effect on the performance as co-ordination and agency costs become higher than the benefits it gives by going international.

The moderating effects are reported in subsequent models—model 3 reports the effect of technology differentiation, model 4 reports the effect of marketing differentiation, model 5 reports the effect of cost leadership, and model 6 reports the effect of hybrid strategies. There is no significant moderating effect of cost leadership on the relationship between OA and performance which is a surprise finding from the hypothesized significant relationship but all other competitive strategies have a positive moderating impact. When the independent variable is DoI, the moderating effects of technology differentiation, marketing differentiation, cost leadership, and hybrid strategies are significant which support all the hypotheses on the moderation effects of competitive strategies on the relationship between DoI and performance. The moderating effects are reported in subsequent models—model 3 reports the effect of technology differentiation, model 4 reports the effect of marketing differentiation, model 5 reports the effect of cost leadership, and model 6 reports the effect of hybrid strategies.

Table 23. GMM Regression of Composite DoI and Relative Exploration with Tobin's Q

Variable	Model 1 (Control)	Model 2 (RelExplor & DoI)	Model 3 (Moderating effect of Tech Differentiation)	Model 4 (Moderating effect of Marketing Differentiation)	Model 5 (Moderating effect of cost)	Model 6 (Moderating effect of hybrid)
<i>Explanatory variables</i>						
Relative Exploration		6.97 (0.93)***	10.80 (0.64)***	8.02 (0.42)***	9.88 (0.46)***	5.96 (0.53)***
(Relative Exploration) ²		-4.84 (0.84)***	-7.77 (0.56)***	-7.40 (0.43)***	-6.39 (0.33)***	-5.40 (0.51)***
DoI (Measured as Composite of FATA and DoI)		0.58 (0.37)NS	3.44 (0.30)***	8.74 (0.37)***	1.24 (0.32)***	4.71 (0.39)***
DoI x DoI		2.74 (1.06)**	-4.35 (0.55)***	-0.42 (0.04)***	3.02 (0.58)***	-2.66 (0.53)**
DoI x DoI x DoI		-2.74 (1.06)***	1.52 (0.30)**	-0.50 (0.24)*	-3.22 (0.32)***	-0.58 (0.27)+
(Relative Exploration) x (R&D intensity)			0.14 (0.08)+			
(DoI) x (R&D intensity)			0.03 (0.01)+			
(Relative Exploration) x (SGA intensity)				3.30 (0.09)***		
(DoI) x (SGA intensity)				0.42 (0.04)***		
(Relative Exploration) x (Cost leadership)					3.23 (0.21)NS	
(DoI) x (Cost leadership)					0.36 (0.09)***	
(Relative Exploration) x (Hybrid strategies)						3.75 (0.19)***
(DoI) x (Hybrid strategies)						1.22 (0.12)***
SGA Intensity				2.87 (0.05)***		
Cost leadership					0.73 (0.12)***	
Hybrid strategies						-0.61 (0.11)***
Tobin's Q _(t-1)	0.74 (0.02)***	0.82 (0.00)***	0.84 (0.00)***	0.78 (0.00)***	0.83 (0.00)***	0.85 (0.00)***
Size, ln	-0.42 (0.11)***	-0.02 (0.02)***	0.08 (0.01)***	-0.17 (0.02)***	-0.02 (0.01)NS	-0.03 (0.02)***
R&D intensity, ln	0.31 (0.09)*	0.29 (0.03)***	0.17 (0.05)**	0.17 (0.01)***	0.22 (0.02)***	0.44 (0.02)***
N	2600	2600	2600	2600	2600	2600
Wald χ^2	9637.95***	280834.22***	1.90e+06***	1.43e+08***	5.33e+08***	7.05e+06***
Hansen	0.04	0.55	0.41	0.98	0.43	0.25
Z ₁ or AR(1) (p values)	0.01	0.04	0.04	0.11	0.04	0.04
Z ₂ or AR(2) (p values)	0.19	0.33	0.33	0.33	0.33	0.35
Number of Groups	247	202	202	204	204	204
Number of Instruments	76	156	188	173	202	202

+ p < 0.1 level, * p < 0.05 level, ** p < 0.01 level, *** p < 0.001 level, NS Non-significant. For each variables betas are reported first and in the parenthesis standard error is reported.

6.4 Summary Plot of Main Effects

This section demonstrates the shapes for main effects as shown in Figure 5 (a) and (b) illustrating the curvilinear relationship between relative exploration and performance in the presence of DoI measures FSTS and FATA and composite DoI respectively. Departing from the linear relationship in the existing literature, this supports the major underlying hypothesis that there exists an optimum level of relative exploration where performance is maximum. The figures show that there is a maximum performance at around 0.45 level of OA consistent with both measures. Similarly, Figure 5 d, e, and f show the S-shaped relationships between DoI and performance where DoI is measured as FSTS, FATA, and the composite of FSTS and FATA respectively. Departing from several shapes of relationships in the existing literature, this supports the 3-stage theory of internationalization (Contractor et al. 2003; Contractor 2007, 2012). The interesting inflection points are interesting in all the figures but the most important are when the DoI is measured as a composite where an optimum level of positive relationship with performance exists between the DoI value of 0.1 and 0.75. I elaborate and connect these findings later.

The main effects suggest that there exists an optimum level of OA on the performance curve. When OA is lower than an optimum level or higher than an optimum level there is lower performance. Too much of OA has a negative relationship suggesting that one needs to be aware of failure trap of too much of exploration. On the other hand, if it is lower than the optimum, it suggests that firms are focusing on too less on the innovation activities resulting into success trap or exploitation trap. The thrust of strategy making needs to be achieving a balance point where the performance peaks as suggested by an inverted U-shape.

Similarly, an S-curve relationship between DoI and performance suggests that in the early stage due to liabilities of foreignness the cost of internationalization is higher than the revenue effect. As I modeled the net effect of cost and revenue as suggested by TST, this effect becomes positive during the second stage when economies of scale and economies of scope, learning effects, and effect of FSAs take place suggesting the next positive effect as shown in the second order coefficient in DoI. But the third stage has a negative slope suggesting that the large level of DoI has a detrimental effect on the performance as co-ordination and agency costs become higher than the benefits it gives by going international.

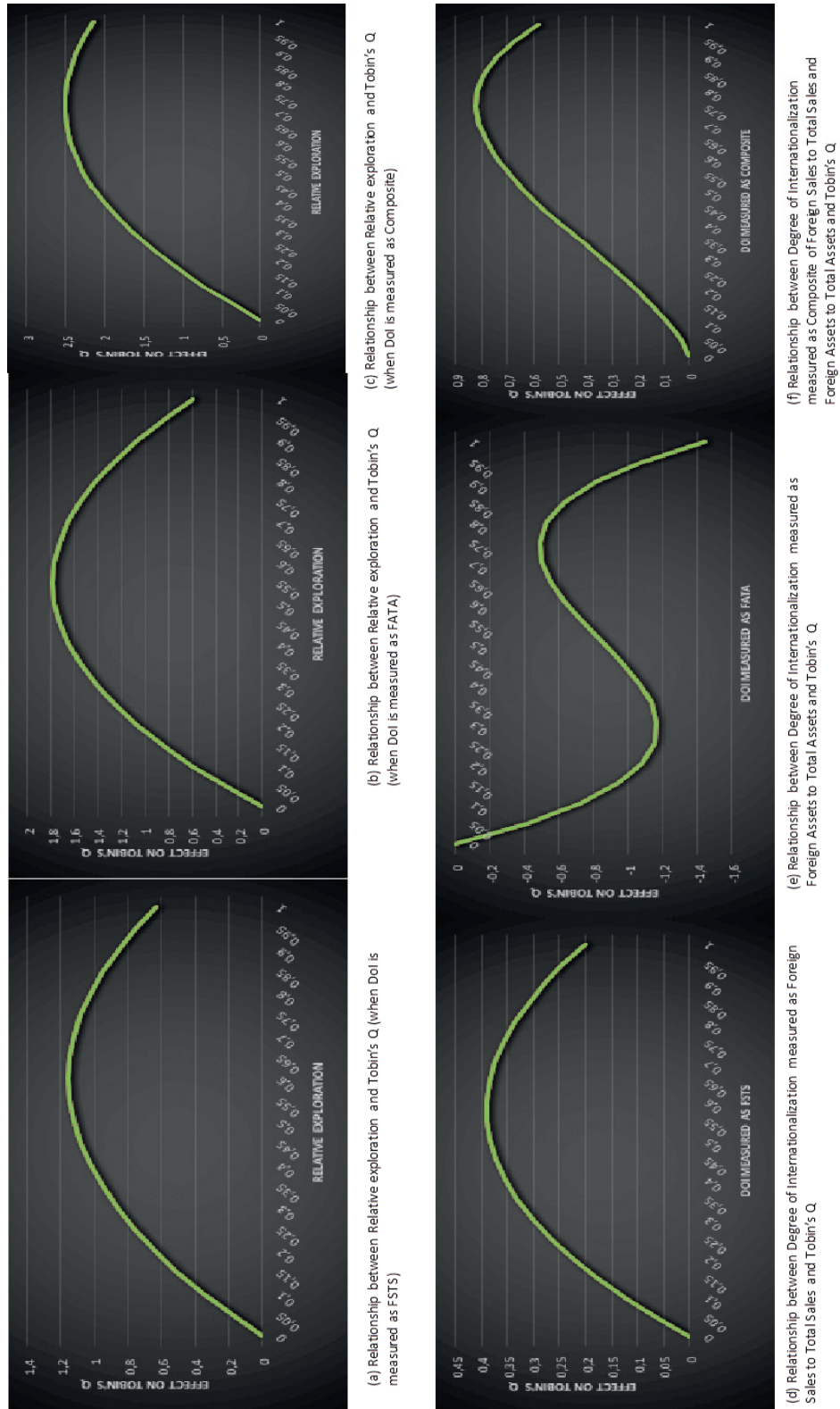


Figure 5. Main Effects of Relative Exploration (a, b & c) and DoI (d, e & f) on Tobin's Q

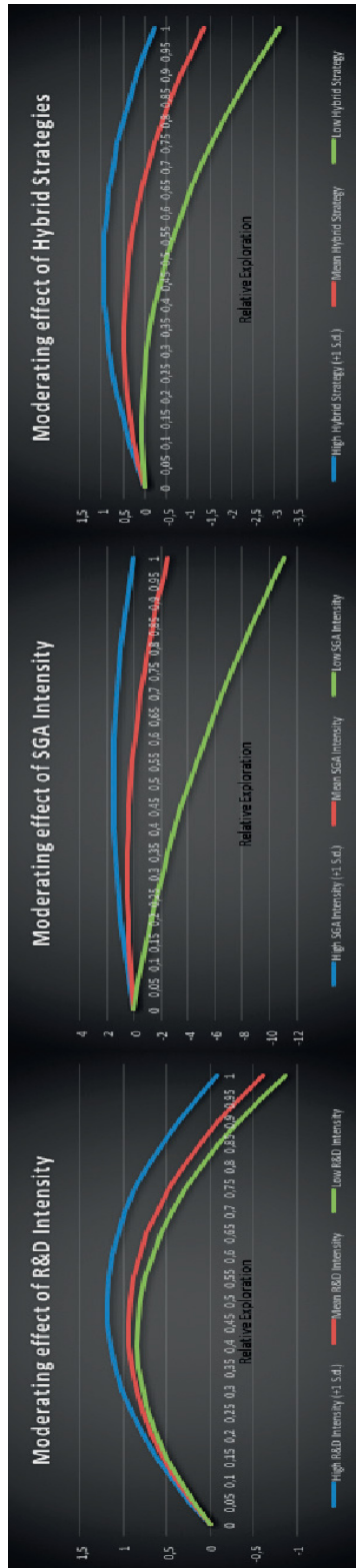
6.5 Summary Plots of Moderating Effects on the Relationship between Relative Exploration and Performance

Figure 6 shows the observed relationship between relative exploration and long-term performance with three values of the moderators. Figure 6 (a) shows the three values of R&D intensity: sample means, one standard deviation above the mean, and zero (as one standard deviation below the mean would imply a negative value for R&D expenses). As Figure 6 (a) shows, for firms following a technology differentiation strategy (High R&D intensity), finding a proper balance between exploration and exploitation has an economically significant importance for their long-term performance whereas, for firms following a low-cost technology strategy (Low R&D intensity), how they balance exploration and exploitation has little influence on their performance. The moderating effect of technology differentiation is positive on the relationship between relative exploration and Tobin's Q (Figure 6). However, the effect is not too high as we can see the high level of R&D intensity and low level of R&D intensity bands are too narrow.

The moderating effect of marketing differentiation is positive on the relationship between relative exploration and Tobin's Q (Figure 6(b)). However, the effect is not too high as we can see the high level of SGA intensity but detrimental with a low level of SGA intensity. Figure 6 (b) shows the observed relationship between relative exploration and long-term performance with three values of the SGA intensity: sample mean, one standard deviation above the mean, and zero (as one standard deviation below the mean would imply a negative value for SGA expenses). As Figure 6 (b) shows, for firms following a marketing differentiation strategy (High SGA intensity), finding a proper balance between exploration and exploitation has an economically significant importance for their long-term performance whereas, for firms following a low-cost marketing differentiation strategy (Low SGA intensity), how they balance exploration and exploitation has little influence on their performance. The moderating effect of cost leadership is insignificant, which is not as hypothesized.

The moderating effect of hybrid strategies is positive on the relationship between relative exploration and Tobin's Q (Figure 6 (c)). However, the effect is not too high as we can see the high level of hybrid strategies but detrimental with a low level of hybrid strategies. Figure 6 (c) shows the observed relationship between relative exploration and long-term performance with three values of the hybrid

strategies: sample mean, one standard deviation above the mean, and zero (as one standard deviation below the mean would imply a negative value for hybrid strategies). As Figure 6 (c) shows, for firms following a high value of hybrid strategies finding a proper balance between exploration and exploitation has an economically significant importance for their long-term performance whereas, for firms following a low level of hybrid strategies, how they balance exploration and exploitation have little influence on their performance.



(a) Moderating effect of R&D intensity on the relationship between relative exploration and Tobin's Q (when DoI is measured as FSTS)

(b) Moderating effect of SGA intensity on the relationship between relative exploration and Tobin's Q (when DoI is measured as FSTS)

relationship between relative exploration and Tobin's Q (when DoI is measured as FSTS)

Figure 6. Moderating Effect of R&D Intensity, SGA Intensity, and Hybrid Strategies on the Relationship Between Relative Exploration and Tobin's Q

6.6 Moderating Effect of Competitive Strategies on the Relationships between DoI as FSTS and Performance

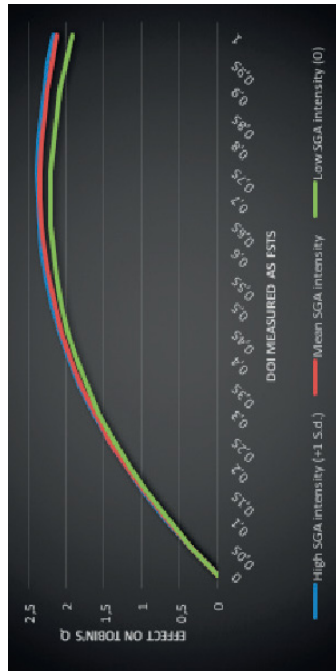
Figure 7 (a) shows the observed relationship between DoI measured as FSTS and long-term performance with three values of the R&D intensity: sample mean, one standard deviation above the mean, and zero (as one standard deviation below the mean would imply a negative value for R&D expenses). As Figure 7 shows, for firms following a technology differentiation strategy (High R&D intensity), finding a proper balance in internationalization has an economically significant importance for their long-term performance whereas, for firms following a low-cost technology strategy (Low R&D intensity), how they balance internationalization has a little influence on their performance.

Figure 7 (b) shows the observed relationship between DoI measured as FSTS and long-term performance with three values of the SGA intensity: sample mean, one standard deviation above the mean, and zero (as one standard deviation below the mean would imply a negative value for SGA expenses). For firms following a marketing differentiation strategy (High SGA intensity), finding a proper balance in internationalization has an economically significant importance for their long-term performance whereas, for firms following a low-cost marketing differentiation strategy (Low SGA intensity), how they balance internationalization has a little influence on their performance.

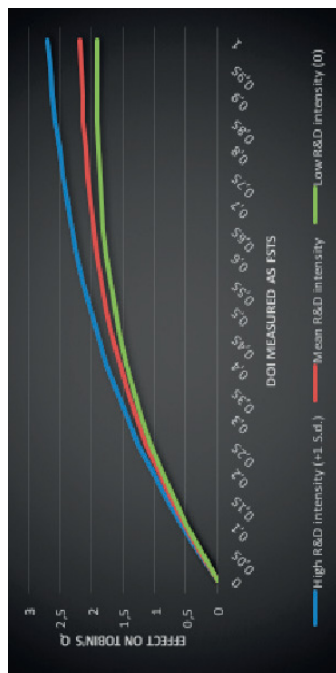
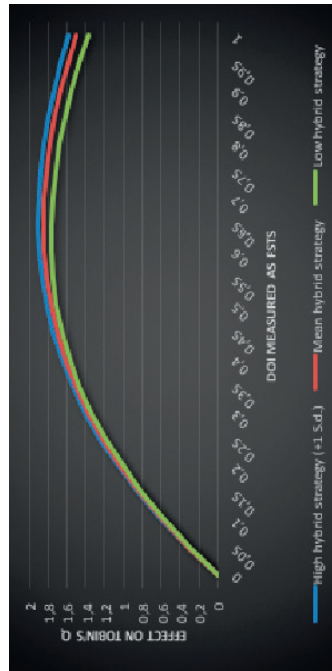
The moderating effect of Cost leadership is positive on the relationship between DoI measured as FSTS and Tobin's Q (Figure 7 (c)). The observed relationship (Figure 7 (c)) between DoI and long-term performance with three values of the cost leadership: sample mean, one standard deviation above the mean, and zero (as one standard deviation below the mean would imply a negative value for cost leadership). For firms following a low value of cost leadership finding a proper internationalization, the balance has an economically significant importance for their long-term performance whereas, for firms following a high level of cost leadership, how they balance internationalization has a little influence on their performance.

The moderating effect of hybrid strategies is positive on the relationship between DoI measured as FSTS and Tobin's Q (Figure 7 (d)). The observed relationship (Figure 7 (d)) between DoI and long-term performance with three values of the hybrid strategies: sample mean, one standard deviation above the mean, and zero (as one standard deviation below the mean would imply a negative value for hybrid strategies). For firms following a high value of hybrid strategies finding a proper balance, internationalization has an economically significant importance

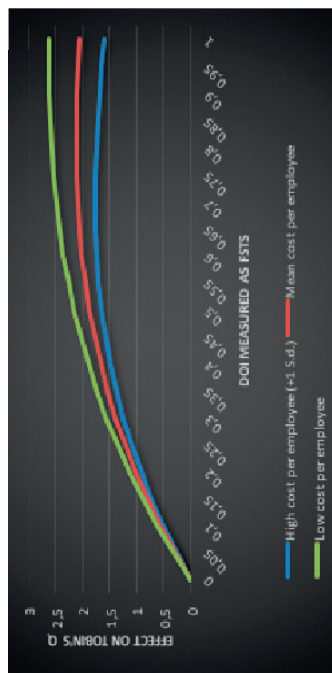
for their long-term performance whereas, for firms following a low level of hybrid strategies, how they balance internationalization has a little influence on their performance.



(b) Moderating effect of SGA intensity



(a) Moderating effect of R&D intensity



between Degree of Internationalization measured as FSTS and Tobin's

Figure 7. Moderating Effect of R&D Intensity, SGA Intensity, Cost leadership and Hybrid Strategies on the Relationships between DoI (FSTS) and Performance

6.7 Moderating Effect of Competitive Strategies on the Relationships between DoI as FATA and Performance

Figure 8 (a) shows the observed relationship between DoI measured as FATA and long-term performance with three values of the R&D intensity: sample mean, one standard deviation above the mean, and zero (as one standard deviation below the mean would imply a negative value for R&D expenses). For firms following a technology differentiation strategy (High R&D intensity), finding a proper balance in internationalization has an economically significant importance for their long-term performance whereas, for firms following a low-cost technology strategy (Low R&D intensity), how they balance internationalization has little influence on their performance.

Figure 8 (b) shows the observed relationship between DoI measured as FATA and long-term performance with three values of the SGA intensity: sample mean, one standard deviation above the mean, and zero (as one standard deviation below the mean would imply a negative value for SGA expenses). For firms following a marketing differentiation strategy (High SGA intensity), finding a proper balance in internationalization has an economically significant importance for their long-term performance whereas, for firms following a low marketing differentiation strategy (Low SGA intensity), how they balance internationalization has little influence on their performance.

Figure 8 (c) shows the observed relationship between DoI measured as FATA and long-term performance with three values of the cost leadership: sample mean, one standard deviation above the mean, and zero (as one standard deviation below the mean would imply a negative value for cost leadership). For firms following a cost leadership strategy, finding a proper balance of internationalization has an economically significant importance for their long-term performance whereas, for firms following a no cost leadership strategy, how they balance internationalization has a little influence on their performance.

Figure 8 (d) shows the observed relationship between DoI measured as FATA and long-term performance with three values of the hybrid strategies: sample mean, one standard deviation above the mean, and zero (as one standard deviation below the mean would imply a negative value for hybrid strategies). For firms following a hybrid strategy, finding a proper balance internationalization has an economically significant importance for their long-term performance whereas, for firms following a low hybrid strategy, how they balance internationalization has a little influence on their performance.

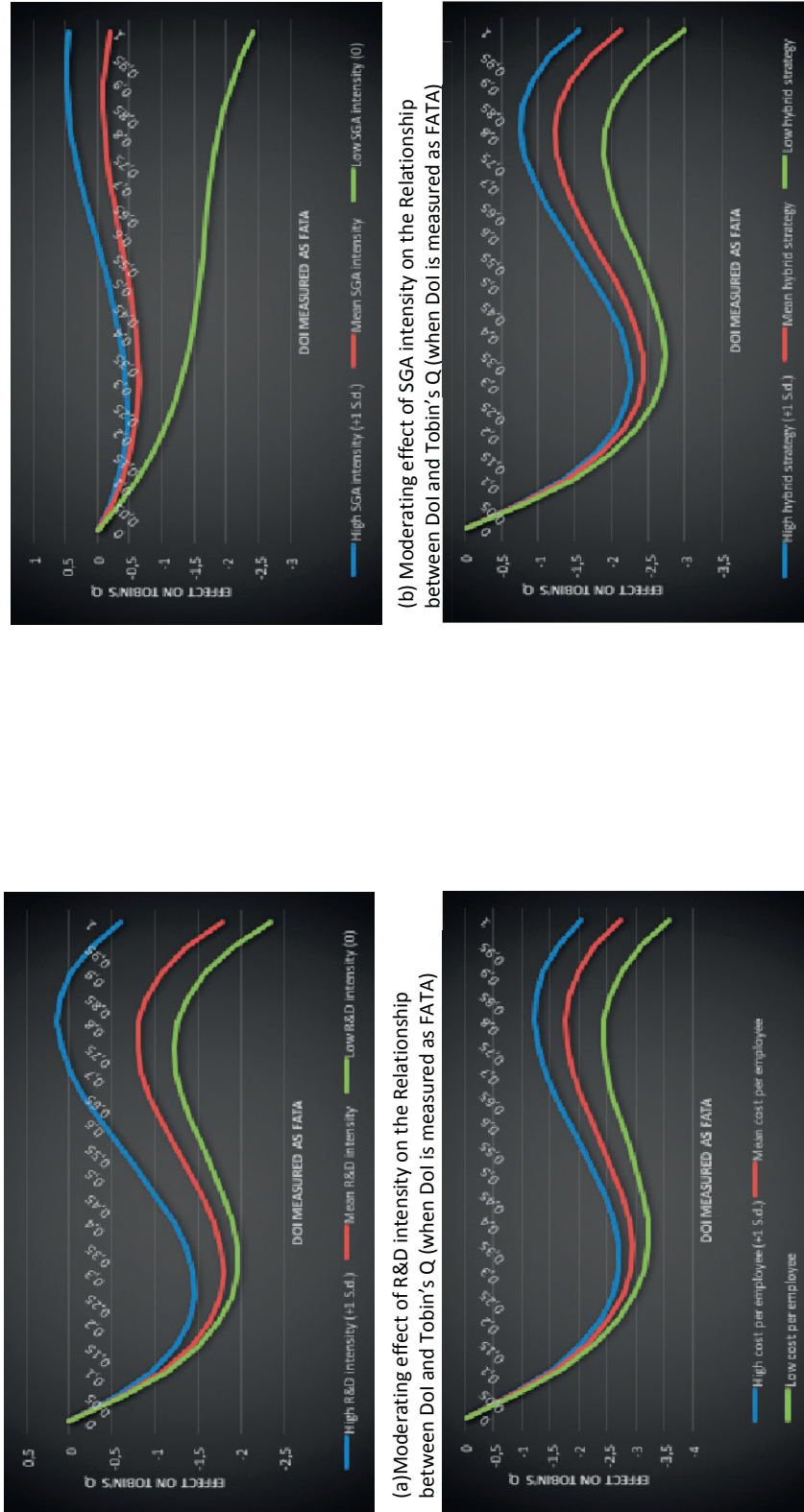


Figure 8. Moderating Effect of (a) R&D intensity, (b) SGA Intensity, (c) Cost Leadership and (d) Hybrid Strategies on DoI (FATA)-Performance Relationship

6.8 Summary of Plots of Moderating Effects on the Relationship between DoI Measured as Composite of FSTS and FATA and Performance

Figure 9 (a) shows the observed relationship between DoI measured as composite and long-term performance with three values of the R&D intensity: sample means, one standard deviation above the mean, and zero (as one standard deviation below the mean would imply a negative value for R&D expenses). For firms following a technology differentiation strategy (High R&D intensity), finding a balance in internationalization has an economically significant importance for their long-term performance whereas, for firms following a low-cost technology strategy (Low R&D intensity), how they balance internationalization has little influence on their performance.

Figure 9 (b) shows the observed relationship between DoI measured as composite and long-term performance with three values of the SGA intensity: sample means, one standard deviation above the mean, and zero (as one standard deviation below the mean would imply a negative value for SGA expenses). For firms following a marketing differentiation strategy (High SGA intensity), finding a proper balance in internationalization has an economically significant importance for their long-term performance whereas, for firms following a low marketing differentiation strategy (Low SGA intensity), how they balance internationalization has little influence on their performance.

Figure 9 (c) shows the observed relationship between DoI measured as FATA and long-term performance with three values of the cost leadership: sample mean, one standard deviation above the mean, and zero (as one standard deviation below the mean would imply a negative value for cost leadership). For firms following a cost leadership, finding a proper balance in internationalization has an economically significant importance for their long-term performance whereas, for firms following a high cost leadership, how they balance internationalization has a little influence on their performance.

Figure 9 (d) shows the observed relationship between DoI measured as FATA and long-term performance with three values of the hybrid strategies: sample mean, one standard deviation above the mean, and zero (as one standard deviation below the mean would imply a negative value for R&D expenses). For firms following a technology differentiation strategy (High hybrid strategies), finding a proper balance in internationalization has an economically significant importance for their long-term performance whereas, for firms following a low-

cost technology strategy (Low hybrid strategies), how they balance internationalization has a little influence on their performance.

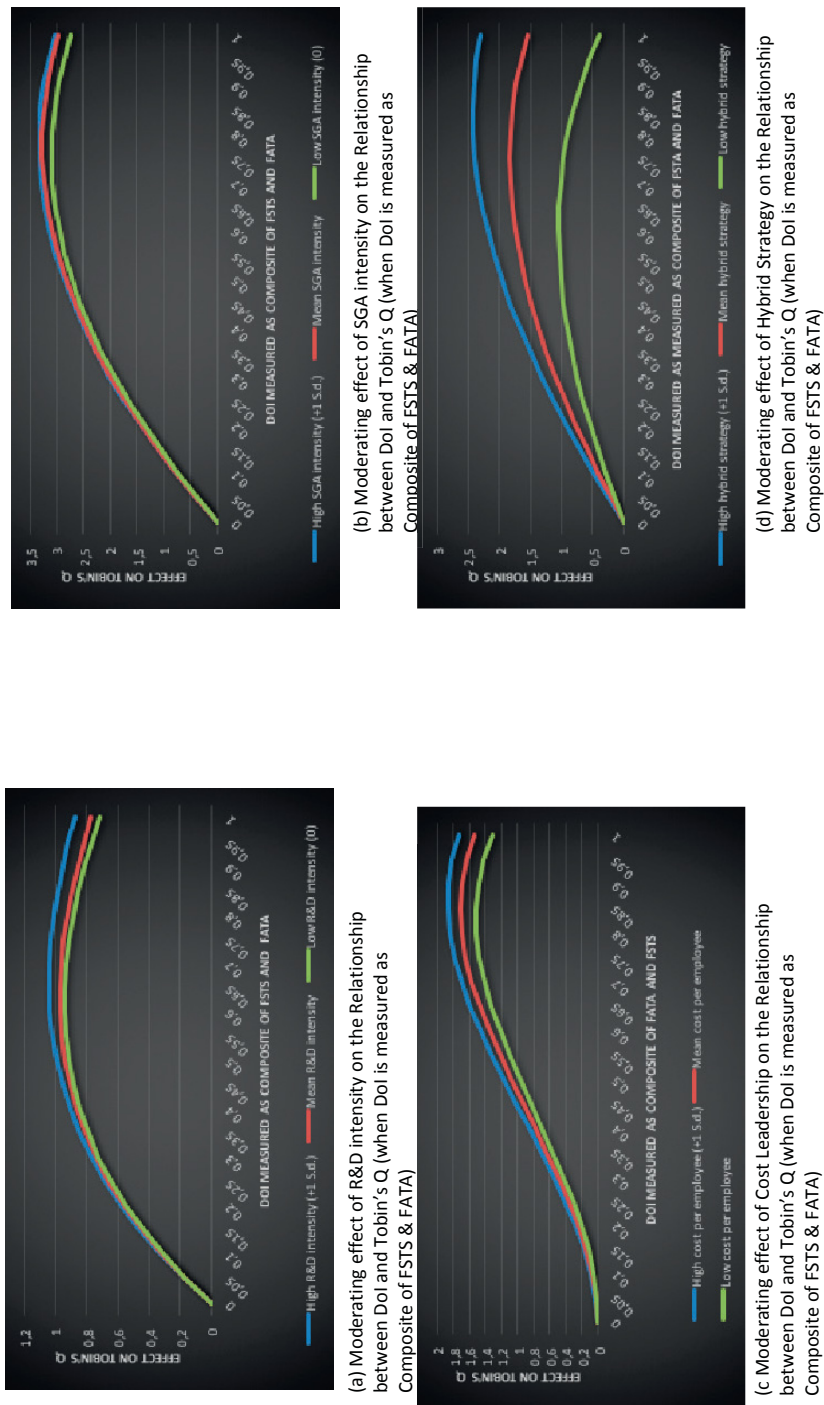


Figure 9. Moderating Effect of (a) R&D Intensity, (b) SGA Intensity, (c) Cost leadership, and (d) Hybrid Strategies on the Relationship Composite

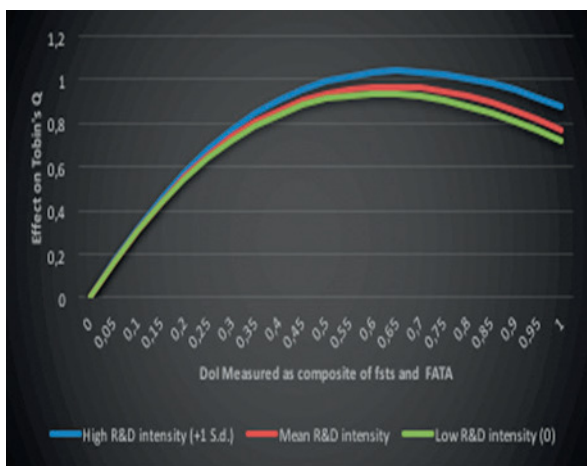
6.9 Moderating Effect of FSAs on the Relationships between DoI and Performance

The observed relationship between DoI measured as composite of FSTS and FATA and long-term performance (Figure 10 (a) and (b)) with three values of the FSAs—R&D intensity and SGA intensity respectively: sample mean, one standard deviation above the mean, and zero (as one standard deviation below the mean would imply a negative value for R&D or SGA expenses). For firms following a high FSAs, finding a proper balance in internationalization has an economically significant importance for their long-term performance whereas, for firms following a low FSAs strategy, how they balance internationalization has little influence on their performance.

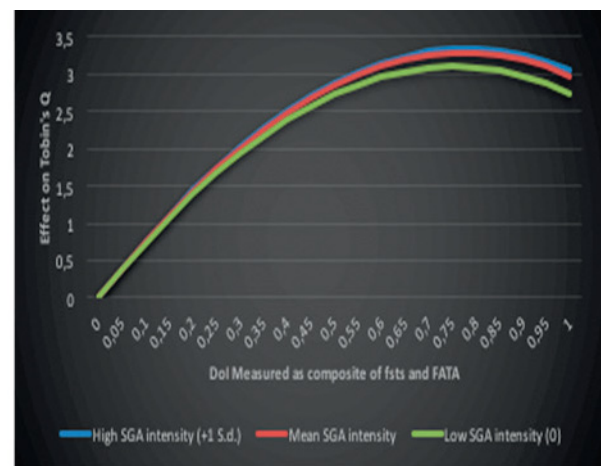
Recalling the definition from section 1.5 and section 2.4 it supports the assertion by Matysiak and Bausch (2012) and others (Hymer 1976; Buckley & Casson 1976). When there is an advantage of intangibles and that becomes crucial for internationalization these are called FSAs. FSAs are measured as R&D intensity and SGA intensity. The role of FSAs has been emphasized in the literature and the summary of which could be found in the meta-analysis that suggests the existence of moderating or mediating effects of FSAs on the relationship between internationalization and performance (Kirca et al. 2012; Kirca et al. 2012).

The view is that FSAs are the cornerstone of internalization theory, which is an important leg of theories in the TST used in this research, which brings the RBV, and the MBV together. As reviewed in section 2.4, Matysiak and Bausch (2012) argued that the S-curve shape of internationalization-performance relationship shifts either lower or higher depending on the level of FSAs. Similarly, Verbeke and Forootan (2012) suggest that in the absence of FSAs the internationalization-performance relationship does not exist.

As a benchmark paper to understand this methodological flaw, I took Lu and Beamish (2004) and Berry and Kaul (2016) which make a noteworthy attempt to test FSAs as moderators between the DoI and performance relationships with the sound logic that the FSAs do not depreciate when applied to multiple markets resulting into economies of scope advantage. Lu and Beamish (2004) only reported a positive effect of R&D intensity while in my case both R&D intensity and SGA intensity are positively moderating the relationship between DoI and performance. However, Berry and Kaul (2016) found no such effect while controlling for endogeneity. Therefore, my contribution lies in resolving these contradictory findings while addressing the methodological flaws discussed earlier such as CMV, endogeneity, and unobserved heterogeneity.



(a) Moderating Effect of FSAs (R&D Intensity) on the Relationship between Composite DoI and Tobin's Q



(b) Moderating Effect of FSAs (SGA Intensity) on the Relationship between Composite DoI and Tobin's Q

Figure 10. Moderating Effect of FSAs on the Relationship between DoI (Composite) and Performance

6.10 Findings when ROA as a Dependent Variable and Summary of the Findings with both Dependent Variables: Tobin's Q and ROA

To assess the separate dependent variable (ROA) all the models were run for which results are reported in Appendix I(a), Appendix I(b), and Appendix I(c) with FSTS, FATA, and composite DoI respectively. The section following this discusses these findings with a comparison to the findings when Tobin's Q is used as a dependent variable.

The findings when DoI is measured as the composite of FSTS and OA as a dynamic capability is measured as a relative exploration are summarized in Appendix I (a). In the tables, apart from Betas, the parentheses include standard errors. Superscripts indicate the level of significance (+ $p < 0.1$ level, * $p < 0.05$ level, ** $p < 0.01$ level, *** $p < 0.001$ level). The model 1 reports the control model where lagged dependent variable, R&D intensity, and size have been used as control variables. The main effects of relative exploration on Tobin's Q (see model 2) has first the negative slope (beta= -6.34^{***}) and the square of exploration has a positive slope (beta= 2.80^*).

As hypothesized, the betas for DoI and performance show non-significant effects. However, these effects become significant in the presence of FSAs (both R&D intensity and SGA intensity). The model 3 has the first positive slope

($\beta=2.69^{***}$), then negative slope ($\beta=-1.45^{***}$), and finally negative slope ($\beta=-0.91^{***}$). Similarly, the model 4 has the first positive slope ($\beta=5.73^{***}$), then negative slope ($\beta=-3.59^{***}$), and finally negative slope ($\beta=-0.63^{***}$). The findings suggest that there is an inverted U-shaped relationship between OA and Tobin's Q and an S-curve relationship between DoI and performance which supported the hypotheses postulated in chapter 4.

The findings when DoI is measured as the composite of FATA and OA as a dynamic capability is measured as a relative exploration are summarized in Appendix I (b). In the tables, apart from Betas, the parentheses include standard errors. Superscripts indicate the level of significance (+ $p < 0.1$ level, * $p < 0.05$ level, ** $p < 0.01$ level, *** $p < 0.001$ level). The model 1 reports the control model where lagged dependent variable, R&D intensity, and size have been used as control variables. The main effects of relative exploration on ROA (see model 2) has first positive slope ($\beta=3.10$) and negative slope ($\beta=-2.48$).

As hypothesized, the betas for DoI and performance show non-significant effects. However, these effects become significant in the presence of FSAs (both R&D intensity and SGA intensity). The model 3 has the first negative slope ($\beta=-5.24^{***}$), then positive slope ($\beta=7.48^{***}$), and finally negative slope ($\beta=-3.24^{***}$). Similarly, the model 4 has the first negative slope ($\beta=-7.37^{***}$), then positive slope ($\beta=4.28^{***}$), and finally negative slope ($\beta=-1.07^{***}$). The findings suggest that there is an inverted U-shaped relationship between OA and Tobin's Q and an S-curve relationship between DoI and performance which supported the hypotheses postulated in chapter 4. The moderating effects are reported in subsequent models—model 3 reports the effect of technology differentiation, model 4 reports the effect of marketing differentiation, model 5 reports the effect of cost leadership (insignificant), and model 6 reports the effect of hybrid strategies.

The findings, when DoI is measured as the composite of FSTS and FATA and OA as a dynamic capability, is measured as a relative exploration are summarized in Appendix I (c). In the tables, apart from Betas, the parentheses include standard errors. Superscripts indicate the level of significance (+ $p < 0.1$ level, * $p < 0.05$ level, ** $p < 0.01$ level, *** $p < 0.001$ level). The model 1 reports the control model where lagged dependent variable, R&D intensity, and size have been used as control variables. The main effects of relative exploration on ROA and DoI on ROA are shown in model 2 where first there is a positive slope ($\beta=5.62$) and a negative slope ($\beta=-6.93$). The findings suggest that there is an inverted U-shaped relationship between OA and Tobin's Q.

As hypothesized, the betas for DoI and performance show non-significant effects. However, these effects become significant in the presence of FSAs (both R&D intensity and SGA intensity). The model 3 has the first positive slope (beta=4.88***), then negative slope (beta=-12.41***), and finally positive slope (beta=5.74***). Similarly, the model 4 has the first positive slope (beta=13.43***), then negative slope (beta=-26.35***), and finally positive slope (beta=12.78***). The findings suggest that there is an S-curve relationship between DoI and performance which supported the hypotheses postulated in chapter 4. The moderating effects are reported in subsequent models—model 3 reports the effect of technology differentiation, model 4 reports the effect of marketing differentiation, model 5 reports the effect of cost leadership (insignificant), and model 6 reports the effect of hybrid strategies. *These findings are in line with internalization theory (Buckely and Casson 1976) which suggests the role of intangibles as FSAs as conditions for the emergence of multinationals.*

The findings in a nutshell for all measures of DoI and two dependent variables—Tobin's Q and ROA are presented in Table 24. Cost leadership does not have a moderating effect on the relationship between relative exploration and Tobin's Q across measures. The concluding thoughts on these foregoing analysis and plotting supports the notion put forward by Contractor (2007) in the following paragraph adapted for authenticity and emphasis on the findings:

“the 3-stage model posits two relatively short periods (Stage 1 and Stage 3) where incremental internationalization produces a net negative effect on profits, and a longer middle Stage 2 wherein the effect of international expansion is (in net terms) positive. Overall, the theory thus posits a sigmoid M/P function. (In empirical practice, the statistically fitted curves may turn out to be U-shaped if Stages 1 and 2 predominate in the sample firms; or Inverted-U-shaped if Stages 2 and 3 are heavily represented in other company samples; or indeed S-shaped if all three stages are well represented as was found in Contractor/Kundu/Hsu 2003, and Thomas/Eden 2004). (This is discussed and depicted later in Figure 3). One inescapable fact remains: In virtually all empirical M/P studies, whether we see a U, Inverted-U, or S-shape, there is embedded in the results a positively sloped leg over some part of the Degree of Internationalization range, thus empirically supporting the notion that international expansion is “good” over some or much of the range. (See Figure 3)” Contractor (2007:459).

The composite DoI measure with Tobin's Q supports this notion but for individual standalone measures such as FSTS and FATA have different shapes

(inverted U shape and negative inverted U-shape). I analyzed the standalone versions also to compare with similar studies using similar measures. This assertion is noteworthy compared to similar other studies and mixed findings. It is noteworthy with similar other studies because current study handles CMV, unobserved heterogeneity, and endogeneity. It is noteworthy compared to meta-analyses such as Krica et al. (2011) and Kirca et al. (2012) because it does not just aggregate the similar findings based on designs which were flawed. The interestingness of the findings on the premise of existing research gap suggests that some studies like Berry and Kaul (2016) are arguing that in the presence of endogeneity the multinationality effect evaporates. Therefore, current study fulfills the major goal of increasing the understanding of antecedents leading to sustainable performance.

Table 24. Summary of Hypotheses Testing with Relative Exploration and DoI: Comparing Three Measures of DoI for both Dependent Variables–Tobin’s Q and ROA

Variable	FSTS-Tobin’s Q	FATA-Tobin’s Q	Composite DoI-Tobin’s Q	FSTS-ROA	FATA-ROA	Composite DoI-ROA
<i>Explanatory variables</i>						
Relative Exploration-Performance (Inverted U-shape)	S	S	S	S	S ¹	S ¹
DoI-Performance Q (S-curve)	S ¹	S ¹	S ¹	S ¹	S ¹	S ¹
R&D intensity x Relative Exploration	S	S	S	S	S	S ¹
R&D intensity (FSA or Differentiation) x DoI	S	S	S	S	S	S
SGA intensity x Relative Exploration	S	S	S	S	S	S
SGA intensity (FSA or Differentiation) x DoI	S	S	S	S	S	S
Cost leadership x Relative Exploration	NS	NS	NS	NS	NS	NS
Cost leadership x DoI	S	S	S	S	S	S
Hybrid strategies x Relative Exploration	S	S	S	S	S	S
Hybrid strategies x DoI	S	S	S	S	S	S

S=supported, NS=Not supported

¹Non-significant results reported in the tables for the main effects become significant in the presence of moderating factors such as FSAs and competitive strategies.

S=supported, NS=Not supported

¹Non-significant results reported in the tables for the main effects become significant in the presence of moderating factors such as FSAs and competitive strategies. Therefore, it is a mixed finding.

6.11 Organizational Ambidexterity and DoI as FSTS: Main and Moderation Effects with Tobin's Q

OA used in the analysis is operationalized as the product of exploration and exploitation. The findings when DoI is measured as FSTS and OA as a dynamic capability is measured as a product of exploration and exploitation (ln) are summarized in Table 25. As shown in the table apart from Betas, the parentheses include standard errors. Superscripts indicate the level of significance (+ $p < 0.1$ level, * $p < 0.05$ level, ** $p < 0.01$ level, *** $p < 0.001$ level). The model 1 reports the control model where lagged dependent variable, R&D intensity, and size have been used as control variables. The main effects of OA on Tobin's Q (see model 2) has first the positive slope (beta= 0.98***) and the square of exploration has a negative slope (beta=-0.06***).

As hypothesized, the betas for DoI and performance show non-significant effects. However, these effects become significant in the presence of FSAs (both R&D intensity and SGA intensity). The model 3 has the first negative slope (beta=-0.42***), then positive slope (beta=1.03***), and finally negative slope (beta=-0.72***). Similarly, the model 4 has the first positive slope (beta=3.27***), then negative slope (beta=-1.52***), and finally negative slope (beta=-0.19***). The findings suggest that there is an inverted U-shaped relationship between OA and Tobin's Q and an S-curve relationship between DoI and performance which supported the hypotheses postulated in chapter 4. The moderating effects are reported in subsequent models—model 3 reports the effect of technology differentiation, model 4 reports the effect of marketing differentiation, model 5 reports the effect of cost leadership, and model 6 reports the effect of hybrid strategies. These models were repeated for DoI as FATA in Appendix II (a) and the composite of FSTS and FATA in Appendix II (b).

The main effects suggest that there exists an optimum level of OA on the performance curve. When OA is lower than an optimum level or higher than an optimum level there is lower performance. Too much of OA has a negative relationship suggesting that one needs to be aware of failure trap of too much of exploration. On the other hand, if it is lower than the optimum, it suggests that firms are focusing on too less on the innovation activities resulting into success trap or exploitation trap. The thrust of strategy making needs to be achieving a balance point where the performance peaks as suggested by an inverted U-shape.

Similarly, an S-curve relationship between DoI and performance suggests that in the early stage due to liabilities of foreignness the cost of internationalization is higher than the revenue effect. As I modeled the net effect of cost and revenue as

suggested by TST, this effect becomes positive during the second stage when economies of scale and economies of scope, learning effects, and effect of FSAs take place suggesting the next positive effect as shown in the second order coefficient in DoI. But the third stage has a negative slope suggesting that the large level of DoI has a detrimental effect on the performance as co-ordination and agency costs become higher than the benefits it gives by going international.

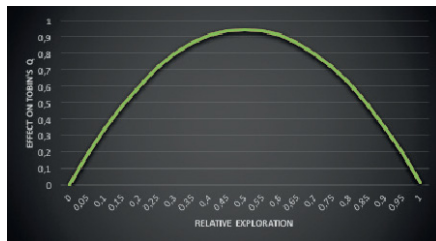
The moderating effects are reported in subsequent models—model 3 reports the effect of technology differentiation, model 4 reports the effect of marketing differentiation, model 5 reports the effect of cost leadership, and model 6 reports the effect of hybrid strategies. Technology differentiation, marketing differentiation, and hybrid strategies (but not cost) have a positive moderating effect on the relationship between OA and performance. When the independent variable is DoI, the moderating effects of technology differentiation, marketing differentiation, cost leadership, and hybrid strategies are significant which support all the hypotheses on the moderation effects of competitive strategies on the relationship between DoI and performance. These impacts will be plotted later and the interpretation and discussion will be done in subsequent chapters

Table 25. GMM Regression of DoI as FSTS and Organizational Ambidexterity with Tobin's Q

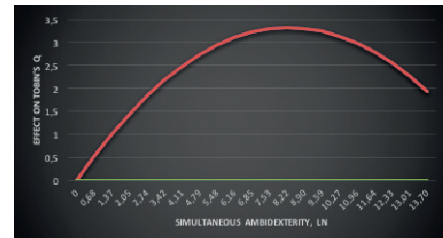
Variable	Model 1 (Control)	Model 2 (Amb & DoI)	Model 3 (Moderating effect of Tech Differentiation)	Model 4 (Moderating effect of Marketing Differentiation)	Model 5 (Moderating effect of cost leadership)	Model 6 (Moderating effect of hybrid)
<i>Explanatory variables</i>						
Ambidexterity, ln		0.98 (0.08)***	1.04 (0.05)***	1.04 (0.05)***	0.71 (0.05)***	0.10 (0.01)***
(Ambidexterity) ²		-0.06 (0.01)***	-0.06 (0.00)***	-0.06 (0.00)***	-0.04 (0.00)***	-0.08 (0.00)***
DoI (Measured as FSTS)		-1.25 (0.35)NS	-0.42 (0.21)***	3.27 (0.35)***	-0.72 (0.20)***	2.26 (0.20)***
DoI x DoI		-1.90 (0.45)***	1.03 (0.23)***	-1.52 (0.29)***	2.25 (0.27)***	-1.43 (0.23)***
DoI x DoI x DoI		0.99 (0.17)***	-0.72 (0.08)***	-0.19 (0.08)*	-1.22 (0.11)***	-0.21 (0.07)**
(Ambidexterity) x (R&D intensity)			0.06 (0.00)***			
(DoI) x (R&D intensity)			0.64 (0.03)***			
(Ambidexterity) x (SGA intensity)				0.07 (0.01)***		
(DoI) x (SGA intensity)				0.47 (0.05)***		
(Ambidexterity) x (Cost leadership)					0.16 (0.01)NS	
(DoI) x (Cost leadership)					0.11 (0.07)+	
(Ambidexterity) x (Hybrid strategies)						0.08 (0.01)***
(DoI) x (Hybrid strategies)						0.55 (0.04)***
SGA Intensity				1.35 (0.12)***		
Cost leadership					1.58 (0.16)***	
Hybrid Strategies						-0.29 (0.15)+
Tobin's Q _(t-1)	0.74(0.02)***	0.83 (0.00)***	0.83 (0.00)***	0.81 (0.00)***	0.83 (0.00)***	0.86 (0.00)***
Size, ln	-0.42 (0.11)***	0.21 (0.02)***	0.11 (0.02)***	-0.29 (0.02)***	-0.01 (0.01)***	0.03 (0.01)*
R&D intensity, ln	0.31 (0.09)*	0.47 (0.03)***	1.49 (0.05)***	0.36 (0.02)***	0.25 (0.01)***	0.96 (0.01)***
NType equation here.	2600	2600	2600	2600	2600	2600
Wald χ^2	9637.95***	912924.43***	1.17e+07***	8.54e+08***	1.47e+08***	6.93e+08***
Hansen	0.04	0.30	0.17	0.96	0.49	0.33
Z ₁ or AR1(p values)	0.01	0.09	0.09	0.13	0.10	0.09
Z ₂ or AR2 (p values)	0.19	0.37	0.38	0.31	0.37	0.38
Number of Groups	247	191	191	204	204	204
Number of Instruments	76	156	188	165	191	191

+ p < 0.1 level, * p < 0.05 level, ** p < 0.01 level, *** p < 0.001 level. For each variables betas are reported first and in the parenthesis standard error is reported.

As shown in Figure 11 (b), the shape of the relationship between OA and Tobin's Q is curvilinear but not the full shape as it was evident on the relationship between relative exploration and Tobin's Q. Even though, both measures support the existence of optimum level of OA as a dynamic capability while too much or too less of it is detrimental to performance.



(a) Relationship between Relative Exploration and Tobin's Q (when DoI is measured as Composite of FSTS)



(b) Relationship between Organizational Ambidexterity and Tobin's Q (when DoI is measured as Composite of FSTS)

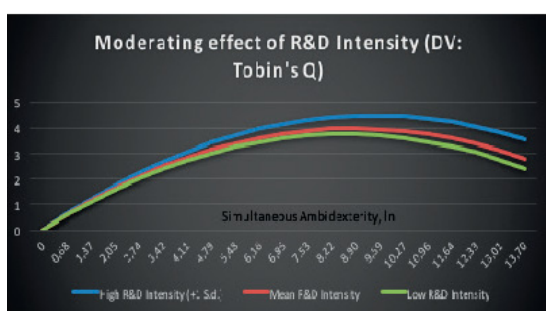
Figure 11. Relationship between (a) Relative Exploration and (b) Organizational Ambidexterity¹ with Performance

¹ (a) and (b) are two operationalization of OA as a dynamic capability. The first being the ratio of exploration divided by the total of exploration and exploitation and the second being the product of exploration and exploitation.

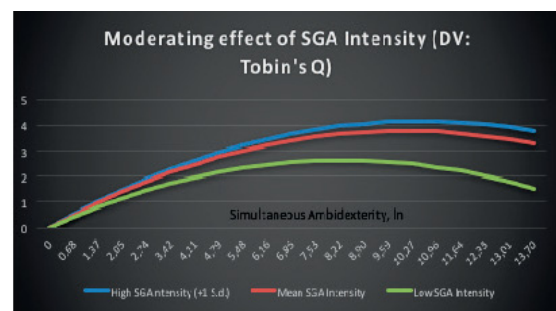
Moderating Effects: Figure 12 (a) shows the observed relationship between OA and long-term performance with three values of the R&D intensity: sample mean, one standard deviation above the mean, and zero (as one standard deviation below the mean would imply a negative value for R&D expenses). For firms following a technology differentiation strategy (High R&D intensity), finding a proper balance between exploration and exploitation has an economically significant importance for their long-term performance whereas, for firms following a low-cost technology strategy (Low R&D intensity), how they balance exploration and exploitation have little influence on their performance.

Figure 12 (b) shows the observed relationship between OA and long-term performance with three values of the SGA intensity: sample mean, one standard deviation above the mean, and zero (as one standard deviation below the mean would imply a negative value for SGA expenses). For firms following a marketing differentiation strategy (High SGA intensity), finding a proper balance between exploration and exploitation has an economically significant importance for their long-term performance whereas, for firms following a low-cost marketing differentiation strategy (Low SGA intensity), how they balance exploration and exploitation have little influence on their performance.

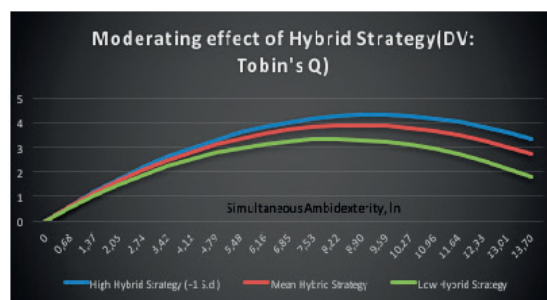
Figure 12 (c) shows the observed relationship between OA and long-term performance with three values of the hybrid strategies: sample mean, one standard deviation above the mean, and zero (as one standard deviation below the mean would imply a negative value for hybrid strategies). For firms following a high level of hybrid strategies (both cost and differentiation above the mean), finding a proper balance between exploration and exploitation has an economically significant importance for their long-term performance whereas, for firms following a low hybrid strategy (both cost and differentiation below mean), how they balance exploration and exploitation has little influence on their performance.



(a) Moderating effect of R&D intensity on the relationship between simultaneous organizational ambidexterity and Tobin's Q (when DoI is measured as FSTS)



(b) Moderating effect of SGA intensity on the relationship between simultaneous organizational ambidexterity and Tobin's Q (when DoI is measured as FSTS)



(c) Moderating effect of hybrid strategies on the relationship between simultaneous organizational ambidexterity and Tobin's Q (when DoI is measured as FSTS)

Figure 12. Moderating Effect of Competitive Strategies on the Relationship between Organizational Ambidexterity and Performance.

FATA. The findings when DoI is measured as FATA and OA as a dynamic capability is measured as a product of exploration and exploitation (ln) are summarized in Appendix II (a). As shown in the tables apart from Betas, the parentheses include standard errors. Superscripts indicate the level of significance (+ $p < 0.1$ level, * $p < 0.05$ level, ** $p < 0.01$ level, *** $p < 0.001$ level). The model 1 reports the control model where lagged dependent variable, R&D intensity, and size have been used as control variables. The main effects of

OA on Tobin's Q (see model 2) has first the positive slope ($\beta = 0.56^{***}$) and the square of exploration has a negative slope ($\beta = -0.03^{***}$).

As hypothesized, the betas for DoI and performance show non-significant effects. However, these effects become significant in the presence of FSAs (both R&D intensity and SGA intensity). The model 3 has the first negative slope ($\beta = -10.32^{***}$), then positive slope ($\beta = 21.14^{***}$), and finally negative slope ($\beta = -12.69^{***}$). Similarly, the model 4 has the first positive slope ($\beta = 0.68^{***}$), then positive slope ($\beta = 2.46^{***}$), and finally negative slope ($\beta = -2.38^{***}$). The findings suggest that there is an inverted U-shaped relationship between OA and Tobin's Q and an S-curve relationship between DoI and performance which supported the hypotheses postulated in chapter 4. The moderating effects are reported in subsequent models—model 3 reports the effect of technology differentiation, model 4 reports the effect of marketing differentiation, model 5 reports the effect of cost leadership, and model 6 reports the effect of hybrid strategies.

Composite DoI. The findings, when DoI is measured as the composite of FSTS and FATA and OA as a dynamic capability is measured as a product of exploration and exploitation (ln), are summarized in Appendix II (b). As shown in the tables apart from Betas, the parentheses include standard errors. Superscripts indicate the level of significance (+ $p < 0.1$ level, * $p < 0.05$ level, ** $p < 0.01$ level, *** $p < 0.001$ level). The model 1 reports the control model where lagged dependent variable, R&D intensity, and size have been used as control variables. The main effects of OA on Tobin's Q (see model 2) has first the positive slope ($\beta = 0.68^{***}$) and the square of exploration has a negative slope ($\beta = -0.04^{***}$).

As hypothesized, the betas for DoI and performance show non-significant effects. However, these effects become significant in the presence of FSAs (both R&D intensity and SGA intensity). The model 3 has the first positive slope ($\beta = 1.63^{***}$), then negative slope ($\beta = -1.42^{***}$), and finally negative slope ($\beta = -0.30^{***}$). Similarly, the model 4 has the first positive slope ($\beta = 8.15^{***}$), then negative slope ($\beta = -7.17^{***}$), and finally positive slope ($\beta = 1.59^{***}$). The findings suggest that there is an inverted U-shaped relationship between OA and Tobin's Q and an S-curve relationship between DoI and performance which supported the hypotheses postulated in chapter 4.

The moderating effects are reported in subsequent models—model 3 reports the effect of technology differentiation, model 4 reports the effect of marketing differentiation, model 5 reports the effect of cost leadership, and model 6 reports the effect of hybrid strategies.

6.12 Organizational Ambidexterity with ROA as a Dependent Variable and Summary with both Dependent Variables: Tobin's Q and ROA

To assess the above-reported findings in the presence of other measures of DoI such as FATA and composite DoI, separate models were tested which are reported in the Appendix III (a), Appendix III (b), and Appendix III (c). OA operationalized as the product of exploration and exploitation and regressed with ROA instead of Tobin's Q. All the three tables are summarized in the summary table 26 where findings with Tobin's Q and ROA as dependent variables are tabulated.

FSTS. The findings when DoI is measured as FSTS and OA as a dynamic capability is measured as a product of exploration and exploitation (ln) are summarized in the Appendix III (a). In the tables, apart from Betas, the parentheses include standard errors. Superscripts indicate the level of significance (+ $p < 0.1$ level, * $p < 0.05$ level, ** $p < 0.01$ level, *** $p < 0.001$ level). The model 1 reports the control model where lagged dependent variable, R&D intensity, and size have been used as control variables. The main effects of OA on Tobin's Q (see model 2) has first the positive slope (beta= 1.18***) and the square of exploration has a negative slope (beta=-0.08***).

As hypothesized, the betas for DoI and performance show non-significant effects. However, these effects become significant in the presence of FSAs (both R&D intensity and SGA intensity). The model 3 has the first positive slope (beta=1.55***), then negative slope (beta=-1.98***), and finally negative slope (beta=2.61***). Similarly, the model 4 has the first positive slope (beta=2.90***), then positive slope (beta=0.90***), and finally negative slope (beta=-2.56***). The findings suggest that there is an inverted U-shaped relationship between OA and Tobin's Q and an S-curve relationship between DoI and performance which supported the hypotheses postulated in chapter 4. The moderating effects are reported in subsequent models—model 3 reports the effect of technology differentiation, model 4 reports the effect of marketing differentiation, model 5 reports the effect of cost leadership, and model 6 reports the effect of hybrid strategies.

FATA. The findings when DoI is measured as FATA and OA as a dynamic capability is measured as a product of exploration and exploitation (ln) are shown in the Appendix III (b). In the tables, apart from Betas, the parentheses include standard errors. Superscripts indicate the level of significance (+ $p < 0.1$ level, * $p < 0.05$ level, ** $p < 0.01$ level, *** $p < 0.001$ level). The model 1 reports

the control model where lagged dependent variable, R&D intensity, and size have been used as control variables. The main effects of OA on Tobin's Q (see model 2) has first the positive slope (beta= 0.59^{***}) and the square of exploration has a negative slope (beta=-0.05^{***}).

As hypothesized, the betas for DoI and performance show non-significant effects. However, these effects become significant in the presence of FSAs (both R&D intensity and SGA intensity). The model 3 has the first negative slope (beta=-8.10^{***}), then positive slope (beta=14.87^{***}), and finally negative slope (beta=-8.91^{***}). Similarly, the model 4 has the first negative slope (beta=-2.20^{***}), then positive slope (beta=5.95^{***}), and finally positive slope (beta=5.95^{***}). The findings suggest that there is an inverted U-shaped relationship between OA and Tobin's Q and an S-curve relationship between DoI and performance which supported the hypotheses postulated in chapter 4. The moderating effects are reported in subsequent models—model 3 reports the effect of technology differentiation, model 4 reports the effect of marketing differentiation, model 5 reports the effect of cost leadership, and model 6 reports the effect of hybrid strategies.

Composite DoI. The findings, when DoI is measured as the composite of FSTS and FATA and OA as a dynamic capability is measured as a product of exploration and exploitation (ln), are summarized in Appendix III (c). In the tables, apart from Betas, the parentheses include standard errors. Superscripts indicate the level of significance (+ p < 0.1 level, * p < 0.05 level, ** p < 0.01 level, *** p < 0.001 level). The model 1 reports the control model where lagged dependent variable, R&D intensity, and size have been used as control variables. The main effects of OA on Tobin's Q (see model 2) has first the positive slope (beta= 0.94^{***}) and the square of exploration has a negative slope (beta=-0.06^{***}).

As hypothesized, the betas for DoI and performance show non-significant effects. However, these effects become significant in the presence of FSAs (both R&D intensity and SGA intensity). The model 3 has the first positive slope (beta=1.18^{***}), then positive slope (beta=2.98^{***}), and finally negative slope (beta=-1.60^{***}). Similarly, the model 4 has the first positive slope (beta=16.93^{***}), then negative slope (beta=-26.95^{***}), and finally positive slope (beta=13.22^{***}). The findings suggest that there is an inverted U-shaped relationship between OA and Tobin's Q and an S-curve relationship between DoI and performance which supported the hypotheses postulated in chapter 4. The moderating effects are reported in subsequent models—model 3 reports the effect of technology differentiation, model 4 reports the effect of marketing

differentiation, model 5 reports the effect of cost leadership, and model 6 reports the effect of hybrid strategies.

Table 26 summarizes the hypotheses when OA is used in the analysis and all measures of DoI are included. Summary of all the findings when OA is analyzed together with FSTS, FATA and composite DoI are summarized in Table 26. The difference between the earlier summary table 24 and the Table 26 is that the earlier table 26 has relative exploration as the main operationalization of OA, while table 26 has OA (product of exploration and exploitation).

Table 26. Summary of Hypotheses Testing (Comparing Three Measures of DoI and Organizational Ambidexterity for both Dependent Variables)

Hypothesis number	Variable	FSTS-Tobin's Q	FATA-Tobin's Q	Composite DoI-Tobin's Q	FSTS-ROA	FATA-ROA	Composite DoI-ROA
	<i>Explanatory variables</i>						
1a, 1b/1c, 1d	OA- Performance (Inverted U-shape)	S	S	S ¹	S	S	S
2a, 2b	DoI-Performance Q (S-curve)	S ²	S ²	S ²	S ²	S ²	S ²
3a, 3b (or 4a, 4b)	R&D intensity x OA	S	S	S	S	S	S
5a, 5b or 6	R&D intensity (FSA or Differentiation) x DoI	S	S	S	S	S	S
3c, 3d (or 4c, 4d)	SGA intensity (FSA or Differentiation) x OA	S	S	S	S	S	S
5c,5d or 6	SGA intensity x DoI	S	S	S	S	S	S
3e,3f (or 4e, 4f)	Cost leadership x OA	NS	NS	NS	NS	NS	NS
5e, 5f	Cost leadership x DoI	S	S	S	S	S	S
3g,3h (or 4g, 4h)	Hybrid strategies x OA	S	S	S	S	S	S
5g, 5h	Hybrid strategies x DoI	S	S	S	S	S	S

S=Supported, NS= Not supported. ¹However, the hypothesis for non-linear effect is valid though the effect sizes were small. ²Significant while moderators are used.

The significant hypotheses as summarized earlier in Table 24 came significant with ROA as well. Similarly, as evident earlier, there is an insignificant

moderating role of cost leadership on the relationship between OA and ROA. However, in these models, the variable for interpretation is OA but not the DoI as the tests were done to assess the relevance of alternative operationalization of OA.

6.13 Post Estimation Analysis: Split Sample Tests

Encouraged by the possibility to do cross-industry and cross-country analysis, I looked for various options to do post estimation analyses. *The major challenge with split sample modeling in system GMM is a challenge when the sample is small the standard errors are downward biased (Arellano and Bond 1991; Blundell and Bond 1998).* When samples are split then the results are not interpretable. I ran following post estimation analyses: country effects, manufacturing versus services split sample, temporal dimension (before and after 2008), capital intensive versus knowledge intensive sample split, and last but not the least the servitization test.

The only full sample test is the servitization test as per the service-dominant logic briefly discussed in the sampling section. The other analyses were not interpretable due to split sample resulting into too small sample introducing small sample bias, that is, downward bias of standard errors. This is particularly problematic when the sample size is small in system GMM and still we need to run instrumental model which results in overfitting bias with the proliferation of instruments. The only relevant post-estimation analysis was to test the impact of servitization on the full-sample. However, one note of caution to this analysis is that the operationalization of servitization was done as CAPEX intensity which in my view is not a robust measure due to data limitation. Therefore, the results should be interpreted with this limitation.

Following the guidelines in section 6.1 for the evaluation of the findings, I reported the findings in Appendix IV. Based on the current phenomenon of servitization (a manufacturing firm bundling services as part of their offerings), I operationalized this phenomenon through capital intensity (CAPEX/sales). The system GMM run shows very interesting findings. Servitization has a positive linear relationship with performance (Tobin's Q). While pursuing servitization and relative exploration together, the latter does not have any support to the inverted U-hypotheses but internationalization has an S-curve relationship intact. All moderating effects (R&D intensity, SGA intensity, and Cost leadership) have a negative moderating effect on the relationship between servitization and performance. But the hybrid strategies have a positive moderating effect on the

relationship between servitization and performance. I discuss the implications of these interesting findings under discussion section.

7 SUMMARY, DISCUSSION, AND CONCLUSIONS

In this chapter, I summarize the findings and reflect on the findings of the existing similar studies. Followed by this, I conclude the dissertation with the contributions and implications. Next, limitations and future research avenues are discussed.

7.1 Summary of the Findings

The main research question of this dissertation was: ***how do firms achieve sustainable performance through organizational ambidexterity, three-stage internationalization and what is the role of FSAs and competitive strategies?*** The main research question presented above was answered and addressed both theoretically and empirically, and hence, the study achieved the following **main goal** and the five **research sub-objectives**: As summarized in Table 27 and Figure 13, now we have an ***increased understanding of the key antecedents to performance such as organizational ambidexterity and three-stage internationalization and the moderating role of FSAs and competitive strategies.***

The five sub-objectives of the study outlined in section 1.3 were:

- To assess the literature on DoI, OA as a dynamic capability, FSAs, and competitive strategies.
- To synthesize a three-stage theory of internationalization anchored in the internalization theory, the RBV, and the MBV.
- To develop hypotheses of DoI (multiple measures) with performance and the moderating effect of competitive strategies and FSAs on the relationship between DoI and performance.
- To develop hypothesis of OA as a dynamic capability (multiple measures) with performance and the moderating effect of competitive strategies on the relationship between OA and performance.
- To empirically test the performance impact of internationalization, OA, and the moderating effect of FSAs and competitive strategies.

The meta-analysis study concluded, "thus, we conclude that the search for more complex relationships (i.e., U-shaped, inverse U-shaped, horizontal S-curve) had the potential to expand our understanding of the underlying basis for the relationship only when the characteristics of different research contexts (e.g., manufacturing vs. services, country contexts), measurement issues (i.e., breadth versus depth of internationalization), and firm characteristics (i.e., revenue generation vs. profit maximization objectives) are taken into account in the theoretical development and research design stages of studies" Kirca et al. (2012:118). Following the research call by a major meta-analysis (Kirca et al. 2012) exploring the context in the internationalization-performance relationship this dissertation addressed the right shape of the relationship in the presence of the moderating effect of FSAs. However, a step further was taken by testing these relationships in a panel data to avoid CMV, endogeneity, and unobserved heterogeneity.

Therefore, the antecedents and moderating variables for the sustainable performance of large-cap and mid-cap companies from the Nordic countries were recommended. In the process, as outlined in the beginning, first, I conducted a review of the literature on OA, the DoI with an eye to anchor them to the key theoretical bases. Second, once the theoretical bases above were accomplished, I selected the most relevant theories based on the review of the literature on key theories such as TST anchored in the internalization theory, the RBV linked with dynamic capabilities based view of the multinational enterprise, and the competitive strategies. Third, I developed hypotheses on the first antecedent (DoI) and moderating effects of FSAs and competitive strategies. Fourth, I developed the hypotheses on the second antecedent OA and the moderating effects of competitive strategies. Fifth, I tested the hypotheses with the data gathered through archival measures and computer aided text analysis (CATA) of annual reports for a period of 2005 to 2014.

Most of the hypotheses were supported as shown in Table 27. However, there was a surprise that needs to be explained. The moderating effect of cost leadership on OA and performance relationship was non-significant. As the focus of the company is on balancing exploration and exploitation it incurs cost in pursuing such an activity. Therefore, cost leadership approach might not be the most beneficial configuration in strategic choice as a moderator. However, differentiation and hybrid strategies have significant effect as moderators on the relationship between OA and performance for both measures.

Table 27. Summary of Hypotheses Testing with Organizational Ambidexterity (Relative Exploration and OA) and DoI (Comparing Three Measures of DoI for both Dependent Variables–Tobin’s Q and ROA)

Hypothesis number	Variable	FSTS-Tobin’s Q ¹	FATA-Tobin’s Q ¹	Composite DoI-Tobin’s Q ¹	FSTS-ROA ¹	FATA-ROA ¹	Composite DoI-ROA ¹
	<i>Explanatory variables</i>						
1a, 1b/1c, 1d	Relative Exploration/OA ¹ - Performance (Inverted U-shape)	S (S)	S (S)	S (S)	S (S)	S ³	S ³ (S)
2a, 2b	DoI-Performance Q (S-curve)	S ³ (S) ³	S ³ (S) ³	S ³ (S) ³	S ³ (S) ³	S ³ (S) ³	S ³ (S ³)
3a, 3b (or 4a, 4b)	R&D intensity x Relative Exploration (Or OA)	S (S)	S (S)	NS (S)	NS(S)	S (S)	S (S)
5a, 5b or 6	R&D intensity (Differentiation or FSAs) x DoI	S (S)	S (S)	S (S)	S (S)	S (S)	S (S)
3c, 3d (or 4c, 4d)	SGA intensity x Relative Exploration (or OA)	S (S)	S (S)	S (S)	S (S)	S (S)	S (S)
5c,5d or 6	SGA intensity (Differentiation or FSAs) x DoI	S (S)	S (S)	S (S)	S (S)	S (S)	S (S)
3e,3f (or 4e, 4f)	Cost leadership x Relative Exploration (Or OA)	NS (NS)	NS (NS)	NS (NS)	NS(NS)	NS (NS)	NS (NS)
5e, 5f	Cost leadership x DoI	S (S)	S (S)	S (S)	S (S)	S (S)	S (S)
3g,3h (or 4g, 4h)	Hybrid strategies x Relative Exploration (Or OA)	S (S)	NS (S)	S (S)	S (S)	S (S)	S (NS)
5g, 5h	Hybrid strategies x DoI	S (S)	S (S)	S (S)	S (S)	S (S)	S (S)

³Significant with moderators but not significant without moderators.

S=supported, NS=Not supported

¹Values in the parenthesis are the results with the OA (OA) which is operationalized as a product of exploration and exploitation, all else remaining similar for DoI and competitive strategies

Figure 13 is a *revised* figure for one set of measurements of antecedents. For OA, the measure is relative exploration. Similarly, for DoI, the measure is composite of both FSTS and FATA. The relationship of relative exploration with performance is curvilinear as expected. Similarly, DoI has an S-curve relationship with performance. The moderating effects are mostly positive for both

competitive strategies and FSAs. To maintain the clarity in the discussion, I will discuss the DoI as the composite of FSTS and FATA and OA as relative exploration in the following section. The only insignificant result is the moderating effect of cost leadership on the relationship between OA and performance. Though the existing literature has not tested this link elsewhere, current logic for the positive hypothesis was based on the rationale that to be successful in balancing exploration and exploitation, a firm must be able to maintain its cost leadership. However, exploration related initiatives incur more cost compared to only exploitation focus. Sometimes, exploration-related projects such as new business model development or R&D initiatives fail, in turn, incurring sunk cost. Therefore, there is non-significant moderating relationship of cost-leadership on the relationship between relative exploration and performance.

As discussed above, therefore, the major issue in interpreting the findings is to understand how the models are specified. Most of the hypothesized relationships are correct with multiple measures of key antecedents (OA and DoI) but there was a discrepancy as well. In FSTS more of the value capture is reflected, while in FATA much of value creation is reflected. In composite, in theory, both should be reflected—cost and benefits. Therefore, the shapes of the plots for each were different. The interesting part of our sample with composite DoI measure suggests that the inflection point between stage 1 and stage 2 happens at 0.1 DoI. Similarly, the inflection point between stage 2 and stage 3 happens beyond 0.75 DoI value. These are strategically important data points for Nordic large-cap and mid-cap companies. If a firm is planning to internationalize, unless and until one reaches 0.1 DoI, there needs to be enough resources to survive before the benefits start to emerge. Between 0.1 and 0.75, the large period of international expansion, there is mainly linear slope. However, a critical point in international expansion is to avoid peripheral nations when the internationalization reaches 0.75 and above.

Therefore, if the internationalization motive is for the value capture, then the S-curve hypothesis is true. In contrast to this, if the motive of internationalization is value creation huge investments are incurred around the globe resulting in negative S-shaped relationships. The net effect of internationalization is not significant in absolute terms but in the presence of FSAs and competitive strategies these relationships turned out to be significant—validating the internalization theory-based reasoning as demonstrated with hypothesis 6.

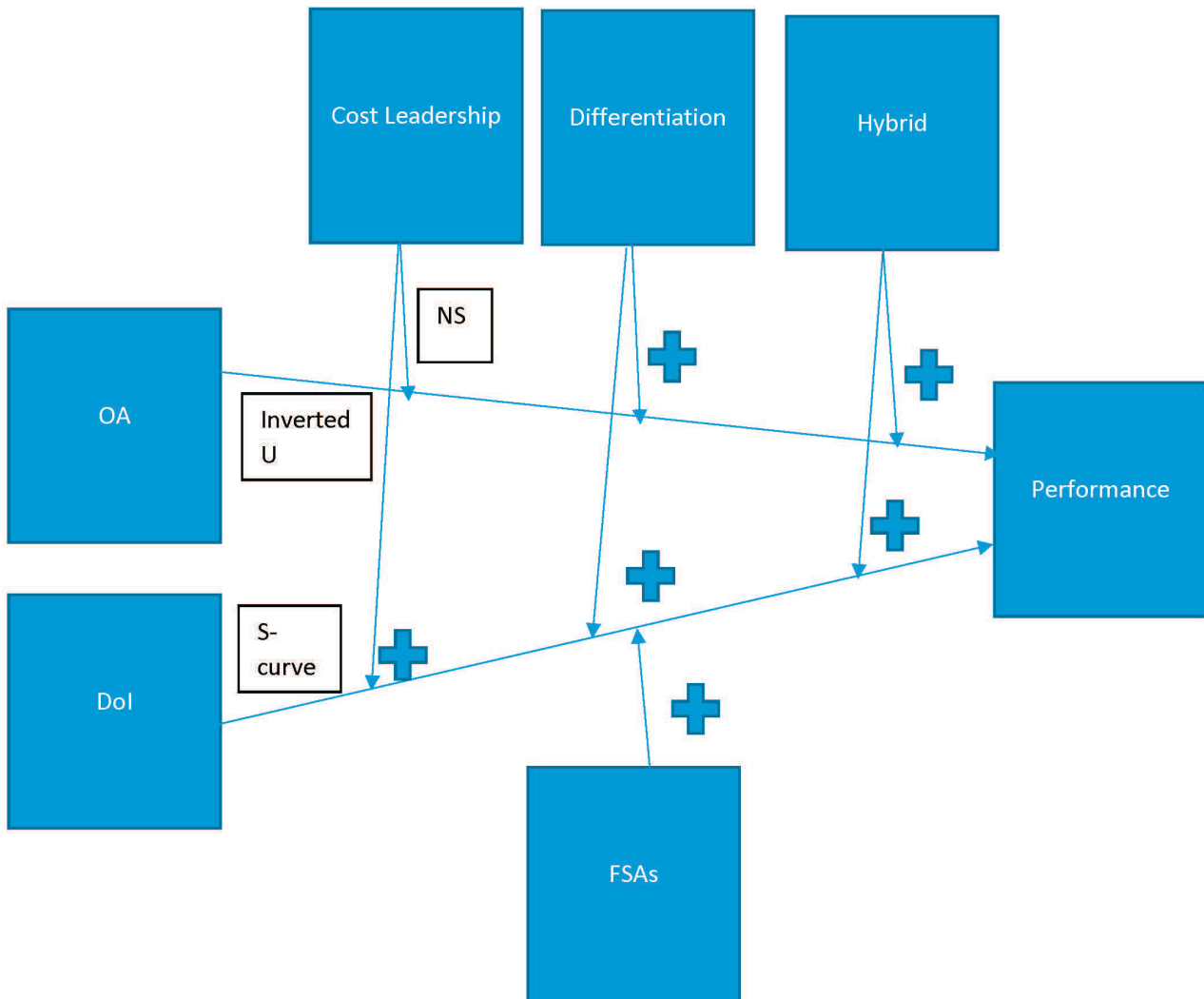


Figure 13. Revised Theoretical Model After the Findings (Organizational ambidexterity measured as relative exploration and DoI measured as Composite of FSTS and FATA)

7.2 Discussions: Revisiting Key Antecedents and Moderators

Current work focused mainly on the conceptualization of OA (operationalized as relative exploration or product of exploration and exploitation) as dynamic capabilities (Tece et al. 1997, Teece 2014). In doing so I started with Barneyan logic of resource inimitability but also followed the Penrosean resource versatility—the latter being the focus of Eisenhardt and Martin (2000) also. The keywords used to measure the exploration and exploitation from the annual reports support the preceding logic and idea suggested by the authors i.e. the

keywords represent the set of specific and identifiable processes such as product development, strategic decision making, and alliancing. This conceptualization and operationalization is a unique contribution to the dynamic capabilities literature and RBV literature also. Resources, if they are unique they create competitive advantage but the reconfiguration of resources through exploration and exploitation activities sustains it. These activities are homogeneous, fungible, equifinal and substitutable in contrast to Barneyan inimitability logic.

The mostly used operationalization of OA (product of exploration and exploitation) also supported the hypothesis of the non-linear relationship. The findings of OA measured as relative exploration and OA and their relationship with performance were interesting. Tushman and O'Reilly (1996) revived the Duncan (1976) thinking on evolutionary and revolutionary change processes with structural separation between two types of activities. A simulation-based paper on exploration and exploitation (March 1991) became popular in the '90s. A major change in the ambidexterity hypothesis came in the year 2004 with a paper by Gibson and Birkinshaw (2004), where a new term called contextual ambidexterity was coined. This triggered a wave of papers to illustrate the contextual factors in the ambidexterity hypothesis. Birkinshaw and Gupta (2013) argued that not all duality issues in management must be looked through the ambidexterity lens. Now a consolidation of thoughts is occurring. As suggested by Birkinshaw and Gupta (2013), the current work contributes to refocusing the ambidexterity research, streamlining the related ideas so that coherence of contributions is possible.

There is a divided school of thought in whether exploration and exploitation have a direct link to performance or are there mediating and moderating effects. As discussed briefly in section 1.2, various authors including March (1991) and O'Reilly and Tushman (2008) suggest that there is a direct link to performance. Venkatraman, Lee and Iyer (2007) even suggest that there is no link to performance. Several authors, such as Raisch and Birkinshaw (2008), Raisch et al. (2009), who support the view that there are moderation effects on the exploration and exploitation relationship with performance. My findings increased understanding on this dilemma by concluding an Inverted-U shaped relationship between the OA and performance which has a positive moderating effect of differentiation and hybrid strategies but not the cost. These are theoretically important aspects in furthering the understanding of OA and competitive strategies literature.

I followed the TST approach through the articulation of positive and negative benefits of internationalization, as done by Contractor (2007, 2012) and

summarized by Matysiak and Bausch (2012) with a clear link to the internalization theory, the RBV, and the MBV. Reinforcing these arguments, current work responded to critiques of Internationalization–Performance (I–P) theory by addressing methodological and empirical (operationalization) flaws. As evident in TST during the early phase of expansion, or during the later phase of expansion, the firm faces lower performance. However, during the middle stage of expansion, there is a net positive benefit effect due to internationalization.

The role of FSAs in DoI-Performance Relationship. Verbeke and Forootan (2012) in response to Contractor (2012) set the standard for evaluating how good are I-P empirical studies with 12 subsets of tests. For elaborated discussion on this kindly see section 4.2. In this critical evaluation of the strong views of I-P link with various shapes, the result is devastating—not a single study fulfilling the 9 subset criteria. On average, only a few subsets have been supported by these 12 prominent studies in the I-P literature. The major implication derived from the critical analysis is that these studies did not consider FSAs as the cornerstones of the emergence of the multinational enterprises. However, as demonstrated in my findings in section 6.9, FSAs have a positive moderating effect on the DoI and performance relationship. These findings are noteworthy since the major methodological flaws have been addressed in such an analysis in contrast to previous standalone and related meta-analysis related studies.

During early phase, due to liabilities of foreignness, the cost of internationalization is higher than benefits it can generate. Similarly, when too much of internationalization the cost is higher than benefit. In these phases the internationalization is detrimental. During the mid-stage, the I-P relationship is linear where benefits are higher than costs. However, Contractor (2012) did not discuss FSAs (Verbeke & Forootan 2012) as the cornerstones of competitive advantage and internationalization. Therefore, my findings are important in linking Contractor's (2012) thinking with proper theoretical rationale anchored in TST as outlined in section 1.4.

7.3 Comparing Findings of This Dissertation with Existing Similar Studies

The following sections compare the findings from the current research with the existing literature to reflect on the key contributions and implications.

7.3.1 Comparing Relative Exploration-Performance with Similar Studies

One of the similar studies to my thesis is by Kim and Huh (2015) as shown in Table 28. By using organizational longevity (life span of each firm in IT-related industries) as a dependent variable and exploration as an independent variable, authors reported an inverted U-shaped relationship. However, my focus is on the balance of exploration and exploitation measured as relative exploration and dependent variables are Tobin's Q and ROA in contrast to organizational longevity used by Kim and Huh (2015). On a key contribution, the authors checked the moderating effect of competitive strategies and environmental dynamism.

Departing from the orthogonal aspect of measuring the exploration and exploitation trade-off, the paper focused on the measure as two ends of a continuum in terms of innovation context. Current work also follows this school of thought. Therefore, comparing current findings with their findings is possible. The key difference between Kim and Huh (2015) and current work is on the way of measurement of exploration and exploitation plus the dependent variable. On the measurements, I follow Uotila et al. (2009) to use a key approach through the keyword counts from the annual reports by computer-aided text analysis (CATA) in contrast to the level of patents.

On the analysis and research design, the study by Kim and Huh (2015) also suffers from the existing problem in the literature—CMV, endogeneity and unobserved heterogeneity. In my view, Kim and Huh (2015) falls into the replication category without furthering the theoretical discourse. However, the common thread linking current study with Kim and Huh (2015) is the inverted U or curvilinear relationship between independent variable and dependent variable. This notion supports the balance of exploration and exploitation (March 1991) for the long-term performance. The moderating effect of competitive strategies (cost and differentiation but not the hybrid) are equally comparable though I did not test the environmental dynamism as done by them, an issue for further research. The moderating effect of hybrid strategy on the relationship between OA and performance is, therefore, unique contribution my study.

In my theoretical choice, I started with Porter (1980) and Barney (1991). Porter (1980), because it gave a wider perspective of competitive strategies and the longitudinal nature of the research problem anchored in the short-term versus long-term orientation as explained by the balance between exploration and exploitation. Barney (1991), because the VRIN resources are accumulated over time, justifying the longitudinal nature of the research problem also.

Most of the research done in this stream of literature is followed Porter (1980; 1985) rather than Porter (1991). Current research reconciled Porter (1980) and Barney (1991) to arrive on the thoughts in Porter (1991) to some extent though Porter (1991) had environmental contingencies also apart from competitive strategies. The major themes in current work were differentiation versus low cost or differentiation and low cost as researched by Hill (1988). Porterian school of thought had always positioned itself on the strategic purity—meaning either low cost or differentiation strategy but not the simultaneous pursuit of the both. The latter was named even harshly the *stuck in the middle* paradox (Porter 1985:17).

The strategy is called “*stuck in the middle*” when the emphasis on all dimensions are low or at the average level. This means one is focusing on both cost and differentiation but not having full potential achieved. The efforts are low or at the average level. On a similar thought provoking and groundbreaking concept Porter (1985:8) claimed that as differentiation is costly as achieving both cost and differentiation is a paradox. I tested, unlike the existing literature, all three forms of strategic choices—cost, differentiation and hybrid (cost plus differentiation). In my operationalization, hybrids are the strategies when both cost and differentiation are combined in each dimension (lower the mean representing the cost leadership and above mean for differentiation). This is similar operationalization as reported by Spanos et al. (2004) and Gabrielsson et al. (2016).

Table 28. Comparing the Findings on Relative Exploration-Performance with Similar Studies

	Key hypotheses	Endogeneity	CMV	Unobserved heterogeneity	Findings
Current work	-inverted U shape between Relative Exploration and performance -Moderating effect of cost, differentiation and hybrid strategies	-handles endogeneity	-handles CMV	-Handles unobserved heterogeneity	-there is an inverted U-relationship between Relative Exploration and Tobin's Q -Cost leadership did not have a positive moderating effect but cost and hybrid support the hypothesis.
Kim and Huh (2015)	-inverted U-shaped relationship between exploration and longevity -the moderating effect of internal and external contexts.	-Does not handle endogeneity	-Does not handle CMV	-Does not handle unobserved heterogeneity	-there is an inverted U-relationship between exploration and organizational longevity. -Differentiation strategy has a positive moderating effect. No test of hybrid.
Uotila et al. (2009)	-inverted the U-shaped relationship between relative exploration and performance.	-Does not mention about endogeneity	-does not mention about CMV	-Does not mention about unobserved heterogeneity	-there is an inverted U-relationship between relative exploration and performance (Tobin's Q)

7.3.2 Comparison of DoI and Performance with Similar Studies

The other two studies from the past listed in Table 29 by Contractor et al. (2003) and Lu and Beamish (2004) were the main papers driving the literature. Contractor et al. (2003) argued for a unified theory of internationalization and performance. However, they did not model the role of FSAs at all. They found S-curve relationship between internationalization and performance (ROS, ROA). Similarly, year after Lu & Beamish studied Japanese MNEs and found the similar result. These studies, though done meticulously at that time, latest literature criticizes them (Berry & Kaul 2016).

As discussed before, Lu and Beamish (2004) was replicated in US data in the year 2016—with no significant result. The only study listed in Table 29 which modeled FSAs, is Lu and Beamish (2004). Therefore, a proper comparison of my research should be against Lu and Beamish (2004). However, current findings suggest that there is a positive effect of SGA while Lu and Beamish (2004) found no effect of advertising intensity while R&D intensity had a positive effect as a moderator. Amidst these mixed findings, I responded to the research call to

tackle CMV, endogeneity, and unobserved heterogeneity and found the S-curve hypothesis coming true in the Nordic sample.

Table 29 also lists Lee et al. (2015) which uses totally different dependent variable—firm value as defined by Ohlson's (1995). Their findings support the most prevalent assertion that multinational firms have the positive effect of internationalization and intangibility on firm value compared to domestic firms. However, there is NO supporting evidence for a mediated influence of intangibility through internationalization on firm value nor for a moderated influence of intangibility on firm value. Departing from this study, current approach was to handle CMV, endogeneity, and unobserved heterogeneity before claiming the findings.

My research answered a call to focus on the disaggregated measures of the DoI (Berry & Kaul 2016) as existing studies are plagued by aggregation (Wiersema & Bowen 2011). Also, the current research answered the gap to use instrumental variables to cater for endogeneity (Hennart 2011; Verbeke & Forootan 2012). I used system GMM where industry and time dummies were used as instrumental variables. As hypothesized, the DoI had an S-curve relationship with performance specially when DoI is measured as the composite of FSTS and FATA. This relationship is positively moderated by cost leadership, differentiation strategy, and hybrid strategies at the same time as expected. The major contribution is the test of hybrid strategy in a panel setting beyond the survey based cross-sectional and mediating role related findings of Gabrielsson et al. (2016).

Invoking the discussions from the hypothesis section 4.2 which compares the existing literature regarding triple-testing of multinationality-performance, current research followed the guidelines of triple testing of multinationality-performance clearly and positions current research as a cornerstone in suggesting FSAs as necessary conditions to realize the internationalization-performance relationships.

Berry and Kaul (2016) did not find supporting evidence on the replication of Lu and Beamish (2004), while I found my findings are significant even after controlling for endogeneity, CMV, and unobserved heterogeneity. Also, they have not tested the role of FSAs at all. Their non-significant findings of multinationality-performance relationships might come significant in the presence of FSAs as moderators as it is in the current case. Nordics have similar pressures to globalize as soon as possible due to small home market in contrast to US MNEs studied in Berry and Kaul (2016). The replication done by Berry and Kaul (2016) is not perfect as they did not test the hypothesis with Tobin's Q but

only with ROA. I have tested the hypothesis with both dependent variables. In the current findings, the role of FSAs as moderators suggest that in many cases the main effects are only visible in their presence—suggesting that these are crucial in the strategic decision.

Research utilizing the idiosyncratic notion of RBV and dynamic capabilities based theory of the firm are rare in the literature. My approach in doing this research is to fill this gap in the literature by linking this thinking with competitive contingencies as suggested by competitive strategies (Porter 1985). In doing this research, I contribute to bringing together two bifurcated domains of dynamic capabilities view through the operationalization as exploration and exploitation. As almost all the hypothesized relationships come true with ROA as a dependent variable, most of the firms are following short-term orientation and may have been in the success trap.

On the DoI and performance link, it is customary to note that I contribute to the stream of literature which supports the S-curve hypothesis. In the latest research, this relationship has been questioned based on endogeneity. In the current research, I used system GMM which handles endogeneity concerns through instrumental variables. By using lagged dependent variable as a control, the model also caters for unobserved heterogeneity. After all proper specification, I found the S-curve hypothesis coming true. Therefore, Berry and Kaul (2016) approach might be an exception to US firms which have a birth right benefit of the huge domestic market. Companies from small and open economies operating in the Nordic markets may have a different context-driven by internationalization as a growth strategy.

Table 2. Comparison of DoI and Performance with Similar Studies

	Key hypotheses	Endogeneity	CMV	Unobserved heterogeneity	Findings
Current work	-S-curve shape between DoI and performance -Moderating effect of cost, differentiation and hybrid strategies	-handles endogeneity	- handles CMV	-Handles unobserved heterogeneity	-there is an S-curve relationship between DoI and performance. -Hybrid, cost, and differentiation strategies have positive moderating effect
Berry and Kaul (2016)	-S-curve shape between DoI and performance -Moderating effect of intangible assets	-handles endogeneity through the instrumental variable approach	-Does not handle CMV.	-Does not handle unobserved heterogeneity	- There is NO S-curve relationship between internationalization and performance. -There is NO moderating effect of intangible assets alike.
Lee et al. (2015)	market positively values the multinational activities of Korean firms, which are operating in a small open economy in which firms have strong motivations for internationalization.	-does not handle endogeneity	-Does not handle CMV.	-Does not handle unobserved heterogeneity	-Multinational firms have the positive effect of internationalization AND intangibility on firm value compared to domestic firms. - NO supporting evidence for a mediated influence of intangibility through internationalization on firm value nor for a moderated influence of intangibility on firm value.
Lu and Beamish (2004)	There is horizontal s-shaped relationship between internationalization and performance There is moderating effect of intangible assets	-does not handle endogeneity	-Does not handle CMV.	-Does not handle unobserved heterogeneity	There is horizontal s-shaped relationship between internationalization and performance There is moderating effect of intangible assets
Contractor et al. (2003)	Sigmoid hypothesis between internationalization and performance	There is sigmoid S-curve relationship between internationalization and performance.	-Does not handle CMV.	-Does not handle unobserved heterogeneity	

On a noteworthy addition to the literature, my research introduced the moderating effect of competitive strategies showing either cost leadership, differentiation, or hybrid approach could be utilized in internationalization of large-cap and mid-cap companies. However, the impacts of these three strategies might be in different effect sizes as depicted in various plots in chapter 6. Therefore, modeling these strategies with an eye to the effect sizes would be highly recommended.

7.4 Conclusions: Theoretical, Empirical, and Methodological Contributions

This section concludes the thesis on the inverted U-shaped relationship between OA and performance and the S-shaped relationship of DoI with performance. Also, the role of FSAs and competitive strategies are discussed regarding the theoretical, empirical, and methodological contributions. As evident in the

preceding sections, the moderating effect of FSAs and that of pure versus hybrid strategies stand as the major contributions of this study through the TST theoretical lens in contrast to the absence of theories in some of the previous studies. I have contributed on the three fronts in the literature. I have developed and empirically evaluated the key antecedents and their relationship to the performance of internationally operating large-cap and mid-cap companies from the small and open economies (SMOPECs).

In summary, I revisited and summarized the research sub-objectives linked to key hypotheses in Table 30. Also, the link to the main research question and related research sub-objective with key findings illustrating theoretical, empirical, and methodological contribution are illustrated in Table 30. The key contributions are several. **First**, the major contributions of the dissertation include that I have brought closer the rival domains of Structure-Conduct-Performance (SCP) (i.e. competitive strategies) paradigm and TST. Anchoring in RBV, I have built a theoretical framework that explains much of the variance in the short-term performance (ROA) as well as in the long-term performance (Tobin's Q).

I have delineated the importance of competitive strategies while nurturing the benefits of the key antecedents (OA and DoI). One issue in my research is the testing of hybrid strategies as moderators in contrast to earlier studies which only modelled pure strategies. The noteworthy finding is that most of the moderating effect of competitive strategies are significant except the cost leadership when modeled as a moderator on the relationship between relative exploration and performance. This concludes that differentiation and hybrid strategies are best suited while pursuing balancing exploration and exploitation strategy through the conceptualization of OA as a dynamic capability. However, in following three stage internationalization, all strategic choices could be followed, including cost leadership. The effect sizes might determine which strategy is better performing in a given setting.

Also, it is important to highlight current findings which address most of the inherent problems in S-curve related studies of DoI and performance. On a noteworthy finding, FSAs are significant moderators on the relationship between DoI and performance, in all cases, the DoI-P relationship is only present when FSAs are included in the model. This validates the key internalization theory conceptualization on the role of FSAs for the emergence of MNEs in a longitudinal setting which controls for CMV, unobserved heterogeneity, and endogeneity. As discussed in the theoretical positioning section 1.4, current work brought three key streams of literature into a coherent whole First, it argued for

TST of internationalization anchored in the RBV, the MBV representing competitive strategies, and the internalization theory representing FSAs. Buckley and Casson (1976) argued based on the foreign direct investment (FDI) to be carried out for the existence of MNEs as the knowledge is a public good within the firm. This FDI reasoning was represented in modeling through DoI measured as ratio of foreign-assets to total assets (FATA).

Current sample resembles towards Lu and Beamish (2004) context (economy relying on the global market as a strategic imperative) in contrast to the large domestic market context of US MNCs as in Berry and Kaul (2016). In the Nordic context, there is an inherent push for internationalization due to small domestic market. In such a market condition the possibility to over- or under-internationalize cannot be denied. The first phase is ruled by liabilities of foreignness. The second phase has a possibility of leveraging international experience, economies of scale and less cost of co-ordination. The third phase is due to over internationalization perhaps explained by agency theory that managers internationalize to maximize their own benefits in contrast to maximizing shareholder's value. The latter implies a strong managerial implication.

Second, the antecedents (OA and DoI) are studied as stand-alone and combined which as well is a key contribution to the best of my knowledge. This is the first study which studies both antecedents (OA and DoI) together. Combining the twin notions of strategic choices of an internationalizing firm following standalone studies are not very relevant when both are crucial in business decision making. Current research context for these antecedents is especially interesting due to the small home market that triggers early internationalization in the firm growth. These notions might be totally different for firms operating in large home markets, such as the US or China for that matter.

As briefly discussed earlier, the dissertation introduced the key contribution to understanding the role of FSAs and competitive strategies on a broader scale. Here, not only the strategic purity but also the hybrid strategies are modeled as moderators. This is one of the great divides in the competitive strategies literature—in earlier studies, the hybrids were neglected completely. I study the combined effect of these antecedents and introduce a key moderating effect of FSAs and competitive strategies (cost, differentiation and hybrid) (Porter 1980).

As discussed before, based on meta-analyses (Kirca et al. 2011; Kirca et al. 2012), the notion of FSAs was proposed as a cornerstone in realizing internationalization benefits. By bringing this notion particularly as a moderator, in developing the hypothesis on internationalization, TST was utilized as a

theoretical lens where the internalization theory, the RBV, and the MBV are combined to explain the inherent relationship between internationalization and performance where FSAs significantly impact the preceding relationships. In all cases, the main effect of internationalization and performance is unrealizable in the absence of FSAs. All meta-analyses only summarize the extant research but they do not tackle the CMV problem, endogeneity, and unobserved heterogeneity. They just replicate the existing literature and make it more generalizable, but this does not solve the problem existing in the IB literature. On a separate twist, without linking the *Strategic Management* literature where RBV and MBV are dominant views, the main relationships outlined above would not be relevant. Thus, the dissertation responded to the research call as per the notion of RBV that has been tested rigorously in the literature and there is a meta-analysis on this front (Crook, Ketchen, Combs & Todd 2008) that demands to seek to understand the moderating effects.

Third, On the methodological front, my research strengthens the need to account for endogeneity concerns in the IB research (Hennart 2011; Verbeke & Forootan 2012). One of the noted approaches in GMM is to use two-step approach (Windmeijer 2005) in specifying the options for analysis. Compared to one step approach two step robust estimator corrects for panel specific autocorrelation and heteroscedasticity. Moreover, system GMM estimator compared to difference GMM estimator allows to include time-invariant regressors such as industry dummies in the analysis. Therefore, the methods used by previous studies have serious limitations of not accounting for panel specific autocorrelation, heteroscedasticity, and effect of time-invariant regressors such as industry dummies.

On the empirical front, the current research solved the measurement problem through the disaggregation and simplification of the DoI measurement through simply taking mostly used measure of FATA, FATA, and the composite of both. Current study tackled the measurement issues as suggested before and took into consideration the dynamic aspects of the model through panel data and having lagged dependent variable as a control variable to control for unobserved heterogeneity and dynamic effect at the same time. Current research design responded to the existing research gap discussed in section 1.2 on endogeneity, unobserved heterogeneity, and CMV through a panel data of 10 years, with lagged dependent variable as a control and handling endogeneity through system GMM approach by using industry dummies and time dummies as instrumental variables.

Table 30. Key Hypotheses and Contributions

Hypotheses	Key finding	Theoretical contribution	Empirical & methodological contribution
Relationship between OA as dynamic capability and performance	Both measures of OA as a dynamic capability had an Inverted-U shaped relationship with performance.	Departing from the linear relationships between OA and performance, current work contributed on a small but emerging literature on the existence of the optimum level of OA—by avoiding both success trap and failure trap inherent in balancing of exploration and exploitation paradox.	Two measures of OA were tested by handling CMV, endogeneity, and unobserved heterogeneity through panel data analysis—responding to the research call for longitudinal research design.
Relationship between multiple measures of DoI and performance	FSTS has an inverted U-shaped relationship with performance as the cubic term was too small to affect the curve. However small, one can argue that there was a tendency to follow S-curve hypothesis. FATA had an S-curve relationship with the performance but the effect is in the negative region. The composite measure of FSTS and FATA resembles a positive S-curve hypothesis coming true.	Departing from the linear relationships between DoI and performance, current work contributed on a small but emerging literature on the existence of non-linear relationship as guided by TST. The TST was outlined in theoretical section.	Three measures of DoI were tested by handling CMV, endogeneity, and unobserved heterogeneity through panel data analysis—responding to the research call for longitudinal research design.
The combined effect of OA as dynamic capability and DoI on performance	The major finding is that these two antecedents (OA and DoI) need to be considered in any strategic adaptation.	Standalone studies are many but this multiple regression suggested that there was a synchronized effect on the performance.	As in Q 1 above.
Moderating effect of competitive strategies (cost, differentiation and hybrid) on the relationships between OA (OA) and performance	The key finding is that the moderating effect of pure strategies was valid for the relationship between OA (i.e. relative exploration) and performance but not the hybrid strategies	Linking both Barnean school of thought and Porterian school of thought in a single model, these two diverging paradigms are reconciled.	As in Q 1 above.
Moderating effect of competitive strategies (cost, differentiation and hybrid) on the relationships between DoI and performance.	Differentiation and hybrid strategies (but not the cost) moderated the relationship between the DoI and performance relationship.	Linking both Barnean school of thought and Porterian school of thought in a single model, these two diverging paradigms are reconciled. A new approach to understanding the internationalization through MST has been articulated.	As in Q 1 above.
The moderating effect of FSAs on the relationship between DoI and performance.	FSAs positively moderated the relationship between DoI and performance.	Validating the rationale of internalization theory, current findings validate the role of FSAs in the internationalization-performance relationships.	As in Q above.

Fourth, one of the key antecedents i.e. OA was anchored in RBV and SCP but conceptualized as dynamic capabilities. This is a major contribution as this conceptualization (OA as a dynamic capability) brings together the bifurcated domain of dynamic capabilities based view as discussed in section 1.4 which has practical implications as discussed under managerial and policy implications. Therefore, mapping the findings about the Rigor-Relevance-Impact Debate (Sudhir 2016) would be plausible in my research setting. Current approach was to do research that is relevant to practitioners (managers and policy makers) without compromising on the academic rigor.

I have differed from the existing literature through the operationalization of OA (relative exploration and OA) through the CATA of annual reports as a data source. Beyond that, I tested the hypothesis with two dependent variables (ROA and Tobin's Q) in a longitudinal and non-linear relationships. Strategic management researchers have been exploring the competitive advantage notion in various ways. Two of them are exploration and exploitation orientation (March 1991) and relative exploration compared to exploitation (Uotila et al. 2009). Though managers are forced to exploit whatever has been achieved for short-term performance, they must think about the second horizon to innovate new products, search for new markets and opportunities. Balancing this trade-off has been the focus of many researchers, and mine as well. In addition to understanding the differential performance through the lens of OA as a DCV of the multinational enterprise (MNE), I complemented this with RBV (Barney 1991) which proposed valuable, rare, inimitable, and non-substitutable (VRIN) resources that are key to a sustainable competitive advantage.

Fifth, as discussed before, the cost leadership does not have the moderating effect on the relationship between OA and performance whereas differentiation and hybrid do. This is a key contribution to this research. As discussed earlier, while following relative exploration as a strategic choice, there is a tendency to incur more cost as exploration activities are costly in nature and in many times these initiatives fail without any benefits. Therefore, while the strategic choice is of balancing exploration and exploitation, the underlying moderating effects should be either differentiation or hybrid strategies. Current work furthers the conversation in OA literature in many folds as shown in table 31. First, responding to the research call from the meta-analysis (Junni et al. 2013:309), I contributed to moving the debate from testing performance effects to a better understanding of when and how OA affects performance. The response to this approach has been to balance exploration and exploitation trade-off. Second, on the issue of choice of methods, most of the existing literature is based on the

survey-based design. The research call was to minimize CMV bias in all cross-sectional studies.

Therefore, my response to this research design call was to conduct a panel data based analysis where the lagging dependent variable is possible so that I could measure x before measuring y. On the choice of performance variable, the research call was to use multiple measures—I responded to this call by using accounting-based measure (ROA) and market-based measure (Tobin's Q). On the level of analysis, the meta-analysis suggested following aggregate level as the best unit of analysis. Therefore, I have used firm-level analysis for this work. Overall, the thesis is well positioned and anchored into existing literature handling the further research call suggested by the meta-analysis (Junni et al. 2013:309).

On a concluding note, the TST of internationalization, OA as a dynamic capability, and the RBV are combined to explain the complex phenomena. Empirically, this thesis has multiple measures for antecedents, moderators, and performance. On the outcome variable, two measures (Tobin's Q and Return on Assets) were compared. Methodologically, this thesis positions itself to stand against the prevalent CMV, endogeneity, and the unobserved heterogeneity problem. Therefore, the thesis contributes in all three fronts—theoretical, empirical and methodological. Based on the contributions on all three fronts, the following section derives implications for practice and policy making.

Table 31. Summary of the Organizational Ambidexterity Literature and focus on current work, "application to current work" field added Adapted and developed from Junni, Sarala, Taras, & Tarba (2013:309).

OA-Performance Relationship	Meta-analysis Results	Implications for Research and Practice	Application to current work
Main effect	+ effect, strong presence of moderators suggested	Move the debate from whether OA influences performance toward a complete understanding of when and how OA affects performance	Linking to wider research question of 'why firms exist': The rhetoric is to balance tradeoff between exploration and exploitation
Moderator: Research method	Surveys are better off than archival ones	Minimize common method bias in cross-sectional studies	Panel data (longitudinal design) with a possibility of lagging variables to avoid CMV
Moderator: Performance measure	Subjective performance measures have stronger effects	Use multiple and fine-grained performances measures in archival studies	ROA and Tobin's Q are used as dependent variable.
Moderator: level of analysis	Stronger at the aggregate level of analysis	Examine how linkages between OA at different organizational levels contribute to performance	Firm-level analysis as the unit of analysis is considered.
Moderator: Industry	Weaker performance in manufacturing industries	Examine industry effects Consider moderators of OA studies conducted in dynamic environments	Knowledge-intensive and capital intensive industries are analyzed.

7.5 Managerial and Policy Implications

The result of this study showed an S-curve relationship between the DoI (composite) and performance. Also, the findings showed the inverted U-shaped relationship between relative exploration and performance. These effects get mixed impact in the presence of competitive strategies. So, what does it mean to managers? Will they be different after understanding the findings from current work? The following section answers these questions further.

The major managerial implication is that managers are advised to avoid early success or exploitation traps and must focus on building long-term exploratory competence. As most of the hypotheses resulted true, the managerial implications are noteworthy. When managers follow an ambidexterity strategic posture, performance is better in both short horizon and the long horizon as measured by ROA and Tobin's Q respectively. But the strong performance during earlier phases declines over time. This implies that too low or too high internationalization does not do well for the companies. Benner and Tushman (2002) suggested that the focus of large companies should be the exploitation but I argued that needs to be balanced through exploration activities.

On the other hand, having internationalization as a strategic choice, which is pervasive in the company, shows early declining, then rising, and later phase declining relationships with performance. Internationalization efforts are crucial for the success of the large and mid-cap companies. Managers need to carefully analyze the role of internationalization in the overall performance of the company. This is because the growth is normally coming from international markets when domestic markets are saturated. However, which strategic position should follow determines the importance and relevance of internationalization strategy. In general, the practical managerial issue about this would also be how managers know where the 'sweet spot' or inflection point should be in three-stage curve. This would support in resource allocation and avoiding stage 3 completely such as above 0.75 on DoI index or plan for resources before 0.1 DoI.

Adopting internationalization strategy or organizational adaptation driven by OA, without proper FSAs (Hymer 1976) and right competitive strategic positioning in the industry will not be sustainable in the long run. Complementing internationalization with proper differentiation, cost and hybrid strategies, at the right moment to leverage VRIN resources is recommended. Having VRIN resources in the home country and exploiting these resources in the global market through internationalization is necessary. Firms from these markets are not only following exploitation strategies, they internationalize for resource-seeking motives as well. The opportunity-seeking approach should be combined with an advantage seeking approach in the internationalization process. These approaches are combined in TST which has three phases of internationalization, and the effect of the RBV is important especially during the second phase of internationalization where economies of scale, economies of scope, and learning advantages come into play.

In this research, the other major construct is OA measured through exploration and exploitation, the trade-offs in learning. This implies that firms with a relative exploration focus are the ones to survive in the long run. The mantra is to learn, learn quickly, and absorb it to innovate. But learning to be good in existing routines is no more sufficient. To survive you need to be able to do creative destruction of your own processes and products. If not, others will make you obsolete. The balance of exploration and exploitation in the presence of technology differentiation demands some discussions on its managerial implications. As discussed in the hypotheses generation, above all the technology differentiation and in that matter the information technology, internet, and internet of things (IoT) have some major implications. I have followed the implications suggested by Porter and Heppelmann (2014) to link to the latest literature on the impact of digitalization, and smart products (not only the IoT

but other sensors, software, control, and automation). In my conceptualization, these are proxied as cost or differentiation advantage and in hybrid (cost plus differentiation). Based on competitive strategies, anticipating the future demands that managers follow the implications of new technological developments (Porter & Heppelmann 2014). Similarly, Porter and Heppelmann (2015) suggested the change in value chains due to smart, connected products.

The role of technology differentiation and other competitive strategies (differentiation, cost, and hybrid) implied that both technology and competition policies should be balanced. This is the major takeaway for policy makers from this thesis. Current work is a step towards understanding the twin levers of competitive advantage for companies originating from SMOPEC countries. The policy makers in these countries can benefit from understanding the complementary roles of balancing exploration and exploitation together with internationalization. Not only that, policy makers can focus on marketing and/or technology differentiation as a cornerstone of securing competitive advantage in the global marketplace.

The policy implications can be categorized on three fronts. **First**, promoting and supporting research and development should be the focus of the government agencies. **Second**, and even distinct from earlier studies, the role of marketing differentiation is found to be crucial for long-term survival while measuring the impact of both measures of performance (ROA and Tobin's Q). I could not compare this finding with the existing literature, but my conclusion is similar to the technology differentiation. Relative exploration and internationalization do matter to the higher level while pursuing marketing differentiation to build a reputation, brand image, organizational heritage, and culture of exploration. **Third**, economies of scale related advantages are not long lasting as cost leadership does not have the impact on the performance when modeled together with OA. However, for internationalization, this strategy works.

7.6 Limitations and Further Studies

There are several major limitations or potential further study issues to this study. **First**, the theoretical choice resulted into four theories applied to understand the antecedents. Even after that in 2016, a meta-analysis has been published which suggested that without the institution-based view the internationalization phenomenon could not be understood (Marano et al. 2016). Internationalization-performance relationship depends on the moderating role of firms' home country formal and informal institutions in a meta-analytic sample across 32 countries

from 1972 to 2012 from 359 primary studies. Compared to other meta-analysis, the current meta-analysis shows the positive DoI-P relationship (though small effect which varies greatly across firms' home countries). Earlier meta-analysis (e.g. Kirca et al. 2012) assumed home country institutions as given which should be clarified as suggested by Marano et al. (2016) with proper conceptualization and operationalization in contrast to using dummy variables or focusing on a single institutional characteristic.

The underlying RBV and MBV notions were challenged by Oliver (1997), whose view is that both resource capital and institutional capital are necessary for sustainable competitive advantage. However, to focus on a few key theoretical lenses, the institution-based view is not considered as a theoretical lens in this dissertation. However, the RBV has diffused quite well into IB research (Peng 2001). Therefore, integrating institution-based view properly to the DoI-P relationship is extremely important. *This enhances the knowledge of the effects of institutional complexity.* On the methodological front, the use of an advanced meta-analytical approach based on both product-moment and partial correlations as effect sizes, makes the results convincing. The meta-analysis of 54 papers studying I-P relationship shows higher impact with the non-US data (U-shaped in contrast to inverted U-shape or S-shaped discussions) (Yang and Driffield 2012). Therefore, future studies should integrate institution-based view and country effects into the discussions and further validations. This was beyond current research scope. Therefore, future studies must incorporate institution-based view in their studies.

The second limitation of this work is the use of moderator based research design in the expense of mediation based research design. Therefore, to cater to this school of thought, researchers need to build a strong argument on the value of FSAs as the cornerstones of competitive advantage and hence the internationalization. Existing literature has not tested this to my knowledge in the empirical setting as suggested by Verbeke and Forootan (2012). Internationalization literature has been divided on the issue of moderation and mediation-based research design, as discussed in the literature review section. Similarly, there has been only a few studies with competitive strategies as moderators and quite a few of the mediation model. The theoretical framework suggested that there could be a logical reasoning to study competitive strategies as moderators instead of mediators. The literature is divided on which path to pursue. For example, Kim and Huh (2015) clearly support the logic for moderation. As demonstrated by Kim and Huh (2015), the panel design is more suited for moderation. On the issue of FSAs as mediators versus moderator, there were two meta-analyses done by Kirca et al. (2011, 2012). Therefore, not to mix

these schools of thought, I decided to focus on moderation logic. However, future studies should test mediation logic also. As I have elaborated before on the choice of moderation framework, mediation framework is equally plausible and even better in explaining the significance of internalization theory. Therefore, future studies need to consider this dimension.

Third, in IB literature, the role of Country Specific Factors (CSAs) are thought to be relevant as well. However, due to the unit of analysis at the firm level, in this dissertation, I chose FSAs as the moderators but not the CSAs. Future studies should consider this aspect in greater details through multilevel analysis. There is a separate school of thought arguing there is an optimal internationalization (Powell 2014) recommended by the model of internationalization. Further research on this front is recommended.

Fourth, on the empirical front, due to data limitations, I could use only three measures of DoI. Future studies with multidimensional measures of DoI are recommended. Also, future studies are recommended to collect more data on R&D intensity as I was limited on this front in Swedish, Danish markets. I tested the models with two dependent variables (Tobin's Q and ROA), but other measures such as ROS and profit could be considered as well. Though there are many measures of OA, I opted to test only two (ratio and product) but an elaborative study on other less used measures would be plausible as well. Though CATA is a superior methodology against its rivals such as surveys when it comes to longitudinal studies, one can always claim that manager's perception is a better-quality data than CATA. These are two differing schools of thought in measurement and I decided to follow the CATA based approach.

Fifth, I used SGA intensity and R&D intensity to measure two conceptual phenomena. The findings are similar in nature but they speak different issues. First one is, FSAs depicting the advantages firms have developed based on intangible assets which are the cornerstones of internalization theory guiding the emergence of multinational firms. Second one is, differentiation strategy depicting the value of innovation, branding and related uniqueness based on competitive advantage literature. One can view this as an advantage in explaining both phenomena from a single measure, while at the same time others might take this as a limitation. Therefore, further research to find better measures for FSAs would be recommended.

Sixth, as evident from earlier studies and my study as well, the shape of the curve between the DoI and performance depends on the stage of internationalization and the measures used. The average sample in the current study suggests that the firms have internationalized very well and they are mostly

in second stage of internationalization. However, the cubic terms are significant even though the effect sizes were small. Therefore, while interpreting the result one needs to understand the nature of the sample and its implications to the relationship between the antecedents and performance.

Seventh, I have introduced my own measure for cost leadership as cost per employee. One could argue that the cost leadership measure is a bit dubious in a cross-industry setting. Clearly some industries are more employee intensive than others. However, not to get spurious result, I have controlled for firm size by log of number of employees.

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APPENDIX I (a): GMM Regression of Doi as FSTS and Relative Exploration with ROA

Variable	Model 1 (Control)	Model 2 (Relative Exploration & Exploration)	Model 3 (Moderating effect of Tech Differentiation)	Model 4 (Moderating effect of Marketing Differentiation)	Model 5 (Moderating effect of cost leadership)	Model 6 (Moderating effect of hybrid)
<i>Explanatory variables</i>						
Relative Exploration		-6.34 (2.34)***	-5.77 (1.34)***	-4.21 (1.67)**	0.25 (0.62)NS	-10.74 (1.17)***
(Relative Exploration) ²		2.80 (0.02)*	-0.72 (0.19)+	3.21 (1.65)*	-2.86 (1.30)*	5.30 (1.04)***
DoI (Measured as FSTS)		0.53 (0.19)NS	2.69 (0.74)***	5.73 (0.71)***	3.93 (0.78)***	2.85 (0.66)***
DoI x DoI		2.30 (1.65)NS	-1.45 (0.96)+	-3.59 (0.77)***	-0.80 (0.97)NS	-0.32 (0.08)NS
DoI x DoI x DoI		-2.35 (0.63)***	-0.91 (0.33)**	-0.63 (0.26)*	-0.87 (0.35)*	-1.29 (0.32)***
(Relative Exploration) x (R&D intensity)			-0.58 (0.30)*			
(DoI) x (R&D intensity)			1.25 (0.09)***			
(Relative Exploration) x (SGA intensity)				5.67 (0.27)***		
(DoI) x (SGA intensity)				0.80 (0.13)***		
(Relative Exploration) x (Cost leadership)					0.40 (0.08)NS	
(DoI) x (Cost leadership)					3.48 (0.33)***	
(Relative Exploration) x (Hybrid strategies)						7.28 (0.56)***
(DoI) x (Hybrid strategies)						6.58 (0.361)***
SGA Intensity				5.44 (0.22)***		
Cost leadership					3.61 (0.66)***	
Hybrid Strategies						1.80 (0.35)***
ROA _(t-1)	0.33(0.02)***	0.37 (0.01)***	0.37 (0.00)***	0.31 (0.00)***	0.36 (0.00)***	0.39 (0.00)***
Size, ln	-1.59 (0.27)***	-1.34 (0.09)***	-1.25 (0.04)***	-0.82 (0.05)***	-1.13 (0.05)***	-1.30 (0.04)***
R&D intensity, ln	0.79 (0.23)***	1.59 (0.17)***	2.15 (0.16)***	1.40 (0.05)***	1.19 (0.08)***	1.00 (0.05)***
N	2600	2600	2600	2600	2600	2600
Wald χ^2	1238.38***	29034.71***	2.04e+06***	7.97e+08***	4.50e+06***	6.05e+06***
Hansen (p-values)	0.05	0.56	0.51	0.97	0.56	0.55

Z ₁ or AR ₁ (p values)	0.00	0.00	0.00	0.01	0.00	0.00
Z ₂ or AR ₂ (p values)	0.23	0.83	0.79	0.55	0.88	0.65
Number of Groups	249	194	194	204	204	204
Number of Instruments	76	156	188	168	194	194

+ p < 0.1 level, * p < 0.05 level, ** p < 0.01 level, *** p < 0.001 level. For each variable, betas are reported first and in the parenthesis, standard error is reported.

Z _a or AL _a (p values)	0.23	0.18	0.19	0.37	0.15	0.24
Number of Groups	249	176	188	204	204	204
Number of Instruments	76	156	176	151	176	176

+ p < 0.1 level, * p < 0.05 level, ** p < 0.01 level, *** p < 0.001 level. For each variable, betas are reported first and in the parenthesis, standard error is reported. For Model statistics, the interpretation guidelines are listed in Table 21

APPENDIX I (c): GMM Regression of DoI as Composite DoI and Relative Exploration with ROA

Variable	Model 1 (Control)	Model 2 (Relative Exploration & DoI)	Model 3 (Moderating effect of Tech Differentiation)	Model 4 (Moderating effect of Marketing Differentiation)	Model 5 (Moderating effect of cost leadership)	Model 6 (Moderating effect of hybrid)
<i>Explanatory variables</i>						
Relative Exploration		5.62 (2.84)*	11.41 (2.25)***	13.55 (1.41)***	1.96 (1.92)NS	3.29 (1.35)*
(Relative Exploration) ²		-6.93 (2.64)**	-13.79 (2.01)***	-12.02 (1.33)***	-7.14 (1.65)***	-5.36 (1.24)***
DoI (Measured as Composite of FATA and FSTS)		-1.26 (2.55)NS	4.88 (1.83)**	13.43 (1.16)***	-3.73 (1.10)***	1.68 (1.28)NS
DoI x DoI		-0.53 (4.54)NS	-12.41 (3.45)***	-26.35 (1.97)***	3.01 (1.96)NS	-0.54 (2.39)NS
DoI x DoI x DoI		-0.13 (2.33)NS	5.74 (1.74)***	12.78 (0.98)**	-1.65 (0.96)+	-1.42 (1.26)NS
(Relative Exploration) x (R&D intensity)			2.71 (0.39)***			
(DoI) x (R&D intensity)			2.07 (0.15)***			
(Relative Exploration) x (SGA intensity)				3.14 (0.44)***		
(DoI) x (SGA intensity)				0.88 (0.13)***		
(Relative Exploration) x (Cost leadership)					6.64 (1.02)NS	
(DoI) x (Cost leadership)					0.31 (0.31)+	
(Relative Exploration) x (Hybrid strategies)						9.80 (1.11)***
(DoI) x (Hybrid strategies)						8.52 (0.40)***
SGA Intensity				3.72 (0.26)***		
Cost leadership					-2.63 (1.63)***	
Hybrid Strategies						1.31 (0.58)+
ROA _(t-1)	0.33 (0.02)***	0.36 (0.01)***	0.34 (0.00)***	0.34 (0.00)***	0.39 (0.00)***	0.37 (0.00)***
Size, ln	-1.59 (0.27)***	-1.77 (0.13)***	-1.42 (0.05)***	-0.79 (0.05)***	-1.44 (0.08)***	-1.41 (0.05)***
R&D intensity, ln	0.79 (0.23)***	0.73 (0.12)***	3.01 (0.21)***	0.98 (0.04)***	0.66 (0.07)***	0.81 (0.08)***
N	2600	2600	2600	2600	2600	2600
Wald χ^2	1238.38***	16505.62***	162506.69***	6.47e+06***	2.22e+07***	979259.57***

Hansen	0.05	0.24	0.19	0.94	0.44	0.44
Z1 or AR1 (p values)	0.00	0.00	0.00	0.00	0.00	0.00
Z2 or AR2 (p values)	0.23	0.55	0.47	0.80	0.57	0.61
Number of Groups	249	203	203	204	204	204
Number of Instruments	76	156	188	174	203	203

+ $p < 0.1$ level, * $p < 0.05$ level, ** $p < 0.01$ level, *** $p < 0.001$ level. For each variable, betas are reported first and in the parenthesis, standard error is reported. For Model statistics, the interpretation guidelines are listed in Table 21.

APPENDIX II(A): GMM Regression of Organizational Ambidexterity and DoI as FATA with Tobin's Q

Variable	Model 1 (Control)	Model 2 (SimAmb & DoI)	Model 3 (Moderating effect of Tech Differentiation)	Model 4 (Moderating effect of Marketing)	Model 5 (Moderating effect of cost leadership)	Model 6 (Moderating effect of hybrid)
<i>Explanatory variables</i>						
Ambidexterity		0.56 (0.07)**	0.59 (0.03)***	0.56 (0.06)***	0.33 (0.06)***	0.48 (0.05)***
(Ambidexterity) ²		-0.03 (0.00)***	-0.03 (0.00)***	-0.02 (0.00)***	-0.02 (0.00)***	-0.02 (0.00)***
DoI (Measured as FATA)		-17.75 (1.72)NS	-10.32 (0.90)***	0.68 (0.93) ⁺	-18.97 (1.22)***	-14.66 (0.86)***
DoI x DoI		40.74 (3.66)***	21.14 (2.02)***	2.46 (1.80) ⁺	40.40 (2.63)***	33.28 (1.82)***
DoI x DoI x DoI		-25.34 (2.24)***	-12.69 (1.28)***	-2.38 (1.05)*	-24.18 (1.61)***	-20.82 (1.11)***
(Ambidexterity) x (R&D intensity)			0.08 (0.01)**			
(DoI) x (R&D intensity)			0.61 (0.06)***			
(Ambidexterity) x (SGA intensity)				0.02 (0.01) ⁺		
(DoI) x (SGA intensity)				0.04 (0.06) ⁺		
(Ambidexterity) x (Cost leadership)					0.02 (0.02)NS	
(DoI) x (Cost leadership)					1.31 (0.12)***	
(Ambidexterity) x (Hybrid strategies)						0.20 (0.02)***
(DoI) x (Hybrid strategies)						1.50 (0.20)***
SGA Intensity				0.42 (0.16)**		
Cost leadership					-1.43 (0.30)***	
Hybrid Strategies						1.27 (0.23)***
Tobin's Q _(t-1)	0.74 (0.02)***	0.80 (0.00)***	0.80 (0.00)***	0.83 (0.00)***	0.80 (0.00)***	0.81 (0.00)***
Size, ln	-0.42 (0.11)***	0.45 (0.04)***	0.55 (0.03)***	0.16 (0.02)***	0.34 (0.03)***	0.39 (0.02)***
R&D intensity, ln	0.31 (0.09)*	0.82 (0.04)***	0.93 (0.06)***	0.19 (0.02)***	0.85 (0.03)***	0.92 (0.03)***
N	2600	2600	2600	2600	2600	2600
Wald χ^2	9637.95***	2.78e+06***	2.51e+08***	1.19e+09***	1.69e+09***	2.76e+08***

Hansen	0.04	0.64	0.96	0.99	0.93	0.81
Z1 or AR1(p values)	0.01	0.12	0.12	0.17	0.11	0.11
Z2 or AR2 (p values)	0.19	0.29	0.28	0.32	0.29	0.29
Number of Groups	247	176	188	204	204	204
Number of Instruments	76	156	176	151	176	176

+ $p < 0.1$ level, * $p < 0.05$ level, ** $p < 0.01$ level, *** $p < 0.001$ level. For each variable, betas are reported first and in the parenthesis, standard error is reported. For Model statistics, the interpretation guidelines are listed in the table 21.

APPENDIX II(b): GMM Regression of Organizational Ambidexterity and Composite DoI with Tobin's Q

Variable	Model 1 (Control)	Model 2 (Amb & DoI)	Model 3 (Moderating effect of Tech Differentiation)	Model 4 (Moderating effect of Marketing Differentiation)	Model 5 (Moderating effect of cost leadership)	Model 6 (Moderating effect of hybrid)
<i>Explanatory variables</i>						
Ambidexterity		0.68 (0.09)***	0.40 (0.06)***	0.47 (0.04)***	0.51 (0.05)***	0.69 (0.06)***
(Ambidexterity) ²		-0.04 (0.01)***	-0.01 (0.00)***	-0.02 (0.00)***	-0.02 (0.00)***	-0.03 (0.00)***
DoI (Measured as Composite of FATA and FSTS)		0.36 (0.54) ^{NS}	1.63 (0.29)***	8.15 (0.37)***	-2.33 (0.30)***	3.64 (0.37)***
DoI x DoI		2.93 (0.95)**	-1.42 (0.55)**	-7.17 (0.56)***	8.89 (0.48)***	-1.46 (0.60)*
DoIx DoIxDoI		-2.50 (0.50)***	0.30 (0.30)+	1.59 (0.28)**	-5.90 (0.25)***	-0.89 (0.30)**
(Ambidexterity) x (R&D intensity)			0.10 (0.01)***			
(DoI) x (R&D intensity)			0.66 (0.03)***			
(Ambidexterity) x (SGA intensity)				0.05 (0.01)***		
(DoI) x (SGA intensity)				0.20 (0.05)***		
(Ambidexterity) x (Cost leadership)					0.26 (0.01)NS	
(DoI) x (Cost leadership)					0.29 (0.09)***	
(Ambidexterity) x (Hybrid strategies)						0.01 (0.02)+
(DoI) x (Hybrid strategies)						2.96 (0.08)***
SGA Intensity				1.13 (0.10)***		
Cost leadership					1.85 (0.14)***	
Hybrid Strategies						1.92 (0.16)***
Tobin's Q _(t-1)	0.74 (0.02)***	0.82 (0.00)***	0.84 (0.00)***	0.78 (0.00)***	0.83 (0.00)***	0.84 (0.00)***
Size, ln	-0.42 (0.11)***	-0.08 (0.02)***	-0.13 (0.02)***	-0.44 (0.03)***	-0.23 (0.02)***	-0.10 (0.02)***
R&D intensity, ln	0.31 (0.09)*	0.30 (0.03)***	-0.07 (0.07)***	-0.04 (0.01)***	0.03 (0.02)***	0.55 (0.02)***
N	2600	2600	2600	2600	2600	2600
Wald χ^2	9637.95***	315204.21***	4.06e+06***	2.34e+09***	5.16e+07***	1.01e+08***
Hansen	0.04	0.24	0.33	0.96	0.26	0.34
Z ₁ or AR ₁ (p values)	0.01	0.04	0.04	0.10	0.04	0.04

Z _z or AR _z (p values)	0.19	0.34	0.34	0.33	0.33	0.33	0.35
Number of Groups	247	201	201	204	204	204	204
Number of Instruments	76	156	188	172	201	201	201

+ p < 0.1 level, * p < 0.05 level, ** p < 0.01 level, *** p < 0.001 level. For each variables betas are reported first and in the parenthesis standard error is reported. For Model statistics, the interpretation guidelines are listed in the table 21.

APPENDIX III (a). GMM Regression of Organizational Ambidexterity and DoI as FSTs with ROA

Variable	Model 1 (Control)	Model 2 (Simultaneous Amb & DoI)	Model 3 (Moderating effect of Tech Differentiation)	Model 4 (Moderating effect of Marketing)	Model 5 (Moderating effect of cost leadership)	Model 6 (Moderating effect of hybrid)
<i>Explanatory variables</i>						
Ambidexterity		1.18 (0.23)***	0.96 (0.14)***	1.62 (0.14)***	0.95 (0.12)***	0.38 (0.11)***
(Ambidexterity) ²		-0.08 (0.02)***	-0.06 (0.02)***	-0.11 (0.01)***	-0.07 (0.01)***	-0.03 (0.01)**
DoI (Measured as FSTs)		-3.88 (1.27)NS	1.55 (0.78)*	2.90 (0.79)*	1.12 (0.71) ⁺	-1.64 (0.56)**
DoI x DoI		10.76 (1.77)**	1.98 (1.01)*	0.90 (0.19) ⁺	4.47 (0.98)***	7.03 (0.74)***
DoI x DoI x DoI		-5.76 (0.65)***	-2.61 (0.34)***	-2.56 (0.36)***	-3.15 (0.36)***	-4.15 (0.27)***
(Ambidexterity) x (R&D intensity)			0.06 (0.02)**			
(DoI) x (R&D intensity)			0.72 (0.12)***			
(Ambidexterity) x (SGA intensity)				0.32 (0.03)***		
(DoI) x (SGA intensity)				0.07 (0.13) ⁺		
(Ambidexterity) x (Cost leadership)					0.27 (0.04)NS	
(DoI) x (Cost leadership)					2.95 (0.22)***	
(Ambidexterity) x (Hybrid strategies)						0.73 (0.05)***
(DoI) x (Hybrid strategies)						9.59 (0.31)***
SGA Intensity				4.57 (0.30)***		
Cost leadership					0.72 (0.49)***	
Hybrid Strategies						0.90 (0.53) ⁺
ROA _(t-1)	0.33 (0.02)***	0.37 (0.01)***	0.36 (0.00)***	0.33 (0.01)***	0.36 (0.01)***	0.38 (0.00)***
Size, ln	-1.59 (0.27)***	-1.27 (0.12)***	-1.51 (0.07)***	-1.14 (0.07)***	-1.24 (0.05)***	-1.35 (0.06)***
R&D intensity, ln	0.79 (0.23)*	2.07 (0.15)***	3.03 (0.17)***	2.07 (0.05)***	1.96 (0.08)***	1.22 (0.07)***
N	2600	2600	2600	2600	2600	2600
Wald χ^2	1238.38***	26201.05***	541584.95***	1.97e+07***	1.29e+06***	8.47e+06***
Hansen (p-values)	0.15	0.79	0.56	0.98	0.81	0.70

Z1 or AR1(p values)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Z2 or AR2 (p values)	0.23	0.81	0.83	0.59	0.88	0.53			
Number of Groups	249	193	193	204	204	204			
Number of Instruments	76	156	188	167	193	193			

+ p < 0.1 level, * p < 0.05 level, ** p < 0.01 level, *** p < 0.001 level, NS Non-significant. For each variable, betas are reported first and in the parenthesis, standard error is reported. For Model statistics, the interpretation guidelines are listed in Table 21.

APPENDIX III (b). GMM Regression of Organizational Ambidexterity and DoI as FATA with ROA

Variables	Model 1 (Control)	Model 2 (Amb & DoI)	Model 3 (Moderating effect of Tech Differentiation)	Model 4 (Moderating effect of Marketing)	Model 5 (Moderating effect of cost leadership)	Model 6 (Moderating effect of hybrid)
<i>Explanatory variables</i>						
Ambidexterity		0.59 (0.15)**	0.70 (0.13)***	2.30 (0.12)***	0.13 (0.16) ⁺	0.35 (0.10)**
(Ambidexterity) ²		-0.05 (0.01)***	-0.06 (0.01)***	-0.19 (0.01)***	-0.03 (0.01)*	-0.03 (0.01)***
DoI (Measured as FATA)		-18.14 (4.25)NS	-8.10 (2.59)**	-2.20 (2.73) ⁺	-20.61 (3.47)***	-13.50 (2.20)***
DoI x DoI		39.19 (9.16)***	14.87 (5.62)**	-5.95 (0.08) ⁺	31.21 (7.27)***	31.47 (5.22)***
DoI x DoI x DoI		-24.63 (5.54)***	-8.91 (3.49)*	3.78 (0.41) ⁺	-15.58 (4.42)***	-20.15 (3.38)***
(Ambidexterity) x (R&D intensity)			0.09 (0.02)***			
(DoI) x (R&D intensity)			3.49 (0.12)***			
(Ambidexterity) x (SGA intensity)				0.45 (0.06)***		
(DoI) x (SGA intensity)				0.52 (0.28) ⁺		
(Ambidexterity) x (Cost leadership)					0.22 (0.07)NS	
(DoI) x (Cost leadership)					1.70 (0.51)***	
(Ambidexterity) x (Hybrid strategies)						0.32 (0.06)***
(DoI) x (Hybrid strategies)						8.83 (0.67)***
SGA Intensity				5.11 (0.53)***		
Cost leadership					-3.77 (0.83)***	0.15 (0.05) ⁺
Hybrid Strategies						
ROA _{t-1}	0.33 (0.02)***	0.51 (0.01)***	0.49 (0.00)***	0.49 (0.01)***	0.52 (0.01)***	0.54 (0.01)***
Size, ln	-1.59 (0.27)***	-0.22 (0.10)*	-0.29 (0.08)***	0.29 (0.06)***	-0.30 (0.08)***	-0.42 (0.07)***
R&D intensity, ln	0.79 (0.23)*	1.58 (0.11)***	3.41 (0.17)***	1.59 (0.05)***	1.77 (0.07)***	2.15 (0.06)***
N	2600	2600	2600	2600	2600	2600
Wald χ^2	1238.38***	26108.68***	1.15e+06***	2.00e+08***	652791.20***	2.06e+07***

APPENDIX V: Word Roots in Content Analysis, Stems of Deductive and Inductive Word Lists Used in the Analysis

To make sure that there is a construct validity, I followed the procedure demonstrated by Uotila et al. (2009). In these approaches the authors used March's (1991) definition as the starting point for the generation of custom dictionaries for exploration and exploitation. The process unfolded by including the asterisk in the keywords in counting the corpus of annual reports (i.e. for the keyword 'search', I used 'search*'). In this approach, all permutations resulting from the keyword 'search' are included such as 'searches, searched and searching'. The keywords used in this deductive approach are based on Uotila et al. (2009:231) and listed in the second column of Table 46.

The deductive and inductive word lists (generated through the corpus by running keywords in context analysis (KWIC)) are mutually exclusive–preventing confounding effects. I compared the CATA based analysis with manual coding which was satisfactory. Therefore, this is a sound approach to follow existing keywords from the literature but build on KWIC as well as shown in the third column in Table 46. I generated a list of over 2000 unique words (as suggested by Keil et al. 2015) that were repeated at least three times in the corpus. After reviewing these words based on the conceptualization of exploration and exploitation based on March (1991), there were one hundred and twenty words that met the definitional criteria. After going through the exclusivity with deductive words, on this round, the final word list resulted into thirty-six inductively derived words whose stems are represented in the third column in the table below. The corpus was prepared by cleaning for unwanted formatting before running the analysis.

Source: Adapted and modified from Uotila et al. (2009:231)

	Deductive word stems	Inductive word stems
Exploration	explor*, search*, variation*, risk*, experiment*, play*, flexib*, discover*, innovat*	Adap*, Creat*, Develop*, Lab*, Patent*, Pioneer*, Prospect*, Research*
Exploitation	exploit*, refine*, choice*, production*, efficien*, select*, implement*, execut*	Administ*, Advert*, Assembl*, Automat*, Commercial*, Commodity*, Deploy*, Increment*, Maintain*, Optimiz*, Routine*