CONCLUSION
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Given the structure of the thesis in three essay format, I used introduction chapter to highlight the key research question, the approaches chosen, the evolution of the three essays, abstract of the essays, and the aims and theoretical positioning of the essays. As the essays are written to stand alone, they carry their own conclusions also. In this conclusion chapter of the thesis, thus the focus is on highlighting some of the key issues- choices of terminology and method including assumptions of the method, scope of alternative theorizing, inferential limitations arising from geographically restricted sampling frame and non random sampling, and the key results of each essay- that help in appreciating that the essays form a coherent story around a theme.

1. Choice of term- ‘approach’ or ‘theory’

Whether ‘configuration approach’ has achieved the status of theory, this has no unanimous conclusion in the literature. Researchers publishing in scholarly strategy, entrepreneurship, and marketing journals- Academy of Management Journal, Academy of Management Review, Organization Science, Strategic Management Journal, Journal of Management, Journal of Business Venturing, and Journal of Marketing - over the years have used the term “configuration theory” (for e.g., Cycyota and Harrison, 2002; Dess, Newport and Rasheed, 1993; Doty, Glick and Huber, 1993; Dow, 1988; Ebben and Johnson, 2005; Fang, Palmatier and Grewal, 2011; Farmer and Maslyun, 1999; Fiss, 2007; Fiss, 2011; Ketchen et al., 1997; Meyer, Tsui and Hinings, 1993; Payne, 2006; Perlow, Gittell and Katz, 2004; Priem and Butler, 2001; Tan, 2007; Van de Ven, Leung, Bechara and Sun, 2012; Vorhies and Morgan, 2003; Whittington, Pettigrew, Peck, Fenton and Conyon, 1999). However, there is also a section of researchers that believe that configuration approach has yet
to travel some distance before it can be crowned as theory (for eg., Donaldson, 2001). Following the first line of researchers, the choice of the term ‘approach’ in this thesis is meant to connote configuration approach as in the ‘theoretical approach or theory’ while acknowledging that a lot yet remains to be crystallized and added to it akin to other prevalent views in strategic management literature, viz., resource based view, dynamic capability view, knowledge based view, and industrial organization based view etc.

2. Choice of method

The choice of method to identify configurations in the third paper is driven by the consonance between the ontological approach of configuration theory and the analytical logic of QCA (Ragin, 1987; 2000; 2008) as highlighted in the recent researches (Fiss, 2007; 2011; Greckhamer et al, 2008). Ragin and Fiss (2008) have argued that the traditional econometric methods focus on correlational connections (a description of average tendencies) and a proportion of variance in the outcome is attributed to each individual independent variable separately. On the contrary, QCA views cases as configuration (constellation) of attributes that can only be analyzed wholly as a package. QCA focuses on the explicit connections (among social phenomena in set theoretic- subset/superset- terms), and uses Boolean logic and systematic comparison to arrive at configurations (Ragin, 2008). Apart from these fundamental differences between econometric and QCA methods of data analysis, the use of QCA is preferred over cluster analysis for following reasons:

1) Multicollinearity: Some of the 8 variables used in the present research have been shown to have correlation in previous researches. Using them to ascertain clusters
would have compromised the objective of maximum homogeneity within clusters, and maximum heterogeneity across clusters (Hair et al. 2009).

2) Sample size: The variable to sample ratio was 8:70 and 8:21 for Indian and UK samples respectively. It was less than adequate for creating meaningful clusters with adequate difference across groups using cluster analysis (Hair et al. 2009). QCA is, however, targeted mainly at sample size ranging from 5 to 100 (Fiss, 2007).

3) Non random sampling: The relatively less willingness of young and privately held firms especially from emerging economies to share their data with outsiders (researchers) posed a problem in approaching the sampling frame randomly. This violates the assumption of sample representativeness in cluster analysis and poses a critical issue in using the cluster analysis (Hair et al. 2009).

4) Equifinality: The strategy research especially configuration theory acknowledges that a particular final position can be reached from different starting points and adopting different paths. Cluster analysis only reveals which set of independent variables (IVs) come together to create meaningful groups such that the groups are adequately different. Different clusters have different sets (and levels) of variables (values) associated with them. No two different sets of variables (or same set of variable with different levels of values) could be associated with same cluster. Thus the core logic of this econometric method does not support the notion of equifinality, and so QCA was chosen.

5) Causal asymmetry: Cluster analysis is also unable to capture the notion of causally asymmetric relationships among variables. QCA allows the researchers to capture such intricate relationship among causes, and with outcome wherein some conditions may be present in select configurations related to some output while few of these
conditions may be absent in other configurations associated with the same output. Cluster analysis does not capture such type of combinations of IVs where same IV may be present in one cluster and absent in another cluster while all such combinations/ clusters could have same level of DV.

6) Identification of necessary and sufficient condition: QCA allows to ascertain the causes as being necessary/ and (or) sufficient for an outcome while looking at a configuration of causes. This is not possible in cluster analysis which looks at group of IVs as a whole and cannot capture the relative role/ contribution of each IV on the DV.

7) Solution adequacy: QCA has measures of coverage and consistency to assess the relative importance of the configurations derived from the analysis. There is, however, a lack of appropriate statistic in cluster analysis that can be used to pinpoint the statistically meaningful difference over the number of feasible clusters (Hair et al. 2009).


3. Issues of methodological assumptions

Researchers in comparative sociology and political sciences, home turf of QCA have engaged in the debates over assumptions and applications of classical linear regression model or traditional econometric method vis-a-vis QCA (for eg., Fiss, Sharapov and Cronqvist, 2013; Ragin, 2005; Seawright, 2005). Specifying the positioning of QCA as a research method, Ragin highlights that “QCA was developed
as a way to formalize case-oriented analysis and thereby provide tools to improve comparative research. The goal of the application of QCA proper (i.e., truth-table analysis) is to help researchers represent and synthesize what they have learned about their cases” (Ragin, 2005: 33). QCA is thus forwarded not as a substitute of econometric method but an alternative approach that tries to balance the key aim of qualitative method, understanding complexity to that of quantitative method which is establishing generalizability (Ragin, 2008). There are three main aspects that comprise causal complexity in QCA, viz., causal asymmetry, conjunctural causation, and equifinality. To study these inherent characteristics of association among causes and between causes and effect in social settings, the assumptions and analytical logic of QCA have been positioned nearer to qualitative methods than that of quantitative methods such as Gauss- Markov assumptions of OLS (including endogeneity, viz., error term from a regression model is correlated with one of the independent variables).

Highlighting this difference of analytical approach of QCA to econometric methods, Ragin adds that “QCA repudiates the assumption that the central goal of analysis is to isolate and estimate the independent effects of causal variables on outcome variables. Instead, QCA seeks to discern the different combinations of causally relevant conditions linked to an outcome. Thus, QCA avoids assuming causal homogeneity and additivity, as it avoids much of the scaffolding of causal inference associated with the use of statistical methods” (Ragin, 2005: p.34). Ragin (2005) also mentions three core assumptions of QCA: 1) the goal of the analysis is causal interpretation, and not causal inference; 2) researchers have sufficient knowledge about the cases under investigation so as to establish meaningful qualitative anchors for categorization; and 3) the relationship between social phenomena under study are characterized by causal
complexity. Thus, QCA “eschews the idea of net effects and the requisite assumptions of causal homogeneity and additivity” (Ragin, 2005: p.35). Under these assumptions, the analysis employed in “QCA is based on the algebra of sets, not on linear algebra, the basis of regression analysis” (Ragin, 2005, p: 37). The figure 1 presented in the essay 2 is not the core model of the essay that is being tested using any econometric method. Hence the issue of circularity/ endogeneity is not an issue for applying QCA (which is more aligned to qualitative methods in logic and assumption than quantitative methods).

In the context of my thesis, figure is merely suggestive of the fact that inclusion of entrepreneurial orientation (EO) to the extant theoretical specification (set of variables) improves the causality among the variables and the feedback loop (that indeed would have casted issue of endogeneity in traditional econometric analysis) is shown to express the implicit understanding that the outcome of one phase of activities (say, first round of life-cycle phase management or strategic planning) is input to the next phase of activities. This allows us to keep the idea that in longitudinal in depth case studies, such feedback linkages would allow us to understand movement of firms across configurations as they grow older alive. If ever tested, the analytical technique for figure 1 will have to be tested with much more sophisticated technique than ordinary least square, most likely the combination of structural and simultaneous equation methods (Hoskisson et al., 1993; Kumar, 2009; Miller, 2006).

4. Scope of applying Complementarity theory

The review and collation of various (fourteen) strategic attributes from strategic orientation typology studies, highlighted that none of the extant typology could
capture the differences across all attributes. This prompted the idea of considering simultaneously effect of EO and market orientation (MO) over the choice of strategic attributes. Where essay 1 differs from the extant typologies is that it allows EO and MO to take values which are beyond dichotomies of present/ absent or high/ low. However, before suggesting the relative mid-range value based combinatorial framework of EO and MO, I tried to empirically explore the idea of complementarity between EO and MO from the data that I collected in India, as the UK sample was too small for this.

A complementarity exists between two activities if simultaneously performing the two activities yields better results that doing them individually (Milgrom & Roberts, 1990). Mathematically, suppose that there are two activities/ choice variables: A₁ and A₂. Each of these can either be performed by firm (s.t., Aᵢ = 1) or not (s.t., Aᵢ = 0) for i = 1, 2. The function Π (A₁, A₂) is supermodular, and A₁ and A₂ are complements only if Π (1, 1) - Π (0, 1) ≥ Π (1, 0) - Π (0, 0), i.e., adding an activity while the other activity is already being performed has a higher incremental effect on performance than performing the activity in isolation (Cassiman & Veugelers, 2006; Milgrom & Roberts, 1990; Milgrom & Roberts, 1995).

Translating this into our situation means (Fiss, Sharapov and Cronqvist, 2013):

\[ \Pi (EO, MO) - \Pi (~EO, MO) \geq \Pi (EO, ~MO) - \Pi (~EO, ~MO) \]

Where, ‘~’ symbol means absence of the choice or that it is not being pursued. So, the above mathematical expression reads that EO and MO are complementary for firm performance only if performance of firms exhibiting both minus the performance of firms exhibiting only MO is greater than or equal to performance of firms exhibiting only EO minus the performance of firms exhibiting none.
Two empirical predictions follow from the theory presented above (Arora 1996, Athey and Stern 1998; Cassiman & Veugelers, 2006).

1: Correlation: Assume that $\Pi (EO, MO, X)$ is supermodular in $EO$, $MO$ and $X$, and $X$ is a vector of exogenous variables. Then, in a cross-sectional study (with heterogeneity in $X$ across firms), $EO(X)$ and $MO(X)$ will be positively correlated.

2: Excluded Variable: Suppose that an increase in $X_k$ increases only $EO$ directly. However, because of the complementarity between activities $EO$ and $MO$, $X_k$ will indirectly increase $MO$.

The first result states that two complementary activities will be positively correlated. Positive correlation, however, is neither necessary nor sufficient for complementarity (Arora 1996). To check this and to make sure that the data collected can be used for empirically testing the complementarity of $EO$ and $MO$, the correlation between these constructs was studied using scatter plotting. The scatter plot reveals that there is indeed a positive correlation between the constructs, however, it does not necessarily suggest complementarity as discussed above.

Figure 1 presents the scatter plot of association between $EO$ and $MO$. The X-axis captures scores on $MO$ and the Y axis captures scores on $EO$. To be able to successfully discern the effect of complementarity between $EO$ and $MO$, I must have had sufficient data points in the all the four quadrants. Taking the tendency of respondents to overstate the values of desirable attributes into account, I choose a higher cut off of 5 to divide each axis into groups of haves and have-nots to observe the tendency among data points (Ordanini & Maglio, 2009). In other words, data points right to the vertical dividing line represents firms that possess higher $MO$ (treated as equivalent to existence of $MO$) whereas as data points to the left represents
firms with lower MO (treated as equivalent to absence of MO for illustration purposes). Similarly, data points above the horizontal dividing line represents firms with higher EO (treated as equivalent to existence of EO) whereas as data points below the line represents firms lower EO (treated as equivalent to absence of EO for illustration purposes).

Figure 1: Scatter plot of EO and MO

Thus, quadrant I is where firms have both EO and MO, quadrant II is where firms only have EO, quadrant III is where firms have neither, and quadrant IV is where firms have only MO. This would have allowed us to check prima facie the variability of performance of firms situated in these quadrants. According to the logic of complementarity, performance differential of firms from the quadrants I and IV
should be at least as much as the performance differential of firms from the quadrants II and III. As clear from the figure, because of the small sample size, very little number of firms are present in quadrants II and IV, rendering the comparison of differences in performance not-meaningful. So, the idea for testing complementarity between EO and MO is reserved for future study employing sufficiently large sample size.

5. Geographical and inferential limitations

The choice of sampling frame – Indian and UK based young firms from high technology sectors- was constrained by the scope of access to only these two geographies, and financial resources. Silicon valley, USA is undoubtedly the place which is most active as far as the firms from the high technology sectors are concerned. Not being able to cover this region poses a limitation in the study in terms of type and nature of high technology industries covered. If covered, sample from Silicon Valley would have provided access to firms from industries such as defence/aerospace, bio science, nano technology, photonics, robotics, and semiconductors etc (Zhang, 2003). Also the differences in configuration arising out of diversity in available leadership attributes, perception of the prevalent environment, and preference for strategic choice (Zhang, 2003) could have yielded some varieties of configurations that have otherwise not come out from studying merely Indian and UK firms. This poses a limitation for the generalization of the findings beyond the industrial sectors and geographies covered in the study. Also within these two geographies (India and UK) the sampling was not random, and the perceptual data was collected from single informant. Although I have checked for non response bias, and for the common method bias during both data collection stage and analysis stages,
it cannot be claimed that the data is absolutely free from these biases. This also presents a challenge with respect to the generalization of findings within the two geographies focused in the study.

6. Results

Essay 1 noted that the three most widely used typologies, viz., Market/Entrepreneurship firms, Entrepreneurship firms, Market oriented firms, and Conservative firms by Atuahene-Gima and Ko (2001); Market driving and Market driven firms by Jaworski, Kohli and Sahay (2000); and Prospector, Analyzer, Defender, and Reactor by Miles and Snow (1978) have used fourteen strategic attributes—environment management capability, adaptive capability, market proactiveness, competitive aggressiveness, risk taking, type of organizational learning, open mindedness towards learning, commitment towards learning, types of innovation pursued, basis of innovation, emphasis on market potential of innovation, focus on stakeholders, type of customers segments best served, and focus on economies of scale/ scope—to justify their use. However, none of these typologies explain the differences over all the fourteen strategic attributes simultaneously. To remedy this, using multi level combinations of the two most widely used strategic orientation types EO and MO, a refined SO typology comprising of Prospector, Analyzer, Proactive defender, Reactive defender, and Reactor is posited. The difference exhibited by each of these types on the key fourteen strategic attributes is elaborated in tabular framework in essay 1. Further, to establish the clear linkage between SO and organizational forms literatures a characteristic organizational profile is also posited for each the proposed SO type. Configurational characteristics—resources, strategy, structure, and environment—chosen for this purpose are those that
have been widely used in researches focusing on young firms and configuration approach, as these two are core themes underlying this thesis.

Essay 2 is driven by the search for appropriate specification to be used for identifying configurations of young firms. Review of configuration theory highlights scope of improvement in the extant specification. Based on crisp-set QCA of data collected from 70 Indian young firms from high technology sector, key findings of this study can be summarized as- EO improves theoretical specification of configuration modelling of young firms; EO is orchestrating theme of young firms’ configuration; EO represents businesses’ philosophy about decision making; crisp set qualitative comparative analysis allows testing for model specification; and market orientation (MO) is not a substitute for entrepreneurial orientation (EO).

Essay 3 aimed at exploring various configurations of eight variables that are sufficient for explaining high performance of young firms from high technology sector. To this end, paper 3 ends with identifying 9 and 5 configurations in Indian and UK contexts respectively. In almost all Indian configurations, there is an absence of large number of top managers with high growth experience. This has been explained as an environmental imperative rather than as organizational choice. The configurations of UK’s young firms exhibit a unanimous presence of high external integration (with supply chain partners) coupled with concurrent absence of three conditions, viz., highly competitive environment, strategic focus on corporate development including domestic and foreign mergers, and high internal integration.

Essay 3 also suggests probable causal mechanisms which are developed pursuant to traditional strategic management process perspective of: environment analysis-resource assessment-choice of strategy-choice of structure, in that order. The essay
also notes the peculiar characteristics of Indian and UK firms’ configurations, compares the configurations that are almost similar across contexts, and offers plausible elaborations for the 14 configurations. This elaboration was driven by author’s case knowledge (study of interview records of respondents and firms websites on how top management of these firms approach strategic management issues within their firms to ensure high performance) (Schneider and Wagemann, 2010). Travelling back and forth between data and the analysis is a key step suggested while employing QCA (Ragin, 1987; Fiss, 2007). This step is aimed at arraying the causes in any configuration into meaningful sequence and deriving meaning from the resultant configurations.

A further elaboration of the precise causal mechanisms in all fourteen configurations across the two contexts is acknowledged as possible extension of the present work. Taking a qualitative approach, in depth longitudinal study of exemplar cases of each of the nine configurations in Indian context and five such configurations in UK context would be required to study how the causal complexities inherent in these configurations unfold as firms grow older. Taking a quantitative approach, a larger data set and appropriate econometric technique would be required to ascertain generalizability of the suggested alternative mechanisms for configurations associated with high performance across contexts. Also as acknowledged in the essay, a different array of configuration results (for e.g. by structural attributes or top managers’ attributes) could be used to test alternative theories related to the classifying conditions (such as structural contingency theory or upper echelon theory respectively) subject to availability of further data.