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A Review of Competitive Repertoire-Action-Based Competitive Advantage

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Abstract

A series of strategic management researches in the competitive dynamics are introduced to tackle on the question of how certain firms are processed to the effective strategies and the ways to sustain their market leadership positions. From the individual action-response dyads (Smith, Grimm, & Gannon, 1992) to the entire repertoire of competitive actions, researchers have developed theoretical framework how competitive repertoire can explain firm's sustainable competitiveness. Competitive repertoire is all started as a way to find out the staging of strategic processes, that are the sequence and speed of actions. And it is shaped by the interplay of multiple competitive actions carried out by the attacking firm and perhaps punctuated by one or more competitive responses made by rivals (Ferrier, 2001). In sum, competitive repertoire can be one of the promising action-based constructs that may be possible to gain a predictive power as well as a more profound understanding of sustaining competitive advantage in the hypercompetitive environment.

Keywords: competitive repertoire, action-based competitive advantage, competitive dynamics, hypercompetitive environment

1. Introduction

The study of competitive repertoire starts from the fundamental question in strategic management. How do firms enjoy their sustainable advantages while others don't? Well planned strategic formulation, coherent corporate structure, hard working labor forces, timely strategic implementation, well-recognized corporate reputation and continuous technological innovation have compounding effects on firm's strategic competitiveness. Or some firms are just lucky to be in a right place, at a right time in a right environmental flavor.

All of these describe organizational (or industry) characteristics *where* certain firms are positioning themselves and *why* certain firms are doing well in a competitive market place. However, we haven't gotten to the question of *how* firms achieve sustainable competitive advantages. A series of strategic management researches in the competitive dynamics are introduced to tackle on the question of how certain firms are processed to the effective strategies and sustain their market positions. From the individual action-response dyads to the entire repertoire of competitive actions, many researchers have investigated the construct of competitive repertoire, and have developed a theoretical framework how competitive repertoire explains firm's sustainable competitiveness. Competitive repertoire can be described as a firm's strategy 'play book', which includes a series of market decision process such as price changes, product line or service alternations, and changes in the scope of business operations (Miller & Chen, 1996). In other words, competitive repertoire contains the patterns of competitive actions, that interact with the industry environment as well as competitors' actions and responses. Between the spontaneous complexity stage (unstable environment) and the repetitive simplicity stage (stable environment), organizations develop their own competitive repertoire that fits into the respective environments.

2. Traditional Views on Action-based Competitive Advantage

Smith, Grimm, Gannon, & Chen (1991) use organizational information processing model to explain the types of actions to which a firm is responding and the capabilities of the responding firm. They explain how competitive actions and responses are initiated, processed, and transferred and help to understand how sources of competitive repertoire are internally communicated within organizational forms. For strategic moves, competitive intelligence information is sequentially processed from the information gathering activities through information analyzing activities to decision-making activities. However, information procession model is unable to explain *why* and *how* competitive repertoire is effectively related to firm's competitive advantage.

Industrial organization economics takes a position that firm's competitive advantage and subsequent performance are primarily driven by industry structure (Porter, 1980). While Porter's framework helps to extend the understanding of strategic management, his model lacks in guiding the subsequent strategies and actions in relation to the chosen industry (Grimm & Smith, 1997). Today's business environment requires firms to constantly update and reassess their strategic positions and strategic directions. To understand such performance variations within an industry, we need to consider the resources and actions of individual firms (Grimm & Smith, 1997). In a static situation, game theory explains the firm level competitive structure. Chen & MacMillan (1992) use the game theoretic framework to study the effects of competitor dependence and action irreversibility on the characteristics of a firm's response to competitive moves, and they explain how blind spots and competitive uncertainty lead to delays in the responses and the subsequent competitive advantage. However, game theory has been limited to expand the scope of competitive dynamics research, since each competitive action carries a message that rivals can interpret and to which they can react at various speed levels.

Resource-based view of the firm (RBV) explains the important attributes of firm specific resources in order to understand how firms build their own competitive advantage (Barney, 1991; Grimm & Smith, 1997). The proponents of RBV argue that competitive advantage is achieved through the ownership of scarce and valuable resources and a firm's manipulation of those resources (Grimm & Smith, 1997). Four characteristics of resources make firms difficult for rivals to imitate - history, causal ambiguity, social complexity, and low substitutability (Barney, 1991).

However, RBV has some limitations. Grimm & Smith (1997) point out that there is possible tautology between strategically relevant firm resources and competitive advantages. If the determinants of competitive advantages are idiosyncratic to each individual firm, it will be difficult to operate the general model on the competitive advantage and empirically test the model to derive the specific recommendations for managers (Grimm & Smith, 1997). RBV also suffers from the underlying assumption of a static market situation that specific firm resources for competitive advantage remain unchanged over the period.

Gnyawali et. al. (2006) integrates network theory with competitive dynamics research. They propose that network resources influence a firm's ability to undertake competitive actions, and that differences in network position among firms are indicative of resource asymmetries between them (Gnyawali et. al., 2006). Because of such differences in network-based resource advantage, firms are likely to differ in both competitive activity (the number of competitive actions undertaken) and competitive variety (the range of competitive action types), and their data from the global steel industry support that firm centrality is positively related to competitive activity and competitive variety (Gnyawali et. al., 2006).

Evolutionary approach points to the stabilizing role played by organizational routines that underlie much of the stability of organizational behavior, accounting for both reliable performance and organizational rigidities (Nelson & Winter, 1982). Evolutionary approach takes Schumpeter's view of competitive advantage, which considers the market as a process of discovery that mobilizes dispersed and previously unidentified information (Grimm & Smith, 1997). Therefore, the key to competitive advantage is rather firm's entrepreneurial discovery and action, often called as "creative destruction" (Grimm & Smith, 1997). The Schumpeter's argument on the competitive advantage has inspired a line of empirical work to test the relationship between innovation, market structure, and firm size, many of which are used as main empirical indicators for competitive action studies.

3. Conceptual Overview of Action-based Model of Competitive Advantage

Grimm & Smith (1997) focus on the series of actions and responses among participating players and they argue that firms should take into account of likelihood, type and speed of competitor's responses. Competitive actions are either externally or internally directed specific competitive moves initiated by a firm to improve or defend its relative competitive position (Chen & MacMillan, 1992; Smith, Grimm, & Gannon, 1992; Chen & Hambrick, 1995; Ferrier, Smith, & Grimm, 1999; Grimm & Smith, 1997). Jacobson (1992) defines a competitive action as any newly developed market-based move that challenges the status quo of the market process; status quo is defined as a routine, ordinary, and patterned competitive behavior (Nelson & Winter, 1982). Thus, a newly created competitive action is intended to capture the Austrian view of competition as new, extraordinary, competitive behavior (Ferrier, Smith & Grimm, 1999). Similarly, a response (or retaliation) is a specific countermove, prompted by a rival's attack, which a firm takes to defend or improve its share or profit position in the industry (Chen, 1996).

Then, what does a firm's competitive action have to do with sustainable advantage or long-term performance?

Not always first action initiator (or first mover) gets the winner prize at all (Lieberman & Montgomery, 1998). According to them, first movers may capture the largest portions of initial sales volume in the growing market, but their sales growth and market share will be at risk without being equipped with their subsequent actions and responses on a timely manner (Lieberman & Montgomery, 1998). A series of balanced, effective and timely strategic actions are the key characteristics for firm's long-term performance. But how do we know when to step back in a defensive position, and when to move forward in an aggressive position? As Miller & Chen (1994) define strategy as repertoire of competitive actions, firms have to formulate the scale and path of competitive actions in order to win over rivals and to achieve their long-term sustainable performance. According to Grimm & Smith (1997), there are four different types of competitive actions: entrepreneurial, Ricardian, deterrent, and co-optive actions.

Entrepreneurial actions are originated from the accurate understanding of market analysis and the efficient usage of firm resources. Since entrepreneurial actions involve "new combinations," they often involve innovation and first-mover advantages (Grimm & Smith, 1997). By taking entrepreneurial action when others are either uncertain of the payoffs or unaware that the action has occurred, resource poor firms may avoid the head-to-head competition. These are due to information asymmetries among rivals, which when resolved, lead to an action that can be perfectly and quickly imitated. Entrepreneurial actions include the introduction of new products or services, product or service improvements or efficiency enhancements, geographic or segment transfer, and response to supply shortage (Grimm & Smith, 1997).

Ricardian actions have been further developed among those with the Resource-based view of the firm (RBV), arguing that a firm's competitive advantage is a function of its unique resources (Grimm & Smith, 1997). Firms with specific resources are capable of engaging in the fierce competitive mode with rivals as long as their specific resources are maintained for certain period of times. An example of Ricardian action is to set a low price in anticipation of price war, winnable because of a cost advantage derived from large-scale plant and equipment. Another example is to set a premium price based on the product differentiation with a superior product quality.

Grimm & Smith (1997) define deterrent actions as including limit or predatory pricing, extensive advertising and promotion, investing in excess capacity, product proliferation, and preemptive patenting. Firms may have a discernible external resource advantage derived from a market power or market leadership, and those with such resource position undertake deterrent actions to achieve advantage (Grimm & Smith, 1997). Deterrent actions delay responses through intimidation such as dominant firms can set a lower price than would otherwise be profitable so as to limit rivals and deter their responses (Grimm & Smith, 1997).

Co-optive actions are designed to limit or reduce rivalry, and sometimes firms do act co-optively against the regulatory bodies (Grimm & Smith, 1997). When resources and competitive strength are relatively equal among firms and, because of product maturity and stability, there is little opportunity to exploit competitive uncertainty or blind spots, then co-optive actions can be effectively used among existing players. Co-optive actions include signaling advance information on price changes, disclosure of prices and other competitive pricing information (Grimm & Smith, 1997).

3.1 Definitions of Competitive Repertoire

Conceptually, firms may take any four of competitive actions (Grim & Smith, 1997) or the combinations of two or more. But, it is difficult to observe how firms make their internal decisions on the total number of and the different types of competitive actions. Nelson & Winter (1982) offer a possible explanation that firms remember by doing, therefore, firms learn by taking actions and judging the effectiveness of the actions. Successful actions, ones that delay opponent's responses and generate their own profits, are reinforced and routinized into a firm's action repertoire. Grimm & Smith (1997) argue that unsuccessful actions lead to further action experimentations that lead to explain the relationship between the different types of actions and firm performance.

Competitive repertoire, defined by Miller & Chen (1996), is a set of market actions used by an organization during a given period to attract, serve and keep customers and other constituents in the market. D'Aveni (1994) defines repertoire as the sum of firm's specific resources under the ever-changing environment. He further describes repertoire as the use of simultaneous and sequential strategic thrusts for specific opportunities in a dynamic environment. Simply put, competitive repertoire can be a series of modulated and market-oriented strategic decisions such as price changes, product line or service alternations, and changes in the scope of operations (Chen & McMillan, 1992; Miller & Chen, 1994). It represents an important extension of prior research that emphasizes the interdependence among rivals in terms of dyadic actions and responses (Smith, Grimm, & Gannon, 1992). It is shaped by the interplay of multiple competitive actions carried out by the attacking firm and perhaps punctuated by one or more competitive responses made by rivals (Ferrier, 2001). It is a way to figure out the strategic staging in the speed and sequence of action processes, which can be used as empirical indicators to test the firm level performance such as market share and profitability (Ferrier, 2001).

3.2 Sources for Competitive Repertoire

External sources of competitive repertoire are categorized into three aspects of environmental characters – market diversity, market growth and market uncertainty (Smith, Grimm, & Gannon, 1992; Grimm & Smith, 1997). Miller & Lant (1996) find that the level of repertoire simplicity differs across industries, and it will have an impact on organizational performance in different environments. Audia et. al. (2000) examine the US airline and trucking industries over a ten-year period surrounding a discrete and radical environmental change, a deregulation. Their result is consistent with the prior studies that past success leads to strategic persistence after controlling for market diversity, size, and CEO change – three variables often times being associated with inertia. Their implications further extend to the dysfunctional consequences of strategic persistence after a discrete and radical environmental change (Audia et al., 2000).

Environmental changes are often ambiguous, and the interpretations of such environmental changes play a large part in shaping the future actions and the continuing effectiveness of an organization (Chattopadhyay et. al., 2001). Executives appear to categorize many environmental changes as being either threats or opportunities (Dutton & Jackson, 1987). These categorizations influence the executive reactions to environmental changes and, consequently, may influence organizational actions (Dutton & Jackson, 1987). Chattopadhyay et. al. (2001) attempt to explicate and assess the executive perceptions toward environmental threats and opportunities, and link them with subsequent organizational actions. In doing so, they test whether such an elaborated interpretation of threat and opportunity results in the valid model of influencing executive's perceptions of environmental changes on organizational actions.

Internal sources include firm's top management team heterogeneity, past performance, organizational slack, firm age and firm size (Miller & Chen, 1996; Ferrier, 2001). Top management team heterogeneity, as a proxy for the breadth of competitive experiences, can affect the firm's formation of competitive repertoire (Ferrier & Lyon, 2004). Each move represents an instance of a decision, or a bounded set of decisions, in which multiple executives are typically involved, in other words, competitive actions and responses represent different decision situations that have something to do with heterogeneity of decision makers (Hambrick, Cho, & Chen, 1996). While top management team heterogeneity typically has a negative relationship with the speed of competitive moves, it often times improves firm's environmental scanning and decision-making quality related to the emerging product-market innovations. However, firm level performance can be also influenced by other determining attributes such as employee morale or organizational culture.

Both firm age and firm size are also very important sources in defining the firm's specific competitive repertoire (Miller & Chen, 1996). Almost all studies have assumed that the incumbents have more extensive sets of competitive repertoire than those of the start-ups. However, the results are rather mixed with what the dominating factors are to shape up the characteristics of competitive repertoire. Typically, firm age has a positive relationship with competitive simplicity. With regards to firm size, larger firms tend to have a complex competitive repertoire than that of smaller firms. Audia et. al. (2000) study this construct in two separate cases, and authors propose that once organizations achieve success, their natural tendency is to continue to exploit the strategies that have worked in the past. Previous research has shown that past organizational success leads to strategic persistence – a tendency for firms to stick with strategies that have worked in the past (Miller & Chen, 1994). Success drives managers to whittle down their repertoires to zero in on what they believe is the path to success (Miller & Chen, 1996).

RBV Researchers argue that a simplified repertoire puts firms to be on a competitive edge. Firms with a focused strategic attention develop unique and hard to copy skills that can be beneficial both in creating a competitive advantage and in building valuable and rare resources (Miller & Lant, 1996). Usually, such persistence is beneficial, but when environment changes do occur, it may prove to be detrimental (Audia et. al., 2000). Ferrier, Smith & Grimm's (1999) findings are consistent with those of Miller & Chen (1996), who find a negative relationship between action repertoire simplicity and a revenue-based efficiency measure of performance. In addition, Lumpkin & Dess (1995) conduct a field study that competitive simplicity plays an important role in making a strategy-making process. They find that a simplistic strategy-making process is positively associated with performance during early stages of organizational development but detrimental to performance as organizations grow and mature in a dynamic and heterogeneous environment.

4. Action-based Competitive Advantage – Competitive Repertoire

As previously discussed, firm's various internal and external sources influence the formulation and the execution of competitive repertoire. While it is difficult to plan ahead of times for all the possible external sources, the firm's readiness to be equipped with specific internal resources to different competitive environments will determine the volume, duration, complexity and unpredictability of firm's competitive actions. Therefore, the action-based competitive advantage explores the dimensions of action characteristics such as frequency, speed, simplicity, magnitude, and radicality (Grimm & Smith, 1997; Smith, Grimm, & Gannon, 1992).

While competitive strategy has been focused on the firm level competition, but the action-reaction unit of analysis further depicts the characteristic of competitive dynamics (Smith, Grimm, & Gannon, 1992). Schumpeterian economists elaborate that the central unit of analysis in describing the character of market process is a purposeful action (Ferrier & Smith, 1999). The study of competitive repertoire opens up the new level of action study, emphasizing on the firm's dynamic capabilities either from the inside (e.g. organizational knowledge and the top management team's composition) and from the outside (e.g. industry analysis of market growth and uncertainty). Exploring competitive interaction at this action level of analysis provides researchers with a better picture of how a pattern of competitive action, or competitive repertoire, impacts on firm's performance (Ferrier, 2001). Chen (1996) seeks to provide a conceptual link by proposing two firm specific, theory-based constructs in competitive dynamics - market commonality and resource similarity. His two constructs explain the pre-battle competitive tension between two firms, and predict how firms may interact with each other as competitors. His theoretical approach gives more concrete understanding of competitive processes in dynamic environment.

Table 1. Theory development in the competitive dynamics

Individual action - reaction dyads	Characteristics and expected payoffs of a competitive action are important predictors of competitive response (Grimm & Smith, 1997)
Link between action and performance	Aggregated characteristics and frequency of specific actions over a fine time period – the action year or month (Ferrier, Smith, & Grimm, 1999; Smith, Grimm, & Gannon, 1992) The more actions a firm carries out and the greater the speed of execution, the better its profitability and market share (Ferrier, 2001)
Entire repertoire of competitive actions	Entire repertoire of competitive actions carried out in a given year – a repertoire year. Firms that carry out a broad, complex repertoire of actions experience better profitability and market share than firms that carry out a narrow, simple repertoire (Ferrier, 2001)

Even though Chen's study (1996) is mainly focused on a dyad, firm level pair-wise emphasis, his approach nonetheless opens up a series of empirical studies later. He emphasizes that competitive moves are often made with attention to their implications, not only for each of a firm's rivals but also for the complete competitive landscape (Chen, 1996). The introduction of two theoretical constructs adds to current efforts in strategic management, which attempt, from different theoretical angles, to provide a more differentiated depiction of the competitive relationships among firms (Chen, 1996).

Competitive Repertoire as Organizational Knowledge: Aldrich (2000) enriches the definition of competitive repertoire with sociological perspective by explaining that structure being evolved through the accumulation of variations is selected as members try to solve problems, and then problems evoke responses. If the responses solve the problems, the responses then became part of an organization's knowledge. In an uncertain environment, decision makers perceive a difference in their knowledge and thus seek more information. And they are drawn to one another in ways that reinforce their interdependence. Patterns of social interaction in organizations are shaped by a variety of variation and selection processes. Such processes include (1) information search routines; (2) modifications of members' cognitive schemata; (3) growing interdependence around shared information; and (4) pressures toward a homogeneous outlook among members. Together, these processes speed the production of organizational coherence and create relatively homogeneous clusters of members (Aldrich, 2000).

Competitive Repertoire as Organizational Routines: Nelson & Winter (1982) refer routine to a repetitive pattern of activity in an entire organization, to an individual skill; as a noun, routine is to objectify a collective capacity to perform recognizable patterns of action; as an adjective, to the smooth uneventful effectiveness of such an organizational or individual performance. Organizational routine is defined by multi-actor, interlocking, reciprocally triggered sequence of actions - major sources of the reliability and speed of organizational performance (Cohen & Bacdayan, 1994). The set of organizational routines firms perform in any given environment represents the particular type of firm's competitive repertoire, and they are made up of conscious and tacit knowledge and skills held by participants who carry out organizational tasks. Ultimately, firms reproduce and modify their routines to survive in the face of changing industry landscape (Scott, 2001).

Competitive Repertoires as Competitive Inertia: Competitive inertia is defined as the level of activity that firms exhibit when altering their competitive stance in areas such as pricing, advertising, new product or service introductions, and competitive scope (Miller & Chen, 1994). Simplicity does not imply inertia, but the repertoire that is simple may manifest a very active level of decision-making, even though actions may be mostly of a single kind (Miller & Chen, 1996). Inertia is arguably related by three sources; 1) manager's incentives to act; 2) their awareness of action alternatives; and 3) the constraints on their capacity to act, and these sources are assessed by past performance and competitive experience; by market growth and market diversity; and by company age and size (Miller & Chen, 1994). They argue that good past performance contributes to competitive inertia, whereas the diversity of markets discourages it, and although inertia in strategic actions has mildly positive implications for the near-term performance, the benefits from inertia in all kinds of actions diminish with increases in the market diversity (Miller & Chen, 1994).

Simplicity of competitive repertoire, a tendency to concentrate intensely on just a few central activities is an outcome of competitive inertia, a function of organizational and environmental properties that attenuate managerial search or restrict knowledge of competitive alternatives (Miller & Chen, 1996). According to Miller & Chen (1996), although good past performance may contribute to simplicity, simplicity can hurt subsequent performance, especially during the periods of uncertainty and growth. They explain three different aspects of competitive repertoires – range (the total number of types of market-oriented actions taken by a firm), concentration (the degree to which repertoires tend to be focused on just a few key types of actions) and dominance (the extent to which a firm relies on its single most common type of action, to the exclusion of all others).

4.1 Competitive Repertoire in a Hypercompetitive Environment

Environmental changes have significant influences on the competitive conditions and the firm level competitive interactions, which can be described as a competitive overview of firm's dynamic capabilities (Teece, Pisano & Shuen, 1997). They play a critical role in developing the firm level competitive repertoire as the modular mechanism of strategic choices. In case of a hypercompetitive environment, different set of competitive actions will be formulated and implemented based on the firm's assessment of competitive condition and interaction. In other words, firm's strategic actions can be competitively intensifying or mitigating effects based on the firm's specific modules of strategic choices that range from doing nothing, placing firms to the limited war equilibrium of defense or the mutual foothold equilibrium of counterattack to being ready for the total war against competitors (Karnani & Wernerfelt, 1985). Firms engage in a series of formulating their competitive repertoire through competitive process. Start with the pre-battle period when firms take a relatively spontaneous action searching stage if their strategic options would work in their specific markets and make a necessary adjustment according to their counterpart's reaction. Some of their specific adjustment will be directed at firm's organizational changes in order to build upon their dynamic capabilities. Repertoire scanning, or functions of competitive intelligence and firm's ability to transfer the specific knowledge will be positively related to the effectiveness of competitive repertoire. After that, competitive repertoire is formulated in full force during the actual battle periods. Then, firm's competitive process is going back to the previous discussion once again. It is the repertoire implementation and feedback stage when firms' capacities are built into the firm level competitive repertoire. In addition, firm level competitive repertoire is unfolded rather differently based on the intensity and frequency of inter-firm network formation. At the outset of developing competitive repertoire, the effectiveness of competitive repertoire can be hypothesized in a hypercompetitive environment. Ferrier & Smith (1999) develop four characteristics of leader/challenger competitive action aggressiveness that can be related to the effectiveness of competitive repertoire - total competitive activity, action timing, action repertoire simplicity and competitive dissimilarity. To make it more complex, these characteristics of competitive repertoire should be carefully investigated based on the different hypercompetitive situations – multi-location, multi-product (or service) and multi-period.

Table 2. Four characteristics of competitive repertoire

Total competitive activity	-The total number of new competitive moves a firm carried out in a given year -Firm performance is an outcome of a continuous series of competitive actions -Firm's cumulative competitive activity increase, the firm creates internal organizational assets in the form of action repertoires, routines, and knowledge about how to carry out action -The greater the number of new competitive actions, the greater the competitive aggressiveness (Miller & Chen, 1994)
Action timing	-The time elapsed between the actions carried out by a firm and those carried out by a rival (Ferrier & Smith, 1999)
Action repertoire simplicity	-Focuses on the range of actions of a particular firm and is independent of rivals' actions -Firm's propensity to concentrate on carrying out a narrow range of action types in a given year, as opposed to a broad range of action types (Miller & Chen, 1996) -Firms that undertake a broader set of actions than their rivals will be more aggressive (Ferrier & Smith, 1999) -Organizational success causes strategic simplicity, which, in turn, becomes a cause of organizational decline (Miller & Chen, 1996)
Action dissimilarity	-The degree to which leaders and challengers differ in the actions they carry out (Ferrier & Smith, 1999) -Action dissimilarity is relative to rivals and captures the extent to which the actions of a particular firm (industry leader) are different from those of other firms (challengers) (Ferrier & Smith, 1999)

Ferrier & Smith, 1999.

5. Conclusion & Suggestions for Future Study

It is still debatable whether competitive repertoire does exist within the organizational setting. If it does, how it actually works, what types of actions are combined and rationally initiated, and why firms continue to utilize one pattern of actions over the others. Today's dynamic business environment requires firms to rethink and change the way they do business with their opponents. Actions initiated by one firm may trigger a series of actions by other competitors in a hypercompetitive market. The dynamics of how firms compete with one another and how they make use of strategies to build competitive advantages over competitors have been examined in a series of competitive dynamics studies using detailed data from the US airline industry. Collectively, these studies generate new thinking about business competition, one that explicates the interactive, dynamic nature of firm competition (Hoskisson et. al., 1999). The cumulative goal of these studies has been to move towards a predictive theory of competitive behavior that has hitherto been lacking in the field of strategy (Miller & Chen, 1996). Competitive study has been more toward the understanding of phenomena or events. Competitive repertoire can be one of the constructs they may be possible to gain a predictive power as well as a more profound understanding of the hypercompetitive environment.

Future studies of competitive repertoire can be expanded into many different dimensions. Refined level of analysis, different empirical indicators and hypotheses, different data set and industry focus can be utilized in this field of study. Also, sequential links between developing internal actions and resources, competitive behavior, and external performance outcomes could be examined. It is worthwhile to look at internal actions as well as external actions in assessing the overall effects of competitive simplicity as Ferrier (2001) overlooks firm's internal actions, which may have been big portions of the firm's total action sequence in his study. This will afford a more encompassing representation of competitive repertoire, a construct that promotes the objective means of assessing strategy (Miller & Chen, 1996).

Firm's competitive behavior is closely related to the overall firm's performance. However, this relationship has been systematically short sighted because the immediate action and response variables will be insufficient to measure the firm level performance in the long run. Firm level performance is hard to be measured by an individually derived competitive action or response. Thus, firms should sequentially or simultaneously prepare for well specified patterns (or modules) of strategic actions, or competitive repertoire in order to determine the sustainability of firm performance. Then, it is still not clear how long we have to wait and see the positive (or negative) outcome of firm level competitive repertoire with some slack times. Even in the mutual forbearance, firm level performance will show quite a fluctuating result depending on the certain courses of industry development. It will be worthwhile to explore why some firms are more successful at navigating the complex web of relationships that will underpin the mutual forbearance among participating players. D'Aveni (1994) explains three highly complementary ways of building and sustaining the superior performance in a hypercompetitive environment. Competitive repertoire will be closely related to the third attribute - tactics for disruptions, even though the other two attributes are also indirectly related as well.

Table 3. Three-Level dynamic strategic planning model

Planning a Vision for Disruption	- Goals and competencies for disruption - Superior stakeholder satisfaction - Strategic soothsaying
Resource Planning (Building Capabilities)	- Capabilities for speed - Capabilities for surprise - Competitive conditions and Interactions - Resource endowment
Tactics for Disruption	- Shifting the rules of competition - Industry changes: technological innovation + policy reform - Signaling the strategic intent - Simultaneous and sequential strategic thrusts

Source: D'Aveni, 1994.

Researchers find that past performance plays a role in corporate evolution that prior success contributes very much to a company's attachment to past practices, to the evolution of its structure and strategy-making processes, and to its responsiveness to the environment (Miller, 1994). That leads to the inattention that reduces the intelligence gathering and information processing activity, and the insularity that demonstrates by failing to adapt to changes in the environment (Miller, 1994). Actions and reactions among competitors are based on the dyadic games. Firms make strategic modulation through extensive analysis of competitor identification and industry structure. And competitive intelligence and knowledge management help to develop such strategic modulation, or competitive repertoire. RBV explains that competitive behavior is a function of a firm's resource profile (Grimm & Smith, 1997). As indicated in the previous section, competitive repertoire is one of the organizational routines with specific goals and directions. However, if routines are based on firm's specific capabilities, why do we really care for the speed of competitor's response? When firms develop their own routines with specific capabilities, your competitor's mere imitation won't harm much to your firm's action and performance.

Future studies can test firm specific resources separately, and see how each resource makes impacts on the direction of firm's action and performance. Proponents in evolutionary framework argue that firm's history, reputation and culture will be important matter, too. And, all of these will be determined by the network positions firms take throughout the industry life cycle. From the viewpoint of predicting rivalry, the general research has suffered from several limitations. First, the identity of a firm's competitors assumed to be known, or competitors are treated as undifferentiated entities often times (Chen, 1996). If we are to analyze the action-based competitive advantage, the research should be deliberately designed so that each competitive action is carefully paired up with the firm's intended modules of competitive repertoire. Surprisingly, a certain action that is targeted for a specific market or a specific competitor may encounter a series of responses from the unexpected firms in any neighboring markets, or your intended goal of competitive action is not realized initially, but may have accidentally produced the unexpected outcomes against your competitors.

Second, the inter-firm competition is analyzed at the firm level or year-end financials level. In a static situation, aggregate forms of competitive strategy at the firm or year-end financials level would be hard to reject their validations. However, it becomes very difficult to determine what aspects of firm's strategy do really affect the firm's sustainable competitiveness. Unit of analysis at firm's action level shows apparent advancement of investigating the competitive dynamics. As we look at competitive actions of players in the market, we can analyze the dyadic model of interactive competition. However, prior studies overlook the significantly different characteristics of one individual action to a series of actions, competitive repertoire. The unit of competitive repertoire should be tested differently from the test of each individual action, even though the construct of competitive repertoire derives from the latter one.

Competitive repertoire can be directed toward different types of factors in the industry settings. For example, types of competitive repertoire can be 1) toward internal factors; 2) toward external factors; 3) toward horizontal relationship; 4) toward vertical relationship; 5) toward competitive relationship and 6) toward cooperative relationship. Industries where service based competition is prevalent, and there are less regulatory burdens imposed by the government, pricing actions will be the ones that many firms like to take advantage of. On the other hand, utilities such as telecommunications and gas, where governmental interventions are apparent, actions and responses need to carefully analyzed in response to the external factors such as changes in the regulatory policy paradigm. One of the future studies is to study the firm's competitive repertoire in the global industry settings where the governmental interventions are present in the form of institutional based view. The study of multi-level (e.g. one firm vs. multiple firms; multiple firms vs. multiple firms; and firms vs. environment), multi-player (regulators vs. firms vs. consumers) interactions in hypercompetitive environments will a good extension to the current research in the competitive dynamics.

References

Aldrich, H. (1999). *Organizations Evolving.* Thousand Oaks, California: Sage Publications Inc.

Audia, P. G., Locke, E. A., & Smith, K. G. (2000). The Paradox of Success: An Archival and a Laboratory Study of Strategic Persistence Following Radical Environmental Change. *Academy of Management Journal, 43*(5), 837-853. https://doi.org/10.2307/1556413

Barney, J. B. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management, 17*, 99-120. https://doi.org/10.1177/014920639101700108

Chattopadhyay, P., Glick, W. H., & Huber, G. P. (2001). Organizational Actions in Response to Threats and Opportunities. *Academy of Management Journal, 44*(5), 937-955. https://doi.org/10.2307/3069439

Chen, Ming-Jer, & Hambrick, D. C. (1995). Speed, Stealth, and Selective Attack: How Small Firms Differ from Large Firms in Competitive Behavior. *Academy of Management Journal*, *38*(2), 453-482. https://doi.org/10.2307/256688

Chen, Ming-Jer, & MacMillan, I. C. (1992). Nonresponse and Delayed Response to Competitive Moves: The Roles of Competitor Dependence and Action Irreversibility. *Academy of Management Journal*, *35*(3), 539-570. https://doi.org/10.2307/256486

Chen, Ming-Jer. (1996). Competitive Analysis and Interfirm Rivalry: Toward a Theoretical Integration. *Academy of Management Review*, *21*(1), 100-134.

Cohen, M. D., & Bacdayan, P. (1994). Organizational Routines are stored as Procedural Memory: Evidence from a Laboratory Study. *Organization Science, 5*(4), 554-568. https://doi.org/10.1287/orsc.5.4.554

D'Aveni, R. A. (1994). *Hypercompetitive Rivalries: Competing in Highly Dynamic Environment*. New York: The Free Press.

Dutton, J. E., & Jackson, S. E. (1987). Categorizing Strategic Issues: Links to Organizational Action. *Academy of Management Review, 12*(1), 76-90.

Ferrier, W. J. (2001). Navigating the Competitive Landscape: The Drivers and Consequences of Competitive Aggressiveness. *Academy of Management Journal, 44*(4), 858-877.

Ferrier, W. J., & Lyon, D. W. (2004). Competitive Repertoire Simplicity and Firm Performance: The Moderating Role of Top Management Team Heterogeneity. *Managerial and Decision Economics, 25*(6-7), 317-327. https://doi.org/10.2307/3069419

Ferrier, W. J., Smith, K. G., & Grimm, C. M. (1999). The Role of Competitive Action in Market Share Erosion and Industry Dethronement: A Study of Industry Leaders and Challengers. *Academy of Management Journal, 42*(4), 372-388. https://doi.org/10.1002/mde.1193

Gnyawali, D. R., He, J. Y., & Madhavan, R. (2006). Impact of Co-opetition on Firm Competitive Behavior: An Empirical Examination. *Journal of Management, 32*, 507-530. https://doi.org/10.2307/257009

Grimm, C. M., & Smith, K. G. (1997). *Strategy as Action: Industry Rivalry and Coordination*. Cincinnati, Ohio: South-Western College Publishing. https://doi.org/10.1177/0149206305284550

Gulati, R., Nohria, N., & Zaheer, A. (2000). Strategic Networks. *Strategic Management Journal*, *21*, 203-215. https://doi.org/10.1002/(SICI)1097-0266(200003)21:3<203::AID-SMJ102>3.0.CO;2-K

Hambrick, D. C., Cho, T. S., & Chen, Ming-Jer. (1996). The Influence of Top Management Team Heterogeneity on Firms' Competitive Moves. *Administrative Science Quarterly, 41*, 659-684.

https://doi.org/10.2307/2393871

Hoskisson, R. E., Hitt, M. A., Wan, W. P., & Yiu, D. (1999). Theory and Research in Strategic Management: Swings of a Pendulum. *Journal of Management, 25*(3), 417-456. https://doi.org/10.1177/014920639902500307

Karnani, A., & Wernerfelt, B. (1985). Multiple Point Competition. *Strategic Management Journal, 6*(1), 87-96. https://doi.org/10.1002/smj.4250060107

Lieberman, M. B., & Montgomery, D. B. (1998). First-mover (Dis)advantages: Retrospective and Link with the Resource-based View. *Strategic Management Journal, 19*(12), 1111-1125. https://doi.org/10.1002/(SICI)1097-0266(1998120)19:12<1111::AID-SMJ21>3.0.CO;2-W

Lumpkin, G. T., & Dess, G. G. (1995). Simplicity as a Strategy-Making Process: The Effects of Stage of Organizational Development and Environment on Performance. *Academy of Management Journal, 38*(5), 1386-1407. https://doi.org/10.2307/256862

Miller, D. (1993). The Architecture of Simplicity. *Academy of Management Review*, *18*(1), 116-138.

Miller, D. (1994). What Happens After Success: The Perils of Excellence. *Journal of Management Studies, 31*(3), 325-358. https://doi.org/10.1111/j.1467-6486.1994.tb00621.x

Miller, D., & Chen, Ming-Jer. (1994). Sources and Consequences of Competitive Inertia: A Study of the U.S. Airline Industry. *Administrative Science Quarterly*, *9*, 1-23. https://doi.org/10.2307/2393492

Miller, D., & Chen, Ming-Jer. (1996). The Simplicity of Competitive Repertoires: An Empirical Analysis. *Strategic Management Journal*, *17*, 419-439. https://doi.org/10.1002/(SICI)1097-0266(199606)17:6<419::AID-SMJ818>3.0.CO;2-Z

Miller, D., & Lant, T. K. (1996). The Evolution of Strategic Simplicity: Exploring Two Models of Organizational Adaption. *Journal of Management*, *22*(6), 863-887. https://doi.org/10.1177/014920639602200604

Nelson, R. R., & Winter, S. G. (1982). *An Evolutionary Theory of Economic Change.* Cambridge, Massachusetts: Harvard University Press. https://doi.org/10.1177/014920639602200604

Porter, M. E. (1980). *Competitive Strategy: Techniques for Analyzing Industries and Competitors*. New York, NY: The Free Press.

Scott, W. R. (2001). *Institutions and Organizations*. Thousand Oaks, California: Sage Publications Inc.

Smith, K. G., Grimm, C. M., & Gannon, M. J. (1992). *Dynamics of Competitive Strategy.* Newbury Park, California: Sage Publications Inc.

Smith, K. G., Grimm, C. M., Gannon, M. J., & Chen, Ming-Jer. (1991). Organizational Information Processing, competitive Responses and Performance in the US Domestic Airline Industry. *Academy of Management Journal, 34*(1), 60-85. https://doi.org/10.2307/256302

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic Capabilities and Strategic Management. *Strategic Management Journal*, *18*(7), 509-533. https://doi.org/10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z