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A meta-analytic review of competitive aggressiveness research

Margaret Hughes-Morgan[a,*], Kalin Kolev[b], Gerry Mcnamara[c]

[a] Marquette University, College of Business, 214 David Straz Hall, Milwaukee, WI 53201, United States
[b] Marquette University, College of Business, 226 David Straz Hall, Milwaukee, WI 53201, United States
[c] Eli Broad Professor of Management, N439 Business College Complex, Michigan State University, East Lansing, MI 48824, United States

ABSTRACT

Competitive aggressiveness has been at the center of competitive dynamics literature for decades, however there is no consensus as to its primary drivers and performance consequences. Thus, we present the results of a meta-analysis of the antecedents to and consequences of competitive aggressiveness using three aggressiveness components—competitive volume, complexity, and heterogeneity. Leveraging the awareness, motivation, capability framework as a guide of the drivers of competitive aggressiveness, we find that greater organizational size and age, lower slack resources and prior performance, greater market growth, lower market concentration, and more heterogeneous top management teams lead to more aggressive actions. In addition, we found that among the different components of aggressiveness competitive volume improved operating performance.

1. Introduction

A large body of theoretical and empirical work demonstrates the widespread interest in how organizational and market characteristics affect competitive actions and interactions, and how these actions, in turn, influence firm performance. Prevailing theory and conventional wisdom suggest that companies should compete aggressively by undertaking a large number and variety of strategic moves (D'Aveni, 1994; Porter, 1985). However, the extant literature has not produced consistent conclusions about either the antecedents driving action or the performance outcomes associated with the patterns of actions undertaken by firms. For example, Chen and Hambrick (1995) found that smaller firms are more likely to be aggressive by initiating more competitive actions, and do so more quickly. Yet, Young, Smith, and Grimm (1996) found that large firms are more likely to carry out more total competitive moves in a given time period, and Miller and Chen (1994) found no relationship between firm size and competitive activity (notably from the same industry as Chen & Hambrick). Similarly, Miller and Chen (1994) found a negative relationship between past performance and the breadth of actions, while Gnyawali, He, and Madhavan (2006) found no relationship. For the impact of top management team (TMT) heterogeneity, Hambrick, Cho, and Chen (1996) and Hughes-Morgan, Ferrier, and Labianca (2010) found a positive relationship between TMT heterogeneity and volume of competitive activity, yet Ferrier (2001) found no relationship.

Looking at the performance consequences of competitive actions, we find a similar picture of conflicting results. Young et al. (1996) found in a study of software producers that aggressive firms, those that engaged rivals with a greater number of actions, obtained the highest performance. Yet, Derfus, Maggitti, Grimm, and Smith (2008) found that due to retaliation by competitors, or the "Red Queen" effect, this aggressive competitive activity ultimately had a negative impact on the same measures of performance.

In a review of this literature, Ketchen, Snow, and Hoover (2004) contended that "despite recent advances, much remains unclear about how and why firms pursue certain strategic moves" (p. 780) and that more integrative research in the competitive dynamics area is necessary to better understand how managerial, market, and firm characteristics lead to actions, and how actions impact performance.

Competitive aggressiveness, defined as the propensity to engage in a sustained, diverse, or unique series of actions to challenge rivals and enhance their relative competitive position, is a Gestalt-like sub-construct of competitive dynamics that is comprised of several sub-dimensions. While these sub-dimensions cannot measure unobserved variables such as propensity for risk taking, they are proxies for firm behaviors resultant from this orientation. For scholars and managers alike to understand the contributions of competitive dynamics to the field of strategy, we believe consensus conclusions drawn from the stream of competitive aggressiveness studies to date should be established. In addition to Ketchen et al. (2004), other studies have provided valuable narrative reviews of the literature to date that have significantly enhanced our understanding of theoretical contributions, and advanced our understanding of competitive interaction (Chen & Miller, 2012, 2015). However, as we will discuss further below, varying

* Corresponding author.
E-mail addresses: margaret.hughes-morgan@marquette.edu (M. Hughes-Morgan), kalin.kolev@marquette.edu (K. Kolev).

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industry contexts, sample designs, and measurement of key aggressiveness dimensions have led to the aforementioned conflicting results. Given the importance of aggressiveness to the overarching competitive dynamics construct, we believe a quantitative aggregation of previous studies will add value to Chen and Miller's prior inquiries.

To this end, we present the results of a meta-analytic review of the antecedents and outcomes explored in the competitive aggressiveness component of the competitive dynamics arena. Meta-analytic techniques allow us to develop an integrative framework on the main antecedents of competitive aggressiveness and its consequences, statistically aggregate and summarize existing empirical findings, and reconcile conflicting results in prior research. As a result, we can discuss with greater confidence the true relationships between aggressiveness variables and make broader generalizations to the validity of what drives firms to act, and the consequences of such action. As such, we address Ketchen et al.'s (2004) call to clarify what drives firm behavior by providing a clearer snapshot of aggregated results that assist in answering the question "what do we really know?"

We believe our study provides several substantive contributions to the competitive dynamics literature. First, we provide an integrative framework with which to examine the drivers of competitive aggressiveness and its performance consequences. Second, a meta-analysis allows us to obtain more robust effects by accounting for various study artifacts, such as sampling and measurement error (Hunter & Schmidt, 2004), to resolve inconsistent findings in prior research, and to bring more clarity to the field by providing insight on the relative strength of the proposed drivers of competitive action and the relationship between different patterns of competitive action and performance. Finally, we discuss measurement issues in the field and identify areas of potential for future research that will offer a more nuanced understanding of both the drivers of competitive action and the consequences of these actions on performance.

2. Background

Central to competitive dynamics is the conceptualization and measurement of the aggressiveness with which a firm carries out a series of competitive actions. Drawing from Austrian economics, hypercompetition theory, and corporate entrepreneurship (Covin & Slevin, 1991; D'Aveni, 1994; Jacobson, 1992; Kirzner, 1973; Lumpkin & Dess, 1996), competitive dynamics scholars generally define competitive aggressiveness as the propensity for firms to directly challenge rivals by completing a sustained, diverse, and unique series of competitive actions (Andrevski & Ferrier, forthcoming; Ferrier, 2001; Ferrier & Lee, 2002; Ferrier, Smith, & Grimm, 1999; Uhlenbruck, Hughes-Morgan, Hitt, Ferrier, & Brymer, 2017). The competitive dynamics literature seizes on this argument and examines both the factors that lead to competitive aggressiveness and the effect of these aggressive actions on firm performance. Chen, Su, and Tsai (2007) synthesized the conceptual work in the competitive aggressiveness literature and developed a three-dimensional model of the drivers of this competitive tension. According to their awareness-motivation-capability (AMC) framework, firms are more likely to undertake competitive actions when managers are aware of the need for and potential gains of competitive action, are motivated to do so, and have the capabilities to undertake competitive activity. We draw on this framework to provide an integrative examination of competitive aggressiveness, to explain the drivers of competitive aggressiveness, and to assess the outcomes of this aggressiveness. We believe the AMC framework is the appropriate lens for this inquiry since it takes into account a complex and nuanced set of predictors of competitive activity. Rather than looking exclusively at the motivation to act, the most obvious driver of action, the AMC framework also considers the capabilities or opportunity to change as well as the awareness of other organizational or situational factors that may dictate taking action, which are critical drivers in the competitive aggressiveness literature (Miller & Chen, 1994).

2.1. Background of the competitive aggressiveness construct

One of the most fundamental ideas of competitive interactions posits that firms should execute strategy in an effort to dampen the ability or motivation of competitors to respond (Ferrier, 2001; Nair & Selover, 2012; Smith, Ferrier, & Grimm, 2001). Porter (1980, 1985) has advocated the merits of atypical competitive repertoires that confuse rivals and are difficult for competitors to detect and counter (Chen & MacMillan, 1992; Chen & Miller, 1994; Norman, Artz, & Martinez, 2007). In addition, effective competition from the Austrian perspective espouses strategic and resource heterogeneity (Jacobson, 1992). This perspective advocates creation of competitive advantage through possession of the awareness of opportunities, knowledge, resources, and flexibility to engage in a variety of actions. Successful firms are capable of combining and directing these resources to create more, and a greater variety of strategic actions than other firms. Thus, much of the basis for value creation is attributed to the ability of firms to innovate or compete in an aggressive manner to outmaneuver their competitors.

Arising from this notion of value creation through competition, the competitive dynamics stream of research has developed theory and empirical methods centering on conceptualization of firm strategy as *competitive action*. In general, early research in this stream focused attention on the *action-reaction dyad* level of analysis (Bettis & Weeks, 1987; Chen & MacMillan, 1992; MacMillan, McCaffery, & Van Wijk, 1985), whereby the characteristics of an individual competitive action, as well as the characteristics of the competing firms, are important predictors of the likelihood, speed, and type of both individual actions and competitive response (Smith, Grimm, Gannon, & Chen, 1991). Competitive dynamics research has more recently introduced the intertwined concepts of *competitive aggressiveness* and *competitive repertoires* which describe the intensity, pattern, and novelty of a sequence of competitive action events carried out in real time (Andrevski & Ferrier, forthcoming; Andrevski, Richard, Shaw, & Ferrier, 2014; Ferrier, 2001; Ferrier et al., 1999; Miller & Chen, 1994, 1996a, 1996b; Uhlenbruck et al., 2017). This line of research has advocated aggressive competitive behavior, more actions, innovative actions and unique actions. As such, competitive aggressiveness, a sub-construct of the larger mega-construct of competitive dynamics, relates to the antecedents and consequences of the patterns of competitive actions undertaken by firms. This view is consistent with the concept of strategy as "patterns of moves as an essential component of strategic competition" (Bettis & Weeks, 1987: 449), which are influenced by *management characteristics* (e.g. top management team heterogeneity), *organizational characteristics* (e.g. size and prior performance), and *market characteristics* (e.g. concentration and growth), and these have a demonstrable impact on competing firms' performance measures.

Scholars studying competitive aggressiveness have found, for example, that due to a variety of organizational and situational factors, such as slack resources or low industry concentration, some organizations compete aggressively with a wide range of competitive actions such as price cuts, product improvements, advertising campaigns, and the introduction of new products (Ferrier, 2001; Young et al., 1996). These types of moves are relatively more complex as opposed to a series of actions similar in nature. Relatedly, Andrevski and Ferrier (forthcoming) find that competitive aggressiveness as measured by the volume of actions undertaken has a greater impact on profitability when the firm had a dense alliance network. Miller and Chen (1996b) found that competitive heterogeneity was positively associated with both market growth and the diversity of competitors in the marketplace. Thus, we can ascertain that the volume, breadth, and novelty of actions carried out by firms will be, in part, reliant on the characteristics of both the firm and the market in which it competes, but as discussed above no consensus has been revealed. Consistent with prior research and our definition of competitive aggressiveness articulated above, we conducted analysis on three widely used orthogonal, yet interdependent lower-order dimensions of this construct: *competitive volume*