Abstract

Purpose – The purpose of this paper is to develop and empirically test a conceptualization of competitive aggressiveness, a dimension of Entrepreneurial Orientation.

Design/methodology/approach—Structural equation modeling and hierarchical regression are used to analyze responses from 182 banks in the southwestern U.S. Performance data on the banks are drawn from the FDIC’s Call reports.

Findings—The results indicate awareness, motivation, and capability are antecedents of competitive aggressiveness, which itself is positively related to increased market share and, in more dense markets, profitability.

Practical implications—Aggressive firms exhibit certain routines that can lead to competitive actions, which assists performance in some contexts. Managers who wish to increase (or decrease) their firms’ overall competitive posture can encourage (or discourage) employees from performing competitive routines such as monitoring their rivals or talking about their rivals’ strategies.

Originality/value—By developing competitive aggressiveness’ conceptualization, the study advances the understanding of the antecedents of competitive behavior and makes it easier to study competition in smaller firms.

Keywords—Competitive aggressiveness, Entrepreneurial orientation, Banking, Firm performance

Paper Type—Research paper
Competitive Aggressiveness, Community Banking and Performance

Over 20 years ago, Lumpkin and Dess (1996) integrated the concept of competitive aggressiveness (CA) into the Entrepreneurial Orientation (EO) construct, defining it as: ‘a firm’s propensity to directly and intensely challenge its competitors to achieve entry or improve position, that is, to outperform industry rivals in the marketplace’ (p. 148). Covin and Covin noted that ‘a propensity for aggressive competitive behavior’ is a key characteristic of an entrepreneurial top management style (1990:38) and subsequent research has suggested that small firms (Lechner and Gudmundsson, 2014; Short et al. 2009), market entrants (Hughes and Morgan, 2007), and intrapreneurs (Chang et al. 2007; Ferrier and Lee, 2002) that seek a more entrepreneurial stance strategically employ competitive aggressiveness. Despite these discoveries, relatively few researchers have capitalized on CA’s potential contributions to EO (Wales et al., 2013) and the construct remains underdeveloped.

Ferrier (2001) has also used the term competitive aggressiveness but reoriented it as part of competitive dynamics (henceforth, CD CA) research. While the EO CA conceptualization is about the antecedents associated with competitive behavior, CD CA focuses on the performance impact of observable competitive actions. As such, CD CA researchers have developed a large body of evidence about the results of competitive behavior (Ketchen et al., 2004; Hughes-Morgan et al., 2018). Far less is known about the postures and routines that are internal to the firm that drive competitive behavior. This is problematic because even within industries not historically known for their entrepreneurial focus, to remain viable and grow, firms must innovate, adapt, and aggressively compete to develop and leverage competitive advantages (Sirmon, et al., 2007). The purpose of this paper, therefore, is to address the antecedents of the EO CA construct and investigate its relationship with strategic performance indicators such as comparative profitability and changes in market share.
To do so, we turn to that part of the CD literature that is focused on the relationship between competitive behavior and firm-level attributes (Litz and Pollack, 2015; Nadkarni et al., 2016; Smith et al., 2001; Tsai et al., 2011). In particular, Chen’s (1996) conceptualization of awareness, motivation, and capability as ‘three essential antecedents that affect a firm’s competitive activity’ (Chen 2009:11) provides a useful framework to bridge competitive propensities and routines (EO CA) with competitive behavior (CD CA). This, in turn, opens new opportunities in competitiveness research because CD CA, which relies on public, archival documentation of competitive behavior, has naturally focused on larger firms. The present study expands the EO concept of CA by developing survey items for use with leaders from firms of all sizes to ascertain the antecedents of competitive behavior.

This paper makes four principal contributions to the literature. First, in contrast to most EO studies which do not typically consider the reasons why firms are emboldened to take entrepreneurial action, we address the mechanisms that drive competitive behavior. This research paves the way for a deeper understanding of the dimensions of EO. Second, CD researchers have developed the framework that awareness, motivation, and capability (AMC) underlie a firm’s competitive behavior (Chen, 1996, 2011). CD research involving AMC typically uses external proxies such as relative firm size and rivals’ geographic proximity to measure AMC. This paper develops internal, perceptual measures of awareness, motivation, and capability as well as CA measures using an EO approach. Moreover, prior EO researchers have developed only a few techniques for measuring CA (e.g., Lumpkin and Dess, 2001); this study suggests additional EO-related scale items, which may also ease the measurement challenges for CD CA research. Third, building on prior entrepreneurship research (Covin and Covin, 1990; Lumpkin and Dess, 1996), the paper analyzes CA as an avenue for entrepreneurial success and elucidates its importance for
strong performance. The findings suggest that, in industries typically characterized by the presence of credible rivals and constrained levels of innovativeness and proactiveness, CA is an important component of an entrepreneurial posture. To make these discoveries, we relied on two moderators that have rarely been used in studies of the EO—performance relationship: margin and competitive density. Fourth, this research helps build a bridge between the strategy process-based research that is foundational to EO and the action-based competitive dynamics research.

This paper develops the relatively underdeveloped EO CA construct and then investigates its relationship with performance in the traditionally conservative community banking industry. First, we review literature related to CA and the AMC framework. Next, the paper hypothesizes about the relationship of CA to the AMC framework and to performance, as well as likely moderators of that relationship. The paper then reports results of the hypotheses tests, and concludes with a discussion of implications, limitations, and future research.

**Theoretical Background**

Combining insights from the competitive dynamics and EO literatures, this section sets forth the study’s theoretical reasoning. In short, we suggest awareness, motivation, and capability act as antecedents to a firm’s overall competitive posture (EO CA). That posture relates to consequent firm competitive behavior, which is then related to firm performance.

**Competitive Aggressiveness and Entrepreneurial Orientation**

EO, which is: “a strategic construct that captures a firm’s strategy-making practices, management philosophies, and firm-level behaviors” (Anderson et al. 2009: 220) is a leading construct bridging strategy and entrepreneurship (Covin and Lumpkin, 2011; Wales et al. 2013) and has been used extensively to verify the relationship between acting entrepreneurially and firm performance (Rauch et al., 2009). EO refers to the firm postures, decision-making
processes, and internal practices that form the foundation for a firm’s entrepreneurial behavior (Covin and Slevin, 1989; Lumpkin and Dess, 1996; Miller 1983). Highlighting prior research (Venkatraman, 1989) and the ‘beating competitors to the punch’ aspect of Miller’s (1983) pivotal definition of an entrepreneurial firm, Lumpkin and Dess (1996) integrated CA into EO to complement the innovativeness, risk-taking and proactiveness dimensions proposed by Miller (1983). EO CA refers to a firm’s efforts to outperform industry rivals (Lumpkin and Dess, 1996, 2001) and is especially important in situations where, to achieve superior performance, firms have to match their innovativeness and proactiveness gestures in the marketplace with aggressive actions toward rivals (Stalk and Lechenauer, 2004).

The competitive dynamics literature has taken an alternative view of CA by focusing on specific actions. While EO CA considers internal firm postures and routines, CD CA highlights the volume, complexity, and heterogeneity of competitive actions and their relationship to firm performance (Chen and Miller, 2012; Hughes-Morgan et al., 2018). Based upon prior theorizing that ‘an aggressive competitive orientation’ is an essential component of an entrepreneurial strategic posture and a likely predictor of effective performance (Covin and Slevin, 1989: 79), this paper suggests that EO CA (internal competitive routines) leads to competitive actions which in turn affect performance. CD CA researchers have attempted to look inside the firm at issues such as executive cognition or temporal orientations (Marcel et al., 2011; Nadkarni et al., 2016); by contrast, CD CA studies use external, polished proxies (e.g. shareholder letters) rather than looking to the source: firm routines and postures.

The AMC framework

Helpfully, Chen (1996) has identified three factors as drivers of competitive behavior—awareness, motivation, and capability (AMC)—and notes that they are ‘essential antecedents that affect a firm’s competitive activity’ (Chen, 2009:11). Accordingly, some CD CA researchers
have experimented with the AMC framework (e.g., Bennett and Pierce, 2016; Chen and Miller, 2012; Chen et al., 2007; Gao et al., 2017) using external proxies such as the proximity of competitors for motivation, multi-market contact for awareness, and slack resources for capability (Chen and Miller, 2012). For example, Chen et al., 2007 found that relative size (a proxy for awareness) helped to predict the level of perceived competitive tension between firms.

Consistent with EO, this study employs the AMC framework as antecedents of competitive behavior and does so from a perspective internal to the firm. *Awareness* is the extent to which a firm knows its competitors and the general competitive environment and is cognizant of the implications of taking action; *motivation* is the willingness and drive a firm has to take competitive actions; *capability* is the perceived ability to organize efforts and deploy resources to take competitive actions. The AMC framework elucidates the impetus for CA. Moreover, as Chen and others have indicated, it is the combination of these antecedents rather than any one of them in isolation that is needed to account for CA (Chen, 1996, 2009; Livengood and Reger, 2010; Smith et al., 1991).

*Awareness.* Awareness reflects the level of information a firm has concerning its rivals’ actions, intentions, and capabilities. To gain awareness, firms engage in different types of competitive analysis such as collecting general information on competitors that then must be disseminated and analyzed to transform raw data into actionable information (Chen and Miller, 2012, Upson et al., 2012). Such efforts are aimed at knowing the rival’s goals, strategies, key assumptions, strengths, and weaknesses. Aware firms also seek information that might signal future competitive action by scanning and monitoring their competitors, all in an attempt to gain early notice of competitive actions. Senior decision-makers assess such competitive information and use it to guide decisions about competitive actions (Chuang et al., 2018; Hseih et al., 2015).
Information gained through monitoring and competitive analysis helps firms’ leadership gain awareness about rivals’ strategies and their implementation plans.

Beyond simply knowing a competitor’s actions, intentions, and capabilities, firms must evaluate whether such factors justify taking competitive action. Awareness involves deciphering the extent to which the information gathered suggests a significant threat to the focal firm (Chen et al., 2007, Kumar et al., 2017). Threat recognition may be accelerated in the face of stimuli, such as a competitive attack, the recognition of a competitive opportunity, or the emergence of a rival new entrant (Nadkarni et al., 2016). Increased awareness is likely to reduce the time required to detect a competitive attack and preclude undetected attacks (Montgomery et al., 2005). The processes involved in awareness require significant firm resources, particularly cognitive resources of senior managers (Marcel et al., 2011; Smith et al., 1991; Tsai et al., 2011). Firms with higher levels of awareness, which is those who have dedicated the resources necessary to know, analyze and monitor their competitors are likely to have an increased propensity to directly challenge competitors. Accordingly:

\[ H1a: \ A \ firm’s \ level \ of \ awareness \ is \ positively \ related \ with \ its \ EO \ CA. \]

\[ Motivation. \] Schumpeter argues that entrepreneurship entails, ‘the will to conquer: the impulse to fight, to prove oneself superior to others’ (1983: 94). EO CA motivation requires an enthusiasm for attacking rivals and/or responding to their competitive threats, as well as the subjective assessment of proof of superiority. However, taking competitive actions involves risk and uncertain payoffs because the ways in which rivals and customers may respond are difficult to forecast accurately (Luoma et al., 2017; Montgomery et al., 2005). For risky competitive decisions, it is a firm’s beliefs about potential gains and losses that shape its competitive behavior (Fiegenbaum et al., 1996; Greve, 1998). The firm’s reference point or aspiration level
affects that perception of gain or a loss. Therefore, a firm’s motivation to attack or respond is linked to its aspired-to performance levels (Hsieh et al., 2015; Litz and Pollack, 2015; Payne et al., 2009).

Firms with higher levels of motivation have a greater propensity to take more competitive actions. First, they are likely to use their competitors’ performance levels as their aspiration points (Hsieh et al., 2015), and may attribute their own performance deficits to rivals’ actions (Armstrong and Collopy, 1996; Chen and Miller, 2012; Kilduff et al., 2010; Konduk, 2018). They may even specifically target market leaders (Ferrier, et al., 1999). Even when highly motivated firms are already outperforming their rivals, they prefer to initiate competitive attacks (Stalk and Lachenauer, 2004). Therefore:

**H1b: A firm’s level of motivation is positively related with its EO CA.**

**Capability.** Capability to take competitive action consists of two elements: organizational resources and operational ability (Chen, 1996; Chen et al., 2007). CD CA research has used tangible measures such as a firm’s level of slack and resource portfolio to assess capability (e.g. Chen et al., 2007; Derfus et al., 2008; Uhlenbruck, et al., 2017), though others have addressed less tangible issues such as cognitive framing and top management team heterogeneity (e.g. Ferrier, 2001; Marcel et al., 2011). Managerial perceptions of a firm’s resource availability, along with the perceived ability to translate those resources into effective competitive actions, also reflects a firm’s capability (Livengood and Reger, 2010). The perception that a firm has sufficient means to take actions is likely affected by the priority it places on taking competitive action: Amidst competing demands on a firm’s resources, firms that prioritize competitive actions are also likely to allocate the resources needed to process information and act swiftly.
Along with resources, capability involves the operational ability to take action. That is, beyond simply measuring a firm’s stock of resources, it is a firm’s ability to assess the effectiveness of its past competitive activities and focus on making do with the resources at hand (Baker and Nelson, 2005). This suggests that it is the effect managers perceive they can generate using the resources at their disposal that is central to a firm’s competitive capability. Firms with identical stocks of resources could differ significantly in capability because they vary in their ability to see the possible attack options available with their current resource stocks (Read and Sarasvathy, 2005). Those with the ability to see more possible attack options with a given set of resources are more likely to embrace the taking of competitive actions (Baker and Nelson, 2005; Read and Sarasvathy, 2005). Accordingly:

H1c: A firm’s level of capability is positively related with its EO CA.

Livengood and Reger state, ‘the AMC perspective (see Chen et al., 2007) suggests the need to understand the why or the antecedents to competitive actions and reactions based on the subjective assessments and beliefs of managers’ (2010: 50–51). Chen (1996) makes it clear it is competitive action that is driven by these three key antecedents. Awareness, motivation and capability thus provide a basis for understanding the incentives and activities underlying competitively aggressive behavior. Unlike strictly action-based approaches to understanding competitive behavior (e.g. Ferrier, 2001), our EO-based conceptualization emphasizes the propensity of a firm’s key decision makers to take competitive action.

CA and Performance

Smith and colleagues argue the components of the AMC framework, ‘are three implicit, yet essential organizational characteristics that influence strategic action’ (2001: 320). By themselves, however, awareness, motivation and capability do no not account for why a
competitive posture or competitive processes and routines would contribute to stronger performance. Higher levels of the AMC dimensions, we have argued, improve a firm’s ability to act aggressively and may influence their inclination to do so. But it is a firm’s CA propensity and willingness to act that is linked to performance outcomes. Hughes and Morgan explain that, ‘Aggressiveness can improve performance because the emphasis on out-doing and out-maneuvering competitors strengthens the firm’s competitiveness at the expense of rivals’ (2007: 654). Prior research that found a positive relationship between CA and performance concluded, ‘A strong competitively aggressive stance gives a firm the ability to be a decisive player in a field of rivals and to act forcefully to secure or improve its position’ (Lumpkin and Dess, 2001: 445).

CD CA research establishes that increased levels of competitive actions are often associated with stronger performance (e.g., Miller and Chen, 2012; Hughes-Morgan et al., 2018). Because EO CA is the propensity to directly and intensely challenge competitors, it should lead to a firm taking more competitive actions. These actions are intended to draw customers away from rivals, shifting market share in favor of the more competitively aggressive firm (Ferrier, 2001; Ferrier et al., 1999). In the banking industry, for example, lenders are typically able to increase market share by relaxing lending standards or offering lower loan interest rates. Indeed, relative market share may be the most salient performance indicator, making market share increases a primary goal of competitive actions (Greve, 2008; Ritz, 2008).

Newbert (2008) sees market share and profitability as different though related indicators of performance, with the former being a non-financial and more resource-based measure, while the latter is financial and tied to competitive advantages. CD CA research has found a weaker relationship between aggressive behavior and firm profitability (Ferrier, 2001; Ferrier et al.,
Increasing market share may reduce firm profitability as the promotions’ costs and price reductions outweigh the positive financial effects (Armstrong and Collopy, 1996; Derfus et al., 2008). As such, the relationship between CA and performance can be subtly different across profitability and market share, meriting separate analyses.

**H2a:** The level of EO CA is positively related to firm profitability.

**H2b:** The level of EO CA is positively related to increases in market share

### Moderators of the Competitive Aggressiveness—Firm Performance Relationship

Lumpkin and Dess (1996) asserted that contextual issues such as firm size, industry characteristics, and firm strategy could alter, or moderate, the EO—performance relationship as some contexts could result in better “fit” than others. A meta-analysis of research on this relationship (Rauch et al., 2009) confirmed the assertion that context (moderating variables) indeed affects the EO—performance relationship. Accordingly, an important component of practically developing EO CA is to understand the contexts in which it is likely to have a greater or lesser impact on performance. Limited data allowed Rauch et al. (2009) to confirm only industry type (high versus low tech) and firm size as moderators, though the large amount of unexplained variance indicates there are other, important moderators for the EO—performance relationship (Rauch et al., 2009; Wales, 2016). Given the single-industry nature of this study and use of firm size as a control variable, this study was able to focus on other, theory-driven moderators to the EO CA – performance relationship. This paper proposes that a firm’s margin and the competitive density of the firm’s market moderate the CA—performance relationship according to the following logic.

**Margin.** Margin is ‘the difference between the total value and the collective cost of performing the value activities’ (Porter, 1985: 38). Margin represents the end result of the value chain where firms with high margins—often associated with differentiation strategies—are
thought to have a competitive advantage (Newbert, 2008). However, a competitive advantage may also result from positioning that entails or requires lower margins (Cho et al., 1998; McMahon, 2001). Lower margins can drive faster asset turnover, increased sales, and enhanced customer loyalty. Thus, reduced margins may represent a type of cost leadership strategy wherein the competitive advantages come through increased volume. Accordingly, margin can reflect a firm’s realized strategy (DeYoung et al., 2004), which Lumpkin and Dess (1996) identified as a key moderator of the EO—performance relationship.

Based on this reasoning, firms’ margins are likely to moderate positively the relationship between CA and market share. Firms with below average margins are likely to see increased share as the most viable path for outperforming rivals. Conversely, firms with high margins may have found ways to generate competitive advantages through greater customer value and/or reduced costs (Kaltcheva et al., 2010). As a result, firms with high margin strategies would be less dependent on building market share to outperform their rivals (McMahon, 2001). Given that in most firms margin and profitability are likely correlated to a certain degree, margin’s interaction with CA manifests itself primarily in market share impacts rather than profitability impacts. Therefore:

\[ H3: \text{Margin moderates the relationship between EO CA and increases in market share, such that positive relationship between EO CA and increases in market share is stronger when a firm’s margin is lower.} \]

\textit{Competitive Density}. Lumpkin and Dess (1996) identified industry characteristics, such as competitive density, as another possible moderator which should be studied to enable a more precise understanding of the EO CA—firm performance relationship. Competitive density, which reflects the number of firms in direct competition within a market (Carroll and Hannan, 2000), is another key factor that affects the relationship between competitive actions and firm
performance (Ferrier et al., 2002, Hughes-Morgan et. al., 2018), firms’ competitive actions (Greve, 2000), and profitability (DeYoung et al., 2004). In part, low density environments are conducive to collusive or de-escalatory actions. Research indicates that firms tend to focus on a relatively small number of rivals (Kilduff et al., 2010). In markets with only a few competing firms, even firms with relatively low CA are likely to be able to detect and counter the actions if a rival becomes more competitive. As the number of firms that companies need to monitor to detect competitive actions increases, it is easier for actions to go unnoticed and thus unchecked. Exacerbating this, firms often do a poor job of determining which firms pose genuine threats as the competitive density increases (Baum and Lant, 2003, Clark, 2011). These errors result in competitively aggressive firms taking actions that are unnoticed by competitors.

Maintaining awareness of more competitors is time-consuming and requires relatively greater attention (McMullen et al., 2009; Yu et al., 2015). As competitive density increases, the cognitive effort involved in monitoring increases, and only firms with higher levels of CA are likely to invest in these efforts. Thus, as competitive density increases so does the likelihood that less aggressive firms will come under attack from unmonitored rivals. A delayed response or even a total lack of response will be more conducive to aggressive firms reaping market share gains. Competitive attacks that are either undetected or insufficiently countered are also associated with increased profitability for the attacking firm (Boyd and Bresser, 2008; Lee, et al., 2000). Therefore:

**H4a:** Competitive density moderates the relationship between EO CA and firm profitability, such that the positive relationship between EO CA and profitability is stronger in markets of higher competitive density.

**H4b:** Competitive density moderates the relationship between EO CA and increases in market share, such that the positive relationship between EO CA and increases in market share is stronger in markets of higher competitive density.
Figure 1 illustrates this paper’s theoretical model:

--------- FIGURE 1 ABOUT HERE---------

**Methods**

**Sample**

This paper studied community banks headquartered in Texas, New Mexico, and Oklahoma. Community banking offers a rich competitive environment for the study, providing a sample with significant variation in the firms’ competitive aggressiveness and organizations where senior leaders have an accurate perception of firm routines. Community banks tend to be smaller, more locally controlled, and operate in fewer markets than their regional and national competitors. A community banking sample also has objective, archival performance data. The community bankers’ associations of Texas (which also has members in Oklahoma) and New Mexico supported the research by distributing the survey to their 590 member banks.

The community banking sample enabled us to access an industry with newfound competitive vigor. Deregulatory measures in the 1980s and 1990s transformed community banking into a far more competitive industry where leaders have significant competitive discretion (DeYoung *et al*., 2004; Hein *et al*., 2005). Major regional and national banks also entered markets previously dominated by community banks, increasing the competitive rivalry.

The study used a web-based survey instrument to collect data from bank senior decision-makers. Sufficiently complete responses were received from 182 banks in Spring 2008 (median bank age—62 years; median assets—$124 million), representing a 31 percent response rate. The survey randomized the question order within each section and also varied the order in which the sections were presented. The survey requested multiple responses from the bank senior decision-makers, defined as the president/CEO, CFO, or COO; 35 banks provided multiple responses.
Approximately half of the respondents (49 percent) were the CEO. Tests for response bias using bank age, size and location yielded no significant differences between the sample and larger population (Wilks’ Lambda= 0.995; $F=1.20; df=4, 939; p= 0.31$).

**Measures**

The study developed measures for awareness, motivation, capability, and competitive aggressiveness using the process recommended by Hinkin (1998). Item generation relied on theoretical definitions and a deductive approach based on those construct definitions. The study also drew on existing items from EO (e.g. Lumpkin and Dess, 2001), market orientation (Jaworski and Kohli, 1993; Narver and Slater, 1990), and strategic orientation (Venkatraman 1989) research.

The study used a two-pronged strategy to assess content adequacy. First, two academics from outside the research team as well as five CEOs from Texas firms reviewed the items. Next, 115 upper-division business undergraduates were provided with construct definitions and then asked to match each item to the construct it best measured as per the quantitative content adequacy approach (Schriesheim et al., 1999). A few items did not cleanly load on the intended construct. After rewording the items based on these efforts, 18 Arizona banking executives pilot tested the survey. Their feedback led to minor wording changes to the items.

*Competitive Aggressiveness and its AMC Dimensions.* A six-point Likert-type scale (1=strongly disagree, 6=strongly agree) was used to measure competitive aggressiveness and the awareness, motivation, and capability dimensions. Item scores were summed to form composite scores for the regression analyses. The scales were adequately reliable, with Cronbach alphas of 0.76 (competitive aggressiveness), 0.80 (awareness), 0.71 (motivation), and 0.72 (capability).
For banks with multiple respondents, the study averaged respondents for the regression analysis after confirming adequate interrater agreement (median $r_{wg}$ value was 0.90 – George, 1990).

**Dependent Variables.** All dependent variables were calculated using FDIC Call Report data. The study used three dependent variables—one profitability measure and two change-in-market-share measures. For profitability, the study used 2007 bank return on assets (ROA). For changes in market share, the study calculated the percentage change in a bank’s deposits and loans from December 2005 to December 2007. Levels of deposits and loans are an indication of market share and future profitability in banking (Hein *et al*., 2005; Nagar and Rajan 2005). Six banks in the sample had been formed since 2005 making their change-in-market-share data unavailable. Hence, 176 banks were used for testing hypotheses 2-4.

**Moderating Variables.** In banking, net interest margin (NIM) is the difference between the interest rate a bank is able to earn from lending, and the interest the bank must pay depositors to provide the funds needed to make loans; it is analogous to gross margin (DeYoung, 2007). Higher NIMs are typically associated with successful relationship-based strategies that generate loyal customers. Banks with lower NIMs typically rely on more transactional strategies centered on low costs and high volume. The mean NIM for the sample was 4.5 percent (SD = 1.1 percent), which is in line with community banking norms and suggests sufficient variability.

The FDIC’s Call Report defines bank markets using Metropolitan Statistical Area (MSA) boundaries. For banks outside an MSA, the county boundary defines the market. Following Greve (2000) and Ranger-Moore, Banaszak-Hall and Hannan (1991), this study used a more geographically-constrained measure of competitive density. After mapping each bank’s headquarters, researchers counted how many other banks had deposit-taking locations within a 10-mile radius. (Average daily commute lengths in the Dallas/Fort Worth and Houston markets...
are approximately 20 miles, so halving that distance conservatively represented a radius where customers of one bank would have convenient access to a competitor). For non-MSA markets, the study expanded the radius to 20 miles as low traffic reduces the travel time and rural businesses borrow from more distant lenders (Petersen and Rajan, 2002).

Control Variables. A dummy variable for Subchapter S banks controlled for their lower tax obligations and higher profits (Hein et al., 2005). Dummy variables for Oklahoma and New Mexico controlled for geographic effects. The study also calculated growth in market deposits from 2005 to 2007 to control for market growth. The 2005 loan portfolio size (deposit portfolio size for deposit growth models) controlled for bank size. Finally, the study included bank age as a control and ROA to control for financial performance in the market share change models.

Analysis

A confirmatory factor analysis (CFA) using LISREL 8.80 was used to finalize the scale development process. Structural equation modeling (SEM) was then used to test Hypotheses 1 and 2. Employing the two-step process (Anderson and Gerbing, 1988), the study fit the measurement model first. Hierarchical, moderated regression analyses were then employed to test Hypotheses 3 and 4.

Results

Table 1 shows the means, standard deviations, and correlation coefficients for the dependent, independent, and moderating variables for the sample’s 176 banks. The values of the independent and moderating variables were mean-centered for the analysis.

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Following refinement of the measurement model, the study imposed the structural constraints consistent with the relationships indicated in Hypotheses 1 and 2. The fit for the loan growth model was good ($\chi^2=188.0; df=103; SRMR=0.050; RMSEA=0.060; CFI=0.96$) and
representative of all models\textsuperscript{1} (Hu and Bentler, 1999). Two capability items are similar in wording, and thus those error terms were allowed to correlate (Bollen, 1989).

As shown in Figure 2, Hypotheses 1a and 1b are supported. The factor loadings between CA and awareness and motivation are highly significant ($p < 0.001$) and positive for each dependent variable. The relationship between capability and competitive aggressiveness (H1c) received some support, with the relationship marginally significant for loans and deposits ($p < 0.10$) and insignificant for ROA.

Testing alternative, more parsimonious models indicated worse fit than the hypothesized model. Chi-square difference tests indicated the model depicted in Figure 1 exhibited significantly better fit ($p < 0.001$) than any model that combined any two of the three dimensions. Combining all three dimensions into a single dimension also fit significantly worse ($p < 0.001$). This finding highlights the unique contributions of each antecedent to CA.

As is reported in Figure 2, the analysis indicates a positive relationship between CA and changes in market share, indicating support for Hypothesis 2b. Increases in market share, both loans ($p < 0.05$) and deposits ($p < 0.01$), are associated with increasing levels of CA. Hypothesis 2a is not supported as the coefficient for ROA is not statistically significant.

As for potential issues in the regression analysis, the variance inflation factors peaked at only 2.2 (Neter\textit{ et al.}, 1983). Plots of the regression residuals and studentized residuals, none of

\textsuperscript{1} In the presence of missing data, LISREL 8.80 employs the EM algorithm to derive starting values for the FIML process. The amount of missing data was quite small (.25\% for firm-level items), and the EM/FIML technique generates only limited fit statistics ($\chi^2$ and RMSEA). To more comprehensively evaluate fit, we imputed values for the missing data using the recommended Mean\textsubscript{person} technique (Roth\textit{ et al.}, 1999) and then conducted another analysis. Probably due to the small amount of missing data, the differences in $\chi^2$ and RMSEA between the two approaches were negligible, and the second analysis fit statistics are reported in the text.
which exceeded the recommended cutoff of 2.5, suggested no evidence of heteroscedasticity. The highest observed Cook’s D of 0.10 was well below the critical value of 0.89, suggesting a lack of outliers (Cohen et al., 2003).

The regression analysis reinforced the SEM results for Hypothesis 2—significant, positive relationships between EO CA and loans and deposits, but an insignificant relationship with ROA. Hypotheses 3 and 4 suggest that margin and competitive density have moderating effects on the CA—performance relationship. Models 4 through 6 (Table 2) indicate support for both. Hypothesis 3 received significant support, as the level of margin did affect the CA—market share relationship for both loan and deposit growth (both $p < 0.05$). As expected, there was no significant moderation by margin with respect to profitability (Model 4).

The results for the moderating effect of competitive density also received some support. Hypothesis 4a, which suggests that firms in a denser competitive environment will see increased profitability with increasing levels of competitive aggressiveness, received significant support ($p < 0.05$). There was no support for H4b (market share).

**Supplemental Analysis**

Two issues merited additional analysis, the first being the weaker relationship between capability and CA. The covariance between the motivation and capability constructs is relatively high (0.73), much higher than that between awareness and capability (0.41) and awareness and motivation (0.56). This observation suggests a considerable amount of shared variance. Eliminating the covariance path between motivation and capability yielded a strongly significant ($p < 0.001$) relationship between capability and CA, though model fit obviously suffered. Removing capability from the model also yielded a poorer model fit than that of the hypothesized model. Thus, while the relationship between capability and competitive
aggressiveness is not as significant, that appears to be so primarily due to the relationship between capability and motivation.

A second issue is whether CA mediates any direct relationships between the AMC dimensions and the performance variables. Removing CA from the model and allowing direct paths between AMC and the performance variables is the first step in investigating possible mediation (MacKinnon, 2008). However, after removing CA neither awareness nor motivation had a significant direct relationship with the performance variables. Hence there is not a mediated relationship for those variables. Capability had a significant relationship ($p<0.05$) with loans and deposits. Adding CA back into the model, the next step for investigating mediation, caused the direct path between capability and loans/deposits to become insignificant, which would suggest some degree of mediation. However, because CA and capability do not have a significant direct relationship in the model, it does not technically meet the criteria for a mediated relationship. Further, allowing a direct path from the AMC dimensions to the performance variables did not improve model fit. This examination validates the hypothesized model; while the dimensions are important antecedents, it is the overall CA construct that has significant relationships with performance. It also supports the assertion that all three of the antecedents are needed to account for competitive aggressiveness in this research.

**Discussion**

This paper’s results indicate that, even within the community banking industry, firms vary significantly in their level of competitive aggressiveness. As hypothesized, the dimensions awareness and motivation are significantly related to CA. The relationship between capability and CA is more nuanced but, as indicated by the supplemental analysis, nonetheless present and important to a clearer understanding. Further, the three-item CA measure was an effective and
parsimonious means to investigate the relationship with performance, while also developing three items to measure each AMC dimension. As hypothesized, CA is positively related to increases in market share. However, there was not a significant relationship between CA and profitability. Also, the CA measure related far more strongly to increases in market share than did any of the AMC dimensions. This additionally suggests that while AMC are indeed antecedents, it is the overall propensity to take competitive action that best relates to performance. The study also yielded a pattern similar to many CD CA studies in terms of CA’s relationship to performance: a clear relationship with market share and a more nuanced relationship with ROA.

The study’s results indicate that firms with larger margins, which may be indicative of a differentiation or relationship strategy, are less likely to grow market share when acting aggressively (Figure 4). By contrast, firms tending toward lower margins, which may be representative of a cost leadership strategy, significantly grow market share as they become more competitively aggressive. This suggests the likely performance outcomes of a firm’s competitive behavior look differently for firms employing different fundamental strategies.

The paper proposed the positive relationship between CA and performance would be stronger as competitive density, a key competitive factor in banking, rose. That was the case for profitability but not increases in market share. That could be because, just as rivals in denser settings are not as able to detect aggressive firms’ actions, customers also are not as aware of banks’ efforts to lure them away from their current banks. Marketing research finds that, in highly contested arenas, advertising clutter leads to lower recall of advertising and less brand recognition (Hammer et al., 2009; Zanjani et al., 2011). Hence, while increased competitive
density may make it easier to mask attacks from a competitor, it may also make those attacks less
effective because of the clutter effect.

The effect of increasing density adds to the general discussion about whether increases in
market share and higher profitability are necessarily coincident. The findings suggest that as
density increases, CA may not lead to market share growth while still relating to higher
profitability (Figure 3). This finding about density may offer an explanation for why previous
CD CA research has more consistently found a positive relationship to market share gains than
improved profitability. Given that this sample is composed of relatively small firms, this finding
complements existing multi-market research based on investigations of much larger firms (Yu
and Cannella, 2013).

----------FIGURES 3 and 4 ABOUT HERE----------

**Limitations and Future Research**

This study has several limitations. First, more nuanced relationships between CA and
profitability could emerge using a longitudinal analysis (Luoma *et al.*, 2017). However, the
world-wide credit crisis began to affect banks after the data were collected in the second half of
2008 (DeYoung *et al.*, 2015), and these exogenous shocks curtailed the opportunity for valid
longitudinal data. Second, although the sample included multiple respondents for almost 20
percent of the participating banks and a 31 percent response rate, the study would likely have
benefitted from more banks with multiple respondents and a higher level of participation. Third,
having a relatively homogeneous sample minimizes some of the potential confounding effects of
the environment and managerial logics that could vary across industries. However, generalizing
the findings beyond the banking industry is subjective. Nevertheless, if CA exhibits the
relationships identified in this study within the community banking industry, then in industries with even more competitive variance these relationships might be even more pronounced.

Fourth, net interest margin is an imperfect proxy of firm positioning decisions. It is possible firms seek to increase market share due to lagging performance rather than conscious low cost positioning (Ferrier et al., 2002). Indeed, a post-hoc analysis indicated that firm profitability moderated the relationship between EO CA and market share growth, with the relationship being more positive for less profitable firms. That said, regressing competitive aggressiveness and the control variables against changes in banks’ margins from 2005 to 2007 yielded an insignificant result, indicating margin changes were not associated with the CA level. Future research could employ better measures of firm positioning strategy to further investigate the relationship.

Finally, as with most research studying the EO—performance relationship, this study has not measured specific performance-enhancing behaviors—that is, in this case, actual competitive actions—but the propensity toward that behavior which is evidenced by past, generalized competitive behavior. This creates a promising research question: to what extent does EO CA correspond with actual competitive behavior, both in volume and type, as measured in CD CA studies.

Although the empirical results indicate the overall measures of CA were far more influential on performance than were the individual dimensions, there are perhaps important relationships between each dimension and variables of interest. For example, Miller and Chen (1996) found that simplicity in a competitive repertoire degrades performance. However, with superior awareness, is it possible a firm may understand its rival’s posture so well it can use a limited competitive repertoire and still keep the rival off balance by doing the unexpected?
Further, is motivation more salient in areas of low competitive density simply because the performance of rivals in these situations is so easily known?

**Contributions and Conclusion**

This research has taken the underdeveloped CA construct and, by integrating insights from the AMC framework, has more-fully explicated the firm routines and practices that fuel competitive behavior. The research has developed new measures for CA and its dimensions, making the study of competitiveness easier, particularly in firms not tracked in the press. The research established similar relationships between CA and performance as those established between competitive behavior and performance in CD CA research, which underscores the utility of using these CA measures.

In 2007, then Bank of America CEO Ken Lewis said, ‘This is the time I think we could go for the jugular, really be disruptive and take market share.’ This study’s results suggest competitively aggressive firms talk a lot about their rivals (awareness), seek to take competitive actions to improve performance (motivation), and believe they have the means to take competitive action (capability). Using evidence from the community banking industry in three US Southwestern states, the assertion of BoA’s former CEO is confirmed: increased market share follows increased CA.

**References**


Table 1

Means, Standard Deviations and Correlation Coefficients for Key Variables

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$ Million$^a

Correlation coefficients .14 and greater are significant at $p < .05$ level. For this table $n = 176$.  

---

$ Million^a$
Table 2

Relationship between Competitive Aggressiveness and Performance with Margin and Density Interactions

<table>
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<tr>
<th>Variables</th>
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<th>Model 5</th>
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Numbers depicted are standardized coefficients. For all models n=176.

$^+ p < .10$

$^* p < .05$

$^{**} p < .01$

$^{***} p < .001$
Figure 2
Results Model

Awareness

H1a

Motivation

H1b

Capability

H1c

Competitive Aggressiveness

ROA = 0.42

H2a

Profitability

Deposits = 2.81*

Loans = 2.51*

H2b

Market Share △

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<th>T-Values</th>
<th>ROA</th>
<th>Loans</th>
<th>Deposits</th>
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<td>3.77***</td>
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MODEL FIT

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*p < .10

*p < .05

**p < .01

***p < .001
Figure 3
Moderating Effect of Density on ROA

Figure 4
Moderating Impact of Margin on Loan Growth
## APPENDIX

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<tr>
<th>Measured Construct</th>
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<td>Competitive Aggressiveness</td>
<td>My bank takes aggressive actions against our rivals</td>
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<tr>
<td></td>
<td>My bank seeks to take business away from our rivals</td>
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<td>My bank directly challenges competitors as we pursue our objectives</td>
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<td>Awareness</td>
<td>People in my bank talk a lot about our rivals' strategies and tactics</td>
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<tr>
<td></td>
<td>Monitoring our competitors is important in my bank</td>
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<td></td>
<td>People in my bank talk a lot about what our rivals might do in the future</td>
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<td>Motivation</td>
<td>When a rival outperforms my bank, it is an indication we need to</td>
</tr>
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<td>take more competitive actions</td>
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<td>We prefer to initiate competitive actions in our market</td>
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<td>My bank sees taking competitive actions as a useful way to improve our performance</td>
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<tr>
<td>Capability</td>
<td>My bank has the resources it needs to initiate or respond to</td>
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<tr>
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<td>competitive actions</td>
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<td>My bank would still have sufficient resources to take competitive</td>
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<tr>
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<td>actions even if the firm's level of resources dropped by ten percent</td>
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<td>My bank can devise many ways to engage in competitive actions</td>
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<td>using the resources available to the firm</td>
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