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Organizational Culture and Organizational Effectiveness: A Meta-Analytic Investigation of the Competing Values Framework's Theoretical Suppositions

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We apply Quinn and Rohrbaugh's (1983) competing values framework (CVF) as an organizing taxonomy to meta-analytically test hypotheses about the relationship between 3 culture types and 3 major indices of organizational effectiveness (employee attitudes, operational performance [i.e., innovation and product and service quality], and financial performance). The paper also tests theoretical suppositions undergirding the CVF by investigating the framework's nomological validity and proposed internal structure (i.e., interrelationships among culture types). Results based on data from 84 empirical studies with 94 independent samples indicate that clan, adhocracy, and market cultures are differentially and positively associated with the effectiveness criteria, though not always as hypothesized. The findings provide mixed support for the CVF's nomological validity and fail to support aspects of the CVF's proposed internal structure. We propose an alternative theoretical approach to the CVF and delineate directions for future research.

Keywords: organizational culture, organizational effectiveness, meta-analysis

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> Culture permeates every aspect of our company. It is our essence, our DNA, our present, and our future. (Barrett, 2008, p. 6)

Over 4,600 articles have examined the topic of organizational culture since 1980. The impetus behind much of this research is the belief that organizational culture is an important social characteristic that influences organizational, group, and individual behavior. Although there are a variety of meanings and connotations about organizational culture (Ostroff, Kinicki, & Tamkins, 2003), researchers conceptualize organizational culture as being shared among members (Glisson & James, 2002), existing at multiple levels (e.g., group and organizational levels; Detert, Schroeder, & Mauriel, 2000), influencing employees' attitudes and behaviors (Smircich, 1983), and consisting of collective values, beliefs, and assumptions (Schein, 2004). Schein offered a definition of organizational culture that encapsulates these commonly articulated facets. Organizational culture is "the set of shared, taken-for-granted implicit assumptions that a group holds and that determines how it perceives, thinks about and reacts to its various environments" (Schein, 1996, p. 236).

Schein's (1996) definition of organizational culture requires clarification regarding levels of analysis. Culture is a "shared," collective construct and, as such, is a property of the work unit (Glisson & James, 2002; Ostroff et al., 2003), which is broadly conceptualized to include work groups, teams, and indeed the organization as a whole (Schein, 2004). Consistent with this conceptualization, culture is appropriately measured with referent-shift consensus models (Chan, 1998). That is, respondents assess the values, beliefs, norms, and expectations that affect members of a work group. Organizational culture researchers also have assumed that culture is compositional (Glisson & James, 2002; Kozlowski & Klein, 2000). Stated differently, culture has the same content and meaning at the group (i.e., subculture) and organizational levels (Ostroff et al., 2003). Although this assumption remains an empirical question, organizational cultures and subcultures are theoretically isomorphic because both of them influence behavior through shared, social normative cues (O'Reilly & Chatman, 1996). Due to the theoretical homogeneity and definition as a group-level construct (Schein, 1996, 2004), we uniformly refer to both levels of culture as organizational culture. We now briefly review organizational culture's historical roots.[1]

Much of our knowledge about organizational culture emanates from the anthropological (Geertz, 1973; Goodenough, 1971), sociological (Durkheim, 1965), and social psychological (Festinger, 1957; Kelley, 1971) disciplines. Pettigrew's (1979) seminal discourse on organizational culture integrated insights from sociology

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and anthropology to spur interest in culture as an integral feature of organizational behavior. Subsequent research advanced the organizational culture literature by elucidating how culture is created, maintained, and disseminated (Hatch, 1993; Nord, 1985; Schein, 2004; Siehl, 1985; Trice & Beyer, 1991). Early work, however, gave little attention to empirically investigating the relationship between organizational culture and organizational effectiveness. Instead, researchers were concerned with developing organizational culture's theoretical boundaries. Consequently, much of culture's theoretical development was derived from single-organization qualitative studies.

One prominent perspective that emerged from organizational culture's conceptual development (for a detailed review, see Ashkanasy, Wilderom, & Peterson, 2000) is research on culture types. This stream of research illuminates culture's substance or content and evaluates culture's association with measures of organizational effectiveness (Denison & Mishra, 1995; Hofstede, Neuijen, Ohayv, & Sanders, 1990; Quinn & Kimberly, 1984). As a result, it addresses the proclamation that organizational culture is a key ingredient of organizational effectiveness (Denison & Mishra, 1995; Kotter & Heskett, 1992; Wilkins & Ouchi, 1983) and can be a source of sustainable competitive advantage (Barney, 1986). Although the culture type perspective generated much empirical research, the culture–effectiveness link remains equivocal. Qualitative reviews, for example, suggest that there is a lack of theoretical development and empirical support to lend credence to the proposition that organizational culture is associated with organizational effectiveness (Ostroff et al., 2003; Wilderom, Glunk, & Maslowski, 2000).

We assert that this conclusion is premature because researchers have used numerous culture types, thereby making a quantitative summary and interpretation of findings challenging. This conclusion leads to our first goal in this study, which is to use the competing values framework (CVF; Cameron, Quinn, DeGraff, & Thakor, 2006; Quinn & Rohrbaugh, 1983) as an organizing taxonomy in conducting a meta-analysis of the relationship between culture types and organizational effectiveness. A meta-analysis will be helpful in interpreting past research because individual studies are subject to the effects of sampling error and artifacts that can lead to inaccurate conclusions (Hunter & Schmidt, 2004).

The CVF was chosen because it is an organizational culture taxonomy widely used in the literature (Ostroff et al., 2003). For example, measures of organizational culture that directly or indirectly assess the CVF have been administered in over 10,000 organizations globally (Cameron et al., 2006) within the following academic disciplines: management, marketing, supply-chain management, accounting, social services, hospitality, and health care. Further, the reliability and content validity of Cameron and Ettington's (1988) measure of the CVF has been empirically supported in studies utilizing multitrait–multimethod analysis (Quinn & Spreitzer, 1991), multidimensional scaling (Howard, 1998), and structural equation modeling (Kalliath, Bluedorn, & Gillespie, 1999). Surprisingly, however, there has not been a thorough assessment of the theoretical foundation of the CVF despite its reported content validity and widespread use in research and practice. For instance, CVF theory infers that various culture types are most strongly associated with a specific set of effectiveness criteria. To date, the CVF's nomological validity has not been examined. Additionally, the CVF is predicated on the assumption of competing or contradictory values among different types of organizational culture. This assumption has not been confirmed, which leaves an equivocal interpretation about the nature of the interrelationship between culture types. Therefore, our second goal in this study is to examine the CVF's underlying theoretical assumptions or internal structure.

In summary, this study contributes to the literature in four ways. First, we meta-analytically test the association between three culture types and three indices of organizational effectiveness. Second, we test the nomological validity of the CVF's theoretical underpinnings by investigating whether the pattern of relationships between culture types and measures of organizational effectiveness are consistent with those promulgated by the CVF. Third, we evaluate whether or not interrelationships among culture types are consistent with propositions derived from the CVF. As a result, we use meta-analytic techniques to test theoretically derived hypotheses in an effort to extend knowledge about organizational culture theory as well as culture's relationship with firm effectiveness. Fourth, we compare our findings with existing research to identify gaps in the literature, consider an alternative theoretical approach to culture research, and suggest recommendations for future research.

This analysis is divided into six sections: (a) a review of the CVF, (b) a discussion of a heuristic taxonomy used to organize criterion variables, (c) a review of hypotheses to be tested, (d) a description of the meta-analytic method used to examine the correlations between organizational culture and effectiveness criteria, (e) a review of meta-analytic results, and (f) a discussion of results and suggestions for future research.

Competing Values Framework

Quinn and Rohrbaugh (1983) derived the CVF by analyzing the relationship among Campbell's (1977) effectiveness criteria. In a two-part study, they asked seven academic experts to evaluate which of Campbell's 30 effectiveness criteria were relevant for organizational effectiveness and analyzed responses with multidimensional scaling. Results revealed that a three-dimensional orthogonal solution was the best representation of these effectiveness criteria. These three underlying dimensions, which were referred to as focus, structure, and means–ends, were proposed to represent competing core values that "represent what people value about an organization's performance" (Cameron & Quinn, 1999, p. 31.). We now consider these dimensions in more detail.

The Structure of the CVF

Figure 1 illustrates how the dimensions of focus and structure overlay to define the four cultural types comprising the CVF: clan, adhocracy, market, and hierarchy. The *focus* dimension (i.e., horizontal axis in Figure 1) differentiates effectiveness criteria that emphasize internal capabilities, integration, and unity of processes from those that center on an external orientation and differentiation. The *structure* dimension (i.e., vertical axis in Figure 1) differentiates effectiveness criteria that focus on flexibility and discretion from criteria that emphasize stability and control.

The CVF's third value dimension, *means–ends*, is the theoretical basis upon which the CVF framers explicate why each culture type is associated with a specific strategic thrust and a unique set

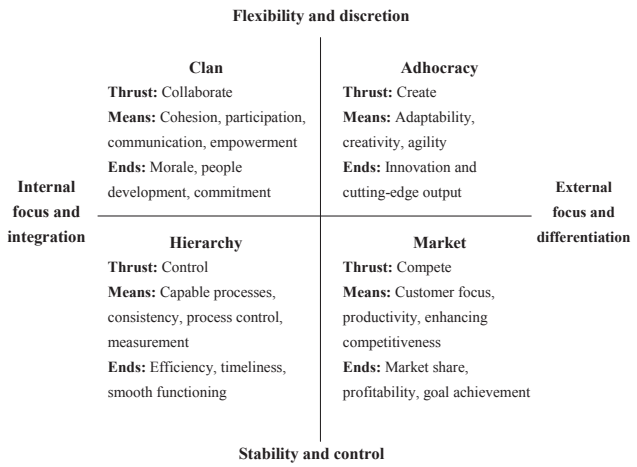

Figure 1. The competing values framework. Adapted from Figure 3.1 (2006), in Kim S. Cameron, Robert E. Quinn, Jeff DeGraff, and Anjan V. Thakor, *Competing Values Leadership: Creating Value in Organizations*, Edward Elgar Publishing Ltd.: Cheltenham, UK, and Northampton, MA, p. 32. Adapted with permission.

of effectiveness criteria. In particular, the third dimension elucidates the behaviors that emanate from values and beliefs. These behaviors are the mechanisms (*means*) through which culture types are related with desired effectiveness criteria (*ends*). Stated differently, a collective's values and beliefs are the social normative expectations that inform members how they ought to behave (Meglino & Ravlin, 1998; O'Reilly, Chatman, & Caldwell, 1991). Behaviors (e.g., participating, taking risks, being aggressive, adhering to rules) subsequently affect employees' attitudes and tangible work output. Figure 2 illustrates the basic assumptions, beliefs, values, and artifacts underlying each cultural type along with the effectiveness criteria predicted to relate to each type. Because effectiveness criteria are related, it is important to remember that culture types are more likely to have varying relationships with effectiveness criteria as opposed to opposite relationships, as one would expect if the cultural types were truly dichotomous.

Culture Types Underlying the CVF

The *clan culture type* is internally oriented and is reinforced by a flexible organizational structure. Figure 2 shows that the assumption underlying clan cultures is that human affiliation produces positive affective employee attitudes directed toward the organization. In other words, "organizations succeed because they hire, develop, and retain their human resource base" (Cameron et al., 2006, p. 38). A core belief in clan cultures is that the organization's trust in and commitment to employees facilitates open communication and employee involvement. Consequently, clannish organizations value attachment, affiliation, membership, and support (Cameron & Quinn, 1999). Behaviors associated with these values include teamwork, participation, employee involvement, and open communication. These means are expected to promulgate the outcomes of employee morale, satisfaction, and commitment (Cameron & Ettington, 1988).

The *adhocracy culture type* is externally oriented and is supported by a flexible organizational structure. A fundamental assumption in adhocracy cultures is that change fosters the creation or garnering of new resources (see Figure 2). A fundamental belief in adhocracy cultures is that an idealistic and novel vision induces members to be creative and take risks. Hence, adhocratic organizations value growth, stimulation, variety, autonomy, and attention to detail (Quinn & Kimberly, 1984). Behaviors that emanate from these values include risk taking, creativity, and adaptability. Consequently, these means are predicted to cultivate innovation and cutting-edge output (Denison & Spreitzer, 1991).

The *market culture type* is externally oriented and is reinforced by an organizational structure steeped in control mechanisms. According to the CVF, an assumption underlying market cultures is that an achievement focus produces competitiveness and aggressiveness, resulting in productivity and shareholder value in the short and immediate term (Cameron & Quinn, 1999). The primary belief in market cultures is that clear goals and contingent rewards motivate employees to aggressively perform and meet stakeholders' expectations. Therefore, market organizations value communication, competence, and achievement. Behaviors associated with these values include planning, task focus, centralized decision

Culture Type	Assumptions	Beliefs	Values	Artifacts (behaviors)	Effectiveness Criteria
Clan	Human affiliation	People behave appropriately when they have trust in, loyalty to, and membership in the organization.	Attachment, affiliation, collaboration, trust, and support	Teamwork, participation, employee involvement, and open communication	Employee satisfaction and commitment
Adhocracy	Change	People behave appropriately when they understand the importance and impact of the task.	Growth, stimulation, variety, autonomy, and attention to detail	Risk-taking, creativity, and adaptability	Innovation
Market	Achievement	People behave appropriately when they have clear objectives and are rewarded based on their achievements.	Communication, competition, competence, and achievement	Gathering customer and competitor information, goal-setting, planning, task focus, competitiveness, and aggressiveness	Increased market share, profit, product quality, and productivity
Hierarchy	Stability	People behave appropriately when they have clear roles and procedures are formally defined by rules and regulations.	Communication, routinization, formalization, and consistency	Conformity and predictability	Efficiency, timeliness, and smooth functioning

Figure 2. The competing values framework's four culture types. Adapted from Table 13-1 (1984), in Robert E. Quinn and John R. Kimberly, "Paradox, planning, and perseverance: Guidelines for managerial practice," in *New futures: The challenge of managing corporate transitions* (pp. 295–313), edited by J. R. Kimberly and R. E. Quinn, 1984, Homewood, IL: Dow Jones–Irwin. Copyright 1984 by Dow Jones–Irwin. Adapted with permission from The McGraw-Hill Companies.

making, and articulation of clear goals. These means are hypothesized to result in a company beating its competitors, achieving its goals, improving product quality, and enhancing its market share and profitability (Cameron et al., 2006).

The *hierarchy culture type* is internally oriented and is supported by an organizational structure driven by control mechanisms. As shown in Figure 2, a core assumption in hierarchical cultures is that control, stability, and predictability foster efficiency. A predominant belief in hierarchy cultures is that employees meet expectations when their roles are clearly defined. As a result, hierarchical cultures are hypothesized to value precise communication, routinization, formalization, and consistency (Quinn & Kimberly, 1984). Behaviors that result from these values include conformity and predictability. These means in turn are expected to promote efficiency, timeliness, and smooth functioning (Denison & Spreitzer, 1991).

In sum, the CVF suggests that culture types consist of a combination of the organization's focus and structure. They possess unique sets of behaviors, values, beliefs, and assumptions that influence the organization's attention and effort to attain distinct organizational ends. Hence, CVF theory suggests that culture types are expected to relate to different organizational effectiveness indicators as a function of their basic assumptions, values, and structures.

Organizational Effectiveness Taxonomy

The multidisciplinary interest in the organizational culture literature has yielded empirical findings linking culture with a variety of organizational processes and outcomes. Although this diverse attention attests to culture's importance within organizations, encapsulating and synthesizing disparate effectiveness criteria poses a significant challenge unless a parsimonious taxonomy is utilized. We derive three effectiveness categories that are consistent with existing classifications to succinctly integrate the effectiveness criteria used in past research (e.g., Dyer & Reeves, 1995; Hart & Quinn, 1993; Kaplan & Norton, 1992). *Employee attitudes* criteria consist of employees' cognitions toward the organization, such as organizational commitment and job satisfaction. *Operational effectiveness* criteria represent organizations' innovative products and processes as well as product and service quality. *Financial effectiveness* criteria encapsulate organizations' pursuit of external measures of success, such as growth (i.e., increase in revenue and/or number of employees) and profitability. These categories obviously are related and are more suited to for-profit than not-for-profit organizations. That said, we use them as a heuristic to assist in interpreting our meta-analytic results.

Hypotheses

We based our predictions on the original CVF taxonomy (Quinn & Rohrbaugh, 1983) because it represents the theoretical foundation undergirding the link between culture and effectiveness (Cameron & Quinn, 1999; Cameron et al., 2006; Quinn & Kimberly, 1984). We also applied other complementary theories and empirical research to bolster support for these hypotheses. The following hypotheses pertain to relationships between the culture types—clan, adhocracy, and market—and effectiveness criteria—employee attitudes, operational effectiveness, and financial effectiveness.[2]

Employee Attitudes

Figures 1 and 2 show that a clan culture's strategic thrust of collaborating is driven by values of attachment, affiliation, trust, and support (Cameron et al., 2006). These values influence unit-level behavior by imbuing social norms that direct members' effort through articulating which behaviors are expected and rewarded (O'Reilly & Chatman, 1996). Clan values thus influence unit members to involve themselves in teamwork, participate in decision making, and engage in open communication. These behaviors in turn lead to desirable collective employee attitudes because they create a sense of ownership and responsibility (Denison & Mishra, 1995). Similarly, group engagement models of procedural justice postulate that unit members who have an opportunity to be involved in the decision-making process engender positive affect toward their respective units (Tyler & Blader, 2003). Clan cultures, which encourage participation and involvement, should thus be associated with positive unit-level employee attitudes.

Although adhocracy cultures are expected to have a positive effect on aggregated employee attitudes, CVF theory and research on job design and participative management suggest that the relationship is attenuated by extant mediating and moderating variables. Autonomy, a central value in adhocracy cultures, is a motivating work characteristic that indirectly enhances unit members' attitudes toward the organization (Hackman & Oldham, 1976; Humphrey, Nahrgang, & Morgeson, 2007). Autonomy's effect on members' collective attitudes is indirect, according to Hackman and Oldham's (1980) job characteristics model of job design, because the relationship is mediated by three critical psychological states (i.e., experienced meaningfulness, experienced responsibility, and knowledge of results) and is moderated by knowledge and skills, growth need strength, and context satisfactions. Humphrey et al.'s meta-analysis partially confirmed these predictions. Further, research on participative management supports an indirect relationship between autonomy and employee work attitudes in that participative management is expected to be most effective when the level of trust between managers and employees is high; when employees do not work on interdependent tasks; and when employees are competent, prepared, and interested in participation (Sashkin, 1984; Wagner, Leana, Locke, & Schweiger, 1997). All told, the relationship between adhocracy cultures and employee attitudes should be less positive than that between clan cultures and employee attitudes because the effects of an adhocracy culture do not directly influence collective employee attitudes.

As with adhocracy cultures, opposing mechanisms may attenuate the magnitude of the relationship between market cultures and employee attitudes. Market cultures foster positive collective employee attitudes when units achieve goals. Group members derive satisfaction from attaining goals because the culture provides valuable extrinsic and/or intrinsic rewards (Judge, Bono, Erez, & Locke, 2005; Maier & Brunstein, 2001). Conversely, market cul-

[2] We do not offer hypotheses related to hierarchy cultures because insufficient data were available to examine their meta-analytic effects.

tures—permeated by competition and aggressiveness—can have a deleterious effect on collective employee attitudes by fostering distrust among group members. As a result, organizational members forgo collaboration in lieu of pursuing self-interests, which negatively impacts employees' collective attitudes toward the organization (Kirkman & Shapiro, 2001). The impact of adhocracy and market cultures on collective employee attitudes thus may be attenuated by countervailing group dynamics. In sum, variance in unit-level employee attitudes may be accounted for by intervening variables, thereby reducing the direct effect of adhocracy and market cultures. Hence, adhocracy and market cultures should have a weaker, more distal association with positive unit-level employee attitudes than do clan cultures. On the basis of CVF theory and the above discussion, we predicted the following relationship:

> *Hypothesis 1:* Clan cultures have a significantly stronger positive relationship with unit-level employee attitudes than do adhocracy and market cultures.

Operational Effectiveness

Operational effectiveness is driven by different organizational foci. As such, different predictions are needed to elucidate expected relationships between organizational culture and the specific operational effectiveness criteria uncovered through the meta-analytic procedures we discuss within the Method section (i.e., innovation and quality of products and services).

Innovation. Adhocracy cultures, as noted in Figures 1 and 2, foster a strategic thrust of creating new products, services, niches, and processes by emphasizing values such as growth, stimulation, variety, and autonomy (Cameron & Quinn, 1999). These values encourage employees to take risks and utilize creativity to identify and respond to unique customer needs (Cameron et al., 2006). Consistent with CVF theory, flexible organizational structures emphasize adaptability and accentuate employees' creativity, thereby facilitating innovation (Aiken & Hage, 1971). An external focus further enables employees to more readily identify new market segments and unfulfilled customer needs through environmental scanning (Miller & Friesen, 1982). Thus, CVF theory advocates that adhocracy cultures should be positively associated with innovation.

Although clan cultures are expected to foster innovation, research on groupthink suggests that the relationship may be attenuated by negative group processes. Janis (1982) defined groupthink as "a mode of thinking that people engage in when they are deeply involved in a cohesive in-group, when members' striving for unanimity override their motivation to realistically appraise alternative courses of action" (p. 9). Because clan cultures rely on participation, employee involvement, and open communication to instill cohesion, they may be more susceptible to groupthink's detrimental outcomes. In other words, highly cohesive groups may be less likely to identify and institute novel alternatives as well as challenge traditional perspectives (Janis, 1982; Sethi, Smith, & Park, 2001). In support, Callaway and Esser (1984) reported that moderately cohesive groups made better decisions than either low- or high-cohesive groups.

Similarly, although market cultures accentuate group goal setting, which is positively related with group performance (O'Leary-Kelly, Martocchio, & Frink, 1994), highly competitive and aggressive behavior may counteract innovative outcomes. For instance, teams with challenging goals and high-performance orientation members were not likely to exhibit adaptability because members experienced negative affect when confronted with obstacles created by difficult goals (LePine, 2005). Hence, goals may hinder performance on complex and unique tasks by augmenting anxiety and obviating team cooperation (cf. Mitchell & Daniels, 2003). In sum, we expected adhocracy cultures to have a stronger association with innovation than do clan and market cultures. Considering CVF theory and the above discussion, we predicted the following relationship:

> *Hypothesis 2:* Adhocracy cultures have a significantly stronger positive relationship with innovation than do clan and market cultures.

Quality of products and services. Figures 1 and 2 indicate that market cultures facilitate a strategic focus of competing and achieving by incorporating customers' feedback and leveraging existing resources (i.e., human capital's competence) to deliver quality products and services at a competitive price (Quinn & Kimberly, 1984). Product and service quality are likely to emanate from firms with a market culture for two reasons. First, market cultures maintain an external focus on customers and competitors to garner the competitive foresight needed to anticipate customers' evolving needs, standards, and expectations (Cameron et al., 2006). A market culture's thrust of communicating with its customers and stakeholders also enables an organization to internally communicate information needed to deliver desirable product and service quality (Pelham & Wilson, 1996; Verhees & Meulenberg, 2004). Second, market cultures, which set clear goals to improve performance, are more apt to apply the information garnered from customers to generate quality- and service-related goals. These goals in turn direct team members' attention to improving product and service quality. Moreover, organizational members are encouraged to competitively and aggressively meet these goals because rewards are more likely to be contingent on goal attainment in market cultures. Consequently, market cultures use goal setting as means to attain ameliorated product and service quality (Cameron & Quinn, 1999). Taken together, organizations with a market culture should be positively associated with product quality because they understand, monitor, and respond to their customers as well as generate and execute quality-related goals (Atuahene-Gima & Ko, 2001).

CVF theory is based on the notion that clan and adhocracy cultures have a positive but less focal relationship with quality of products and services. Clan cultures should improve product and service quality because team members share information and collaborate and, as such, identify weaknesses in internal processes. Clan cultures are less adept, however, at identifying and responding to customers' evolving requirements because they are focused on processes internal to the organization. Similarly, adhocracy cultures induce team members to produce novel, ad hoc solutions to improve product and service quality (Gilson, Mathieu, Shalley, & Ruddy, 2005). They are less likely, however, to generate the consistency and reliability in processes that routinize product and service quality, resulting in lower customer satisfaction (Gilson et al., 2005). All told, market cultures appear to have a more proxi-

mal association than clan and adhocracy cultures with quality of products and services. Utilizing CVF theory and the above discussion, we predicted the following relationship:

> *Hypothesis 3:* Market cultures have a significantly stronger positive relationship with quality of products and services than do clan and adhocracy cultures.

Financial Effectiveness

Organizations with a market culture pursue organizational profitability and growth through competing intensely to acquire new customers and aggressively attacking competitors' market share (see Figures 1 and 2; Cameron & Quinn, 1999; Deshpandé & Farley, 2004; Narver & Slater, 1990). They increase their customer base and market share by engaging in customer service activities (e.g., seeking customer feedback and monitoring customer satisfaction) and staying connected with and anticipating customers' needs (Daft, Sormunen, & Parks, 1988). The pervasive focus on competition and customer feedback prompts market cultures to create plans and generate goals to maintain a leading financial position in the marketplace. Market cultures' goals refine organizational members' attention to activities that deliver lucrative financial results to shareholders (Cameron et al., 2006; O'Leary-Kelly et al., 1994). Stated differently, market cultures integrate information from the external environment to construct and disseminate clear and coherent goals in an effort to attain financial effectiveness. Consistent with CVF theory, goals provide purpose and meaning as well as define appropriate behavior within the organization (Denison & Mishra, 1995). Hence, market cultures should exhibit a positive association with financial effectiveness.

Clan and adhocracy cultures should also have a positive association with financial effectiveness criteria, but CVF theory asserts that the relationship is more distal than that of market cultures. One mechanism through which clan and adhocracy cultures influence financial effectiveness is team empowerment (Chen, Kirkman, Kanfer, Allen, & Rosen, 2007). Empowerment is an important determinant of clan and adhocracy cultures because it includes the extent to which team members, as a collective, intrinsically care about their tasks as well as perceive autonomy at work (see Figure 2). Furthermore, Jung and Sosik (2002) reported that group efficacy mediates the relationship between empowerment and perceived group effectiveness. Clan and adhocracy cultures' distal association with financial effectiveness may thus operate through these mediating mechanisms as well as other mechanisms, such as human resource management practices (Combs, Liu, Hall, & Ketchen, 2006) and group cohesion (Gully, Devine, & Whitney, 1995). Therefore, the more proximal relationship between market culture and financial effectiveness should be stronger than in clan and adhocracy cultures. On the basis of CVF theory and the above discussion, we predicted the following relationship:

> *Hypothesis 4:* Market cultures have a significantly stronger positive relationship with financial effectiveness criteria than do clan and adhocracy cultures.

Method

Literature Search

We identified articles for potential inclusion in the meta-analysis by a computer-based literature search of PsycINFO and ABI/INFORM using the keywords *corporate culture, organizational culture, Competing Values Framework, Organizational Culture Profile, Organizational Culture Inventory*, and *Work Practices Survey*. This procedure enabled us to include studies that examined organizational culture with taxonomies other than the CVF. We chose the time frame between 1980 and January 2008 because contemporary research on organizational culture started to flourish in the 1980s (Ostroff et al., 2003). Initial searches resulted in identifying 4,637 articles for consideration.

Studies were included in the meta-analysis if they met the following six criteria. First, organizational culture had to be measured: We excluded 3,829 theoretical papers, qualitative studies, or papers tangentially mentioning the construct. Second, organizational culture had to be correctly operationalized to represent the property of a higher level unit (Chan, 1998; Kozlowski & Klein, 2000) because it represents a shared phenomenon. This criterion resulted in the elimination of 134 studies that measured individual perceptions of organizational culture and linked them with individual level attitudes and behaviors. Third, studies had to be in English, due to translation issues, and this criterion resulted in the exclusion of 39 non-English articles. Fourth, studies had to be published in peer-reviewed journals, and this resulted in the omission of 232 dissertations, book chapters, and conference papers. Fifth, the studies provided at least one correlation between organizational culture and a dependent variable, or a relevant statistic (e.g., *t, F,* or chi-square statistics) that could be converted into correlation coefficients. We contacted 62 authors requesting correlation matrices between organizational culture and unit level outcomes and subsequently obtained 17 of them. Sixth, we excluded nine studies in which forced-choice ipsative scales were used to measure organizational culture because they may produce nonindependent scores, resulting in spurious correlations as well as potentially overestimated reliabilities (Johnson, Wood, & Blinkhorn, 1988; Meade, 2004). We thus omitted studies using forced-choice ipsative scales because they are not appropriate for data subjected to inferential analyses (Quinn & Spreitzer, 1991). Finally, we excluded additional studies based on the duplicate study detection heuristics developed by Wood (2008). Of these studies, 238 were deleted because PsycINFO and ABI/INFORM created different references for the same articles when these articles were input using abbreviated author names or journal names; 27 were deleted because they had common authors or had similar study characteristics, sample characteristics, construct definitions and measures, and study effects. These criteria resulted in our final data set of 84 studies with 94 independent samples. We then coded 1,332 correlations from these studies and retained 880 for analysis.

Developing Coding Categories

Two authors independently coded the information from all articles. We began by coding effect sizes for the key variables involved in the study—measures of culture and organizational effectiveness—and then coded sample size and various sample

characteristics to use in testing for moderation. These characteristics included industry and nation as well as data collection methods, such as whether the data were collected from a single informant or multiple informants and whether the correlated variables were measured by the same informants. The interrater agreement was 97.9%. We then met and discussed all discrepancies until 100% agreement was reached. This coding process resulted in 1,332 correlations between 262 culture variables and 153 measures of organizational effectiveness. Due to the breadth and diversity of measured variables, we applied a categorization procedure used in previous meta-analytic research by Kinicki, McKee-Ryan, Schriesheim, and Carson (2002) and McKee-Ryan, Song, Wanberg, and Kinicki (2005) to integrate measures of organizational culture and effectiveness criteria into broader categories.

Coding for organizational culture. Our first step was to identify those studies that used measures of organizational culture that were consistent with the CVF (Appendix A presents a sample of the primary culture variables that were categorized into the CVF taxonomy). We began by going to each original-source article to obtain definitions of the measured variables and to make copies of the items used to measure the culture type under consideration: This information was given to all three authors. Next, each author separately compared this information to descriptions of the CVF's culture types (i.e., clan, adhocracy, market, and hierarchy) and made judgments about which measures of culture were congruent with the theoretical definitions of the culture types underlying the CVF. We then met to discuss our evaluations. To ensure that variables included in each culture type were homogenous, we classified organizational culture variables into the CVF only when their definitions and item content demonstrated clear overlap with those of the CVF. We also reversed correlation signs when the culture type was reverse scored or represented a conceptual antonym to one of the four culture types. Below are two examples of judgments made using this process.

Koufteros et al. (2007) measured "beliefs on working with others." Its definition was "the degree to which workers are expected to work together on integrative tasks" (Koufteros et al., 2007, p. 473), and its item content included beliefs such as "functional departments should work together as a team," "employees from one department should work with employees from other departments," and "employees should work together as a team." The definition of "beliefs on working with others" and the item content were clearly consistent with a clan culture's focus on emphasizing teamwork. This measure of culture thus was categorized as a clan culture. In contrast, Hult, Hurley, Giunipero, and Nichols (2000) studied "team orientation," the definition of which stressed collaboration and cooperation; however, we didn't categorize it as a clan culture because we found that its item content was not a clean measure of teamwork. In particular, the measure was confounded by additional items measuring total agreement and shared vision, such as "there is a commonality of purpose . . ." and "there is a total agreement on our organizational vision . . . ," which are not part of a clan culture. We followed the same detailed process in pursuit of categorizing all measures of organizational culture into one of the culture types underlying the CVF.

We discussed each judgment as a group and used the criterion of 100% agreement to finalize each classification. This process also was applied to measures of organizational culture that were based on other frequently used organizational culture frameworks, such as the Organizational Culture Inventory, the Organizational Culture Profile, and the Work Practices Survey. For example, after carefully studying the culture variable definitions and item content from those frameworks, we classified organizational culture variables in the Organizational Culture Inventory labeled as *constructive culture, humanistic or affiliation* as clan cultures, variables such as *risk taking or adaptability* in the Organizational Culture Profile as adhocracy cultures, and variables such as *pragmatic* in the Work Practices Survey as a market culture. We did not include variables such as *decisiveness* or *having a good reputation* from the Organizational Culture Profile and *loose control versus tight control* from the Work Practices Survey because they were thematically ambiguous and had meanings that overlapped two or more of the CVF's culture types. The above coding process excluded 452 correlations. The remaining 880 correlations, whose measures of organizational culture fit into the CVF taxonomy, were subsequently submitted to the meta-analytic procedure.

Coding effectiveness measures. We tried to be comprehensive and to capture all organizational effectiveness variables by using a process that was similar to the procedure used to code measures of organizational culture (Appendix B presents definitions and example measures for the effectiveness variables that were included in Table 1). All three authors examined variable definitions and items used to measure each criterion and then created codes for each separate measure of effectiveness. We then met and once again relied on 100% agreement in coding effectiveness variables. We assigned the same code to a variable when the definitions and measures were the same. For example, three studies measured objective return on assets, and we assigned the same code to these variables in the three studies. We assigned independent codes to variables if they did not contain item content similar to that of previously coded variables. For example, a variable named "pull production" was not used in other studies, and we created a new code for this variable. This categorization process resulted in 48 unique measures of organizational effectiveness that were subsequently further coded into the three forms of effectiveness discussed earlier: employee attitudes, operational effectiveness, and financial effectiveness. All three authors met and relied on complete consensus before assigning a specific effectiveness variable to a particular category of effectiveness.

Meta-Analytic Method

There are two approaches for conducting meta-analyses: fixed-effects models (e.g., Hedges & Olkin, 1985) and random-effects models (e.g., Hunter & Schmidt, 2004). We used the random effects meta-analytic method specified by Hunter and Schmidt (2004) because Kisamore and Brannick (2008) revealed that random-effects models were the best initial choice for conducting meta-analyses. We first converted *t* or *F* statistics into correlation statistics using formulas from Arthur, Bennett, and Huffcutt (2001). We then calculated mean correlations corrected for sampling error and measurement error in both organizational culture types and effectiveness criteria. Not all studies reported reliabilities, so we used reliability distributions to correct for measurement error (Hunter & Schmidt, 2004). For single-item measures, we set their reliabilities at 0.70 according to Wanous and Hudy (2001); for other measures that did not provide reliability information, we set theirs at 1.0 for conservative estimation purposes, as suggested

Table 1
Meta-Analytic Results of the Relationship Between Organizational Culture Types and Effectiveness Outcomes

Variable	*k*	*N*	$\bar{r}$	$\hat{\rho}$	95% CI Lower	95% CI Upper	80% CV Lower	80% CV Upper	% var due to artifacts	Fail-safe *k*
Employee attitudes										
Job satisfaction										
Clan	11	1,113	0.38	0.50	0.47	0.54	0.48	0.53	96	99
Adhocracy	10	933	0.27	0.36	0.32	0.41	0.28	0.45	71	62
Market	10	933	0.34	0.45	0.41	0.50	0.35	0.56	61	80
Organizational commitment										
Clan	3	406	0.43	0.50	0.44	0.55	0.50	0.50	100	27
Market	2	226	0.25	0.29	0.18	0.40	0.29	0.29	100	10
Operational effectiveness criteria										
Subjective innovation										
Clan	13	816	0.32	0.41	0.31	0.51	0.20	0.62	36	94
Adhocracy	12	622	0.35	0.48	0.44	0.53	0.48	0.48	100	103
Market	12	710	0.45	0.59	0.56	0.62	0.57	0.62	96	130
Quality of products and services										
Clan	10	933	0.29	0.38	0.33	0.43	0.38	0.38	100	66
Adhocracy	10	933	0.23	0.32	0.27	0.37	0.23	0.40	69	54
Market	10	933	0.27	0.37	0.27	0.46	0.20	0.53	39	64
Financial effectiveness criteria										
Subjective profit										
Clan	11	1,030	0.07	0.10	0.02	0.17	−0.02	0.20	59	11
Adhocracy	10	933	0.12	0.17	0.11	0.23	0.07	0.27	63	24
Market	12	1,486	0.18	0.24	0.20	0.29	0.16	0.32	69	46
Subjective market performance										
Clan	3	545	0.23	0.29	0.22	0.36	0.24	0.34	81	14
Market	3	508	0.30	0.39	0.33	0.45	0.39	0.39	100	20
Subjective growth										
Clan	10	933	0.10	0.13	0.07	0.19	0.04	0.22	67	16
Adhocracy	10	933	0.14	0.19	0.13	0.25	0.12	0.26	78	28
Market	12	1,626	0.25	0.34	0.30	0.38	0.34	0.34	100	70
Objective profit										
Clan	4	955	0.00	0.00	−0.06	0.07	−0.06	0.07	62	1
Adhocracy	5	978	0.09	0.13	0.09	0.19	0.10	0.16	91	8
Market	2	268	0.11	0.14	0.03	0.26	0.14	0.14	100	4
Objective growth										
Clan	3	1,021	0.04	0.05	−0.01	0.11	0.05	0.05	100	1
Adhocracy	4	1,044	0.11	0.15	0.04	0.27	0.03	0.28	27	8
Market	2	486	0.13	0.18	0.01	0.35	0.04	0.32	29	5

Note. *k* = number of studies; *N* = total number of units; $\bar{r}$ = sample size weighted mean correlation; $\hat{\rho}$ = estimated population correlation (sample size weighted mean correlation corrected for unreliability in both measures); CI = confidence interval; CV = credibility interval; % var due to artifacts = proportion of observed variance in the observed correlation due to statistical artifacts; fail-safe *k* = the number of unpublished studies reporting null findings necessary to reduce $\hat{\rho}$ to 0.05.

by McKee-Ryan et al. (2005). We then calculated the mean and variance of the reliability distribution of each variable.

We used Cohen's rules of thumb to judge the magnitude of correlations (Cohen, 1988): $r < .30$ is a small effect, $.30 < r < .50$ is a medium effect, and $r > .50$ is a large effect. We calculated the 95% confidence intervals and the 80% credibility intervals (Hunter & Schmidt, 2004; Whitener, 1990). A 95% confidence interval excluding zero suggests that the mean population correlation (the value of $\hat{\rho}$) is statistically significant ($p < .05$), and an 80% credibility interval excluding zero suggests that 80% of the population parameters (the value of ρ) are different from zero (Hunter & Schmidt, 2004).

Testing Hypotheses 1 through 4 involved comparing correlations obtained from overlapping samples "where each correlation is between a predictor variable (X1 or X2) and a single common dependent variable (Y)" (Meng, Rosenthal, & Rubin, 1992, p. 172). We thus employed a modified Z test using Fisher's *Z* transformation of correlations (Dunn & Clark, 1969, 1971; Meng et al., 1992) to account for sample dependence.

Reporting Criteria

The data set of 880 correlations generated meta-analytic results between four organizational culture types and 48 unique effectiveness criteria. We reported results only when there were at least two studies testing the same relationship between organizational culture and the effectiveness variable because a meta-analysis is appropriate only when there is a collection of studies for that

relationship (Geyskens, Steenkamp, & Kumar, 2006; Kinicki et al., 2002). Consequently, sufficient data existed to report results between three culture types and nine effectiveness criteria based on 194 effect size estimates. As discussed earlier, these effectiveness criteria were classified into the three major organizational effectiveness indices to test the proposed hypotheses. Furthermore, due to an insufficient number of studies, we did not report correlations between hierarchy culture and effectiveness variables. Out of the nine effectiveness criteria, hierarchy culture generated five correlations and only three were with $k \geq 2$. We thus concluded that the limited number of relationships between hierarchy culture and effectiveness criteria could not provide meaningful comparisons with the other three culture types. We did, however, obtain a sufficient number of studies that reported the correlation between hierarchy culture and other culture types. We thus included hierarchy culture in the meta-analytic correlations among the four culture types (i.e., clan, adhocracy, market, and hierarchy). The meta-analytic correlations were derived from 138 effect size estimates. In sum, the current meta-analytic study reports relationships based on 332 effect size estimates.

Results

Tables 1 and 2 present the meta-analytic results. Table 1 shows the meta-analytic correlations between three organizational culture types (clan, adhocracy, and market cultures) and nine effectiveness criteria. Table 2 shows correlations among the CVF's four organizational culture types.

Correlations With Organizational Effectiveness Criteria

Table 1 shows that 23 out of 25 positive correlations between organizational culture types and effectiveness criteria were significant, with the 95% confidence intervals excluding zero. These results demonstrate that the CVF's culture types, indeed, had a positive association with organizational effectiveness criteria. In the employee attitudes and operational effectiveness categories, one correlation was small, seven correlations were medium, and three correlations were large. Conversely, all but two of the relationships between the CVF's culture types and financial effectiveness criteria were small.

Employee attitudes. Results regarding employee attitudes include job satisfaction and organizational commitment. As shown in Table 1, culture types had moderate to large relationships with both employee attitudes. In particular, job satisfaction had a large, significant relationship with clan cultures ($\hat{\rho} = .50$) and a moderate association with adhocracy ($\hat{\rho} = .36$) and market cultures ($\hat{\rho} = .45$). In support of Hypothesis 1, clan cultures had significantly stronger positive relationships with job satisfaction than did adhocracy ($z = 5.87$, $p < .05$) and market ($z = 1.97$, $p < .05$) cultures. Hypothesis 1 was further confirmed by the large effect size between organizational commitment and clan cultures ($\hat{\rho} = .50$), which was significantly stronger than the positive relationship between commitment and market ($\hat{\rho} = .29$) cultures ($z = 4.18$, $p < .05$). The correlations with organizational commitment should be interpreted cautiously, however, due to the small number of studies. All told, Hypothesis 1 was supported.

Operational effectiveness criteria. Operational effectiveness criteria include subjective innovation and quality of products and services. Although Table 1 reveals that all culture types had moderate to strong associations with these effectiveness criteria, results provide mixed support for Hypotheses 2 and 3. Hypothesis 2 predicted that adhocracy cultures would have significantly stronger positive relationships with innovation than would clan and market cultures. Contrary to this expectation, subjective innovation had a significantly stronger positive relationship with market ($\hat{\rho} = .59$) than with adhocracy ($\hat{\rho} = .48$) cultures ($z = -4.10$, $p < .05$), although it had a significantly stronger positive association with adhocracy than with clan ($\hat{\rho} = .41$) cultures ($z = 2.47$, $p < .05$). These results provide mixed support for Hypothesis 2.

The third hypothesis was that market cultures would have significantly stronger positive associations with quality of products and services than would clan and adhocracy cultures. Results demonstrate mixed support for this hypothesis. Although market cultures had significantly stronger positive relationships with the quality of products and services ($\hat{\rho} = .37$) than adhocracy ($\hat{\rho} = .32$) cultures ($z = 1.94$, $p < .05$), the effect size for market cultures was not significantly larger than that of clan ($\hat{\rho} = .38$) cultures ($z = -0.35$, $p = .36$), leaving Hypothesis 3 partially supported.

Financial effectiveness criteria. The financial effectiveness criteria include three subjective measures (subjective profit, subjective market performance, and subjective growth) and two objective measures (objective profit and objective growth). Overall, results uncovered small to moderate effect sizes between culture types and financial effectiveness criteria, and market cultures demonstrated the strongest positive relationships with all five criteria. Hypothesis 4 proposed that market cultures would have significantly stronger positive relationships with financial effectiveness criteria than would clan and adhocracy cultures. The hypothesis received full support from correlations with the subjective effectiveness criteria. As shown in Table 1, subjective profit had a small but significant relationship with market ($\hat{\rho} = .24$), adhocracy ($\hat{\rho} = .17$), and clan cultures ($\hat{\rho} = .10$). This pattern supports Hypothesis 4 in that market cultures had significantly stronger positive associations with profit than with clan ($z = 4.69$, $p < .05$) and adhocracy cultures ($z = 2.86$, $p < .05$).

Similarly, Table 1 shows that subjective market performance had significantly positive correlations with both clan cultures ($\hat{\rho} = .29$) and market cultures ($\hat{\rho} = .39$), and the effect for market cultures was significantly stronger for market than clan cultures ($z = 2.60$, $p < .05$), thereby supporting Hypothesis 4. It is

Table 2
Meta-Analytic Correlations Among Organizational Culture Types

Culture type	Clan	Adhocracy	Market
Clan	—		
Adhocracy	0.63 (32/6,785)	—	
Market	0.55 (28/5,671)	0.64 (29/5,781)	—
Hierarchy	0.48 (18/4,562)	0.42 (16/4,149)	0.50 (15/4,039)

Note. The correlations are the estimated population correlations (sample size weighted mean correlations corrected for unreliability in both measures). Values in parentheses below the correlations indicate k (number of studies) and N (total number of units). The 95% confidence intervals and 80% credibility intervals of all correlations exclude zero.

important to note that both correlations were based on three studies and should thus be interpreted with caution.

Results for subjective growth were similar to those for subjective profit. Clan, adhocracy, and market cultures had small to moderate positive correlations with subjective growth ($\hat{\rho}$ = .13, .19, and .34, respectively), and findings confirmed Hypothesis 4. Market cultures had a significantly stronger positive association with subjective growth than did both clan cultures ($z = 6.99$, $p < .05$) and adhocracy cultures ($z = 6.35$, $p < .05$).

Results for objective criteria exhibited a slightly different pattern from subjective criteria and provide mixed support for Hypothesis 4. As shown in Table 1, market cultures had the strongest positive correlation with objective profit ($\hat{\rho}$ = .14) and objective growth ($\hat{\rho}$ = .18), followed by adhocracy cultures ($\hat{\rho}$ = .13 and .15, respectively). Clan cultures were not significantly associated with the objective criteria. The positive effects were significantly stronger for market cultures than for clan cultures (z = 3.02 and 3.54, respectively, $p < .05$) but not adhocracy cultures (z = .92 and .24, respectively, *ns*). Due to the small number of studies using objective criteria, these results should be interpreted with caution.

In summary, Hypothesis 4 was confirmed when subjective financial effectiveness criteria were examined but received mixed support when the two objective measures were considered.

Correlations Among Organizational Culture Types

The CVF's orthogonal value orientations imply that diagonal quadrants represent competing or conflicting values (Cameron & Quinn, 1999). CVF theory indicates that clan culture values have an insignificant or negative association with market culture values, and adhocracy culture values have an insignificant or negative association with hierarchy cultures. We calculated the intercorrelations among the four organizational culture types (clan, adhocracy, market, and hierarchy cultures) to determine if the pattern of relationships was consistent with CVF theory. Table 2 shows, contrary to CVF theory, that all organizational culture types were positively correlated. The average correlation among the four culture types was 0.54, indicating that the culture types may not possess mutually independent competing values. These results should be interpreted with caution, due to common method bias.

Exploratory Moderator Analysis

Table 1 shows that 47% of the effect sizes did not pass the 75% rule, indicating that these relationships are likely moderated by other variables (Hunter & Schmidt, 2004). Our exploratory analyses (available upon request) examined four potential moderators: industry, national culture, number of informants, and same source bias. Our results indicate that data collected from Confucian cultures or from multiple informants to measure culture generated stronger organizational culture–effectiveness correlations than data collected from English-speaking cultures or from single informants. We also found that the effect sizes differed among industries and according to whether the correlated variables were measured by the same informants, although these two factors did not generate universal patterns across the three organizational culture types. These findings should be interpreted with caution because the moderators were correlated with the presence or absence of a given criterion type.

Discussion

We broadly contribute to the culture literature by applying the CVF (Quinn & Rohrbaugh, 1983) as an organizing taxonomy to meta-analytically test three culture types' association with three indices of organizational effectiveness. We specifically extend culture theory by testing theoretically derived hypotheses that examine the CVF's underlying assumptions about the relationship between culture types and effectiveness criteria. Furthermore, we investigate whether the interrelationships between culture types are consistent with the CVF's propositions. All told, the limited support for the CVF's theoretical suppositions underscores the need to consider alternative theoretical approaches for explaining the relationship between organizational culture and organizational effectiveness. We now consider our contributions in greater detail.

Organizational Culture–Organizational Effectiveness Link

At a broad level, results reveal that the CVF's culture types are significantly associated with organizational effectiveness. These findings support the widely held proposition that organizational culture is an important organizational variable and reinforce the value of conducting quantitative investigations into the function of organizational culture. Although qualitative work that defines what culture *is* and how it manifests within organizations is clearly important, quantitative studies that delineate the variables that influence culture and the mechanisms through which culture influences organizational outcomes are helpful in extending our knowledge about culture's nomological network.

Theoretical Suppositions Undergirding Organizational Culture Research

At a more specific level, the meta-analytic results indicate limited support for the CVF's theoretical suppositions.

Nomological validity. The meta-analytic results provide mixed support for the CVF's nomological validity. The findings fully support clan cultures' association with employee attitudes (Hypothesis 1). That is, clan cultures have a significantly stronger positive relationship with employee attitudes than do adhocracy and market cultures. Similarly, results largely support market cultures' association with financial effectiveness criteria (Hypothesis 4), indicating that market cultures are more positively related than clan and adhocracy cultures with financial effectiveness criteria. Although the three cultures types are positively associated with employee attitudes and financial effectiveness criteria, the effect sizes across these criteria are not equal (see Table 1). The difference in magnitude of the effect sizes underscores the importance of considering the variability in relationships among culture types and organizational effectiveness. Organizational culture theorists may find unit-level theory from the empowerment, group dynamics, creativity, and goal-setting literatures especially helpful in explaining these differences. Research should investigate extant mediators and moderators that account for the differential relationships between culture types and various criteria.

Results provide limited support for the predicted relationships between culture and innovation (Hypothesis 2) and between culture and quality of products and services (Hypothesis 3). In Hypothesis 2, we predicted that adhocracy cultures would have a significantly stronger positive relationship with innovation than would clan and market cultures. Although we found that adhocracy cultures relate more strongly than clan cultures with innovation, market cultures surprisingly exhibit the strongest association with innovation. These findings may be due to the competitive focus needed to understand the marketplace, connect with customers, and identify customer needs. Consequently, market cultures may provide the most fertile social context for fostering ingenuity and delivering innovative products and services (Kirca, Jayachandran, & Bearden, 2005). Additional research is needed to investigate this possibility.

In Hypothesis 3, we predicted that market cultures would have a significantly stronger positive relationship with quality of products and services than would clan and adhocracy cultures. Despite finding that market cultures are more strongly related than adhocracy cultures with quality of products and services, clan cultures unexpectedly display the strongest relationship with product and service quality. Detert et al. (2000) identified clan values and behaviors, such as collaboration, participation, employee involvement, and open communication, as essential to continuous quality improvement. Contrary to CVF theory, it appears that product and service quality may derive from internal process improvements and positive employee interactions rather than from an external, achievement orientation.

In sum, these findings indicate modest support for the CVF's nomological validity. Due to the modest *k* and some small differences in the estimated corrected population correlations, researchers should interpret the differences in culture types' association with organizational criteria with caution. Nonetheless, the pattern of expected relationships between culture types and effectiveness is not as clear as CVF theory predicts. One explanation for this pattern is that the culture types interact and strengthen each other's association with effectiveness criteria. For instance, clan cultures' emphasis on collaboration, trust, communication, and support may provide the internal integration needed to strengthen market cultures' capacity to innovatively meet customers' needs. Likewise, externally focused cultures may provide the information-gathering requirement for clan cultures to improve the quality of products and services. Combining information acquisition and internal processes (i.e., teamwork, employee involvement, and participation) may cumulatively amplify product and service quality. Taken together, interacting culture types suggest the need to apply configuration theory to organizational culture research. We consider this alternative theoretical perspective after discussing the CVF's proposed internal structure.

The CVF's proposed internal structure. Results suggest that the CVF's culture types in opposite quadrants are not competing or paradoxical. Instead, they coexist and work together. The findings in the present study thus fail to support the CVF's predicted pattern of relationships between culture types. Consequently, the presence of one culture type may not necessarily preempt the presence of another. Instead, "competing values" may be more complementary than contradictory. This possibility may partially account for the mixed support for the CVF's nomological validity. Stated differently, culture types are all positively associated with effectiveness criteria because the culture types are, on average, moderately to strongly correlated.

An alternative theoretical approach. Taken together, the meta-analytic results paint a considerably more nuanced picture of the association between organizational culture and organizational effectiveness than proposed by the framers (Quinn & Kimberly, 1984) and proponents of the CVF (e.g., Cameron et al., 2006). In particular, the positive interrelationships among the CVF's four culture types suggest that identifying "dominant" culture types may be of limited utility because they do not fully account for organizational culture's bandwidth. That is, organizational cultures include unique aspects from multiple culture types (Denison & Spreitzer, 1991). Unfortunately, researchers who describe organizational cultures according to their predominant culture type ignore the synergistic interaction among the values that define an organization's culture.

We contend, similar to recent advances in organizational climate research, that organizational culture is broader and more integrated than its individual types (Schulte, Ostroff, & Kinicki, 2006; Schulte, Ostroff, Shmulyian, & Kinicki, 2009). It is a holistic, social normative phenomenon "whose primary theoretical utility is in drawing attention to the holistic aspect of the group or organizational phenomenon" (Schulte et al., 2009, p. 618). That is, culture is a unified pattern of assumptions, beliefs, values, norms, and behaviors that cannot be described as a sum of its constituent types. Rather than testing and evaluating culture types' independent association with effectiveness criteria, future research should pursue a configural approach by ascertaining an organization's culture profile, or pattern of organizational values and behaviors (Cameron et al., 2006; Denison & Spreitzer, 1991). Approaching organizational culture as a bundle of beliefs, values, norms, and behaviors is consistent with its theoretical bandwidth and sheds additional insight into the complex social phenomenon. Accordingly, configuration theory may be a fruitful alternative theoretical perspective to ground future organizational culture research.

Limitations and Directions for Future Research

There are five limitations that should be noted. First, potential primary studies operationalized organizational culture and organizational effectiveness with a plethora of criteria and scales. This creates two problems for researchers who want to quantitatively summarize research. The first problem is common to meta-analysis and involves the attempt to synthesize diverse studies that operationalize and measure a variable differently. The result is akin to comparing apples and oranges, thus rendering the results meaningless (Hunt, 1997). Rosenthal and DiMatteo (2001), however, suggest that meta-analyses are especially fruitful in these contexts because they enhance the results' generalizability. To overcome this problem, we carefully defined organizational culture, conservatively reviewed the methodologies and measures, and eliminated a number of studies to best attenuate the apples-to-oranges problem. The second problem pertains to the widespread use of ad hoc culture measures with untested psychometric properties. Future studies should use validated culture measures to better integrate and consolidate findings in organizational culture research.

Another recommendation to culture researchers involves theorizing and testing for mediators and moderators that affect the culture–effectiveness link. Our results reveal that 52% of the effects are small, 36% are medium, and 12% are large, indicating that, on average,

culture types' association with organizational effectiveness criteria is moderately small (Cohen, 1988). These results suggest that additional attention should be given to illuminating mediating and moderating factors that account for additional criterion variance. Although theoretical models have expounded on the linkages between organizational culture and important organizational criteria (Kopelman, Brief, & Guzzo, 1990; Ostroff et al., 2003), a paucity of empirical work exists to test these integrative models. Moreover, the exploratory moderator analysis indicates that several factors moderate the culture–effectiveness link. These findings underscore the importance of considering the broader environmental context in which the organization operates (i.e., industry and national culture) when conducting organizational culture research.

A second limitation is that our results generalize to only a limited number of culture types because the current study exclusively tested the CVF's theoretical underpinnings. This resulted in the exclusion of a large number of studies that applied ad hoc culture measures which did not clearly map onto the CVF's four culture types. As a result, the narrow set of values and behaviors that the CVF measures may not fully capture the breadth of organizational culture. Future research should incorporate a broader set of values and behaviors in creating a measure of organizational culture. There is a clear need to investigate a broader set of culture types and culture configurations. Culture types illuminate culture's content and are helpful when examining culture as a social contextual moderator. Culture configurations, on the other hand, are useful to investigate culture holistically. Configurations should be used to identify culture's relationship with similarly broad antecedents, mediators, and outcomes. Configurations, though, are limited by the number of types used to create them. Therefore, a more robust set of culture types is needed to accurately depict the pattern of cultural configurations across organizations.

A third limitation involves potential primary studies operationalizing culture at the wrong level of analysis. This resulted in our having to exclude 134 articles in which organizational culture was operationalized at the individual rather than unit level of analysis. Because organizational culture is based on shared values, beliefs, and assumptions, it is a collective phenomenon that is appropriately conceptualized at the unit level of analysis (Glisson & James, 2002). Consequently, culture researchers and editorial review boards should pay special attention to ensure that organizational culture is measured at the appropriate level of analysis.

Fourth, due to the size of our literature search, we omitted dissertations, unpublished studies, and non-English articles. Rosenthal (1979) pointed out that meta-analytic results should consider the "file drawer" problem. That is, effect sizes may be biased without considering unpublished studies. To evaluate the robustness of our findings, we calculated fail-safe *k* for each correlation (see Table 1). Specifically, fail-safe *k* indicates how many additional samples with null effects are necessary to cause the estimated population correlation to become insignificant. The average fail-safe *k* in our meta-analysis is 42 for the 25 correlations in Table 1. All correlations except those pertaining to objective profit and objective growth had a fail-safe *k* greater than or equal to 10. Overall, the fail-safe *k* lends additional confidence that the majority of the findings are not substantially sensitive to the file drawer problem.

Finally, some relationships were included in the meta-analysis with a relatively small number of correlations. Although these relationships are useful for comparative purposes, the reader should interpret the findings cautiously.

Practical Implications and Conclusion

The study's findings indicate varying relationships between three culture types and measures of effectiveness. Clan cultures are most strongly associated with positive employee attitudes and product and service quality, whereas market cultures are most strongly related with innovation and financial effectiveness criteria. These results suggest that it is important for executive leaders to consider the fit, or match, between strategic initiatives and organizational culture when determining how to embed a culture that produces competitive advantage. They should then espouse, enact, and reward the values and behaviors that are consistent with the desired culture. To this end, an organization's culture and strategy should be complementary such that they support the same mission and, consequently, mutually reinforce each other to achieve sustainable competitive advantage (Ford, Wilderom, & Caparella, 2008).

In sum, we tested theoretical hypotheses using meta-analytic methods to illuminate the relationship between culture types and effectiveness criteria as well as to investigate the CVF's theoretical underpinnings. The results provide broad-based support for the CVF's assertion that culture types are associated with important effectiveness criteria. The study's findings, however, provide only mixed support for the CVF's underlying theoretical suppositions. Given the moderately small association between the CVF's culture types and effectiveness, fertile research opportunities exist to extend culture research by considering unexplored moderators, mediators, and culture configurations that further elucidate the veracity of culture's relationship with effectiveness criteria.

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References marked with an asterisk indicate studies included in this meta-analysis that are discussed in the text. For a complete list, go to http://dx.doi/org/10.1037/a0021987.supp

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(*Appendices follow*)

Appendix A

Primary Variable Labels Included in Each Organizational Culture Type

Major source of measures	Variable labels	Example studies
	Clan culture	
Organizational Culture Inventory (Cooke & Rousseau, 1988)	Constructive culture	Aarons & Sawitzky (2006a), (2006b)
	Humanistic; affiliation	Rousseau (1990)
Organizational Culture Profile (O'Reilly et al., 1991)	Respect for people	Baird et al. (2007); Erdogan et al. (2006)
	Team oriented; team orientation	Baird et al. (2007)
	People orientation	Jaskyte (2004); Jaskyte & Kisieliene (2006)
	Supportive and acknowledges performance	Kowalczyk & Pawlish (2002)
	Sharing information freely; working closely with others; trust	Park et al. (2004)
Competing Values Framework (e.g., Cameron & Quinn, 1999; Quinn & Spreitzer, 1991)	Involvement	Chan et al. (2004)
	Cooperativeness	Chang & Lin (2007)
	Empowerment; team orientation	Denison et al. (2004)
	Human relations	Lamond (2003)
	Group culture	McDermott & Stock (1999)
	Adhocracy culture	
Work Practices Survey (Hofstede et al., 1990)	Process oriented vs. result oriented	Hofstede et al. (1990)
Organizational Culture Inventory (Cooke & Rousseau, 1988)	Self-actualized	Rousseau (1990)
Organizational Culture Profile (O'Reilly et al., 1991)	Risk taking	Kowalczyk & Pawlish (2002); Park et al. (2004)
	Flexibility; experimentation; take advantage of opportunity; decisiveness; problem solving; adaptability; informality; taking initiative	Park et al. (2004)
Competing Values Framework (e.g., Cameron & Quinn, 1999; Quinn & Spreitzer, 1991)	Adaptability	Chan et al. (2004)
	Creating change; organizational learning	Denison et al. (2004)
	Flexibility	Khazanchi et al. (2007)
	Open systems	Lamond (2003)
	Market culture	
Work Practices Survey (Hofstede et al., 1990)	Normative vs. pragmatic	Hofstede et al. (1990)
Organizational Culture Inventory (Cooke & Rousseau, 1988)	Competition; perfectionism	Rousseau (1990)
	Achievement; achievement oriented	Rousseau (1990); Kowalczyk & Pawlish (2002)
Organizational Culture Profile (O'Reilly et al., 1991)	Outcome orientation; being result oriented	Baird et al. (2007)
	Performance orientation	Sarros et al. (2005)
Competing Values Framework (e.g., Cameron & Quinn, 1999; Quinn & Spreitzer, 1991)	Mission	Chan et al. (2004)
	Strategic direction; goals and objectives	Denison et al. (2004)
	Rational goal	Lamond (2003)
Market Orientation (Narver & Slater, 1990)	Market orientation	Harris & Ogbonna (2001)
	Competitor orientation; customer orientation; interfunctional coordination	Kusku & Zarkada-Fraser (2004)
	Information orientation; cross-functional sharing; responsiveness	Martin & Grbac (2003)
	Hierarchy culture	
Work Practices Survey (Hofstede et al., 1990)	Employee oriented vs. job oriented	Hofstede et al. (1990)
	Bureaucracy	Stamper & Van Dyne (2001)
Organizational Culture Inventory (Cooke & Rousseau, 1988)	Conventional; dependent	Rousseau (1990)

(*Appendices continue*)

Appendix A (*continued*)

Major source of measures	Variable labels	Example studies
Organizational Culture Profile (O'Reilly et al., 1991)	Attention to detail	Baird et al. (2007); Park et al. (2004)
	Stability	Jaskyte (2004)
	Rule orientation; being exact; security of employment; predictability; compliance	Park et al. (2004)
Competing Values Framework (e.g., Cameron & Quinn, 1999; Quinn & Spreitzer, 1991)	Member conformity	Chan et al. (2004)
	Control	Khazanchi et al. (2007)
	Internal process	Lamond (2003)
	Hierarchical	Stock et al. (2007)

Appendix B

Effectiveness Variable Categories and Example Measures

Variable	Description	Examples of measures used
Employee attitudes		
Job satisfaction	Satisfaction resulting from appraisal of one's job or job experiences. (Locke, 1976)	• Single item rating of the company's effectiveness in employee satisfaction (Denison & Mishra, 1995) • Job satisfaction scale (Wood et al., 1986)
Organizational commitment	Attitudinal and/or behavioral attachment to the organization (Mowday et al., 1979)	• Organizational commitment scale (Jaworski & Kohli, 1993) • Organizational Commitment Questionnaire (Mowday et al., 1979)
Operational effectiveness criteria		
Subjective Innovation	Speed, uniqueness, and success of introduce new idea, service, process, procedure, system, structure or product (Baker & Sinkula, 1999; Jaskyte, 2004)	• Product Innovation Scale (Baker & Sinkula, 1999) • Organizational Innovativeness Scale (Jaskyte, 2004) • New product creativity and performance scale (Moorman & Miner, 1997)
Quality of products and services	Competitiveness in terms of product quality (Denison & Mishra, 1995)	• Single item rating of the firm's effectiveness in product quality compared with similar firms (Denison & Mishra, 1995)
Financial effectiveness criteria		
Profit	Profitability in terms of return on sales, return on assets, return on investment, etc.	Subjective measures: • Competitive Benefit Scale (Small & Yasin, 1997) Objective measures: • Return on sales • Return on assets • Return on equity
Market performance	Firm effectiveness in terms of profitability, sales growth, market share, and customer satisfaction (McDermott & Stock, 1999)	• Level of Performance Scale (Tracey et al., 1999) • Competitive performance scale (McDermott & Stock, 1999) • Firm Performance Measure (McDougall et al., 1994)

(*Appendices continue*)

Appendix B (*continued*)

Variable	Description	Examples of measures used
Growth	Changes in sales, market share, or assets	Subjective measures: ● Items from Organizational Performance Scale (Baker & Sinkula, 1999) ● Single-item rating of the firm's effectiveness in sales growth and market share compared with similar firms (Denison & Mishra, 1995) Objective measures: ● Premium growth for insurance companies (Gordon & DiTomaso, 1992)

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Correction to Hartnell, Ou, and Kinicki (2011)

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