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LEADER–MEMBER EXCHANGE (LMX) AND PERFORMANCE: A META-ANALYTIC REVIEW

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This paper reports a meta-analysis that examines the relationship between leader–member exchange (LMX) relationship quality and a multidimensional model of work performance (task, citizenship, and counterproductive performance). The results show a positive relationship between LMX and task performance (146 samples, $\rho = .30$) as well as citizenship performance (97 samples, $\rho = .34$), and negatively with counterproductive performance (19 samples, $\rho = –.24$). Of note, there was a positive relationship between LMX and objective task performance (20 samples, $\rho = .24$). Trust, motivation, empowerment, and job satisfaction mediated the relationship between LMX and task and citizenship performance with trust in the leader having the largest effect. There was no difference due to LMX measurement instrument (e.g., LMX7, LMX-MDM). Overall, the relationship between LMX and performance was weaker when (a) measures were obtained from a different source or method and (b) LMX was measured by the follower than the leader (with common source- and method-biased effects stronger for leader-rated LMX quality). Finally, there was evidence for LMX leading to task performance but not for reverse or reciprocal directions of effects.

Introduction

Within the field of leadership, an approach that examines the *quality of the relationship* between a leader and a follower (leader–member

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exchange theory, LMX) has been popular (Yammarino, Dionne, Chun, & Dansereau, 2005). LMX theory was introduced by Dansereau, Graen, and colleagues during the 1970s and was originally referred to as the vertical dyad linkage (VDL) approach (Dansereau, Graen, & Haga, 1975; Graen & Cashman, 1975). The main tenant of LMX theory is that, through different types of exchanges, leaders differentiate in the way they treat their followers (Dansereau et al., 1975), leading to different quality relationships between the leader and each follower. Research shows that high LMX quality relates to a range of positive follower outcomes (for reviews see Anand, Hu, Liden, & Vidyarthi, 2011; Martin, Epitropaki, Thomas, & Topakas, 2010; Schriesheim, Neider, & Scandura, 1998; van Breukelen, Schyns, & Le Blanc, 2006). Given the above reviews, one might conclude that we have already gained a comprehensive understanding of how LMX affects various outcomes, in accordance with LMX theory. However, we believe there are some important theoretical issues that remain unanswered with respect to the relationship between LMX and work performance that could be addressed through a meta-analytic review. We briefly describe three main research issues that we aim to address that significantly contribute to the LMX literature.

First, although the relationship between LMX and task and contextual performance has been established (e.g., Dulebohn, Bommer, Liden, Brouer, & Ferris, 2012; Gerstner & Day, 1997; Ilies, Nahrgang, & Morgeson, 2007), no prior meta-analysis has focused on the relationship between LMX and counterproductive performance (i.e., negative behaviors that harm others in the organization, such as property misuse, theft), despite an increasing number of studies examining this aspect of performance. There are many theoretically important reasons to examine counterproductive performance, which are elucidated in more detail later, including the fact that it is highly predictive of overall performance (Rotundo & Sackett, 2002) and that, unlike task and citizenship performance, it is based on negative, rather than positive, follower behaviors. In terms of LMX theory, it is important to determine whether the benefits of positive LMX relationships generalize to this important aspect of work performance.

Second, little is known of the potential mediators between LMX and performance. Although there are strong theoretical underpinnings to LMX theory (e.g., role theory, Graen, 1976; Graen & Scandura, 1987; social exchange theory, Blau, 1964; Sparrowe & Liden, 1997; Thibaut & Kelley, 1959; self-determination theory, Deci & Ryan, 1985; Liden, Wayne, & Sparrowe, 2000), it is not clear what the specific mediating mechanisms between LMX and performance are. Although these theories provide different accounts of how LMX leads to performance, each proposes a different set of mediators (e.g., role clarity, role theory; job satisfaction,

social exchange theory; motivation, self-determination theory). By examining a range of theoretically proposed mediators, the current study provides a much-needed opportunity to test some of the underlying mechanisms explaining how LMX affects performance.

The third issue concerns the direction of effect between LMX and performance. LMX theory assumes, but rarely tests, the assumption that relationship quality has a direct effect on performance. Although there might be strong reasons to propose such a link, it seems plausible to assume that performance affects LMX or that the relationship between the two is reciprocal (Danserau et al., 1975; see also Nahrgang, Morgeson, & Ilies, 2009). It seems important, therefore, to examine the direction of the effect between LMX and performance as this will allow a test of the assumption in LMX theory that relationship quality determines outcomes or whether the other direction of effects exists.

In summary, the meta-analysis makes a number of contributions to examining LMX theory: The use of wider sample selection criteria to obtain a larger sample size of studies permits the examination of some important theoretical relationship that have not yet been examined in detail (e.g., the relation between LMX and objective performance); examination of a multidimensional model of performance with the inclusion, for the first time in a meta-analysis, of counterproductive performance; examination of alternative theoretically-derived mediational models based on role, social exchange, and self-determination theories; examination of important moderators (e.g., performance type, LMX measurement, LMX rater, and same vs. nonsource effects); and, finally, the first attempt to meta-analytically examine the causal direction of effects in the LMX–performance relationship.

In the following section, we first briefly outline a multidimensional model of work performance that guides our meta-analysis and then develop specific hypotheses concerning the main theoretical issues in this meta-analysis (concerning main effects, mediators, moderators, and direction of effect between LMX and performance).

LMX and Work Performance: Unresolved Theoretical Issues

Previous meta-analyses of LMX have taken a narrow view of the concept of performance. In some cases, the conceptualization of performance has been "performance ratings" and "objective performance" (Gerstner & Day, 1997) or measures combined into one category of "job performance" (Dulebohn et al., 2012). However, performance is a multidimensional concept (e.g., Kaplan, Bradley, Luchman, & Haynes, 2009; Rotundo & Sackett, 2002; Viswesvaran & Ones, 2000), with each dimension relating

to a different aspect of performance, and therefore it is important to determine if predictions from LMX theory apply across different performance dimensions.

Performance has been conceptualized in numerous ways (e.g., Campbell, 1993; Murphy, 1989), but most of these can be captured within Rotundo and Sackett's (2002) three-component model of performance: task, citizenship, and counterproductive performance (see also Judge & Kammeyer-Mueller, 2012). *Task performance* (or in-role performance) refers to "a group of behaviors involved in the completion of tasks . . . [and] includes behaviors that contribute to the production of a good or the provision of a service" (p. 67). This concept covers issues related to the quantity and quality of work output and the accomplishment of work duties and responsibilities associated with the job. *Citizenship performance* (or extra-role performance) concerns a "group of activities that are not necessarily task-related but that contribute to the organization in a positive way" (p. 67). Examples of activities that fall within this category are altruism, helping and supporting peers, making good suggestions, spreading goodwill, and defending and supporting organizational objectives. *Counterproductive performance* is defined as "a group of behaviors that detract from the goals of the organization . . . [and] as voluntary behavior that harms the well-being of the organization" (p. 69). There are a range of activities in this category including property, production and political deviance, personal aggression, theft, and drug misuse. It also covers negative behaviors that harm others in the organization and not following rules and procedures. Counterproductive performance has some similarities to citizenship performance but tends to focus more on negative, rather than positive, behaviors. Given the utility of the three-component view of performance, we shall use this framework to guide the meta-analysis.

We now turn to examine the relationship between LMX and these three dimensions of performance (task, citizenship, and counterproductive) in terms of the main theoretical contributions stated earlier (main effects, mediators, moderators, and direction of effects).

Main Effects of the LMX and Performance Relationship

Research in LMX has traditionally relied on role and social exchange theories to explain how different types of LMX relationships develop. Low LMX relationships are based primarily on the employment contract and involve mainly economic exchanges (Blau, 1964) that focus on the completion of work. By contrast, high LMX relationships extend beyond the formal job contract where the aim is to increase follower's ability and motivation to perform at a high level. In high LMX relationships,

the exchanges are more social in nature involving mutual respect, affect, support and loyalty, and felt obligation (Uhl-Bien & Maslyn, 2003).

Based on role and social exchange theories, research in LMX (Blau, 1964; Graen & Scandura, 1987; Sparrowe & Liden, 1997; Thibaut & Kelley, 1959) suggests that a variety of rules and norms govern the pattern of exchanges between people. For example, a common rule is that of reciprocity, where the actions of one person lead to the expectation that the other person will reciprocate with an equally valued exchange (Blau, 1964; Sparrowe & Liden, 1997). The favorable treatment the follower receives from the leader leads to feelings of obligation to "pay back" the leader by working hard as a means of reciprocation. In addition, the positive exchanges between the leader and follower increase feelings of affect and liking for the leader, and this also motivates followers to want to meet the leader's work demands. This should in turn enhance task and contextual performance.

These arguments are well supported by the empirical evidence as far as task performance is concerned, irrespective of whether task performance is measured with leader, peer, or follower ratings (Dulebohn et al., 2012; Gerstner & Day, 1997; Rockstuhl, Dulebohn, Ang, & Shore, 2012). In addition, the relationship with objective task performance measures was found to be much weaker, yet still positive (Gerstner & Day, 1997). There is also meta-analytic evidence showing that LMX is positively related to citizenship performance (Dulebohn et al., 2012; Ilies et al., 2007; Scott, Craven, & Green, 2006). Therefore, based on these meta-analyses and consistent with LMX theory, we propose the following two hypotheses.

Hypothesis 1: There is a positive relationship between LMX and task performance.

Hypothesis 2: There is a positive relationship between LMX and citizenship performance.

There are important theoretical and practical reasons to examine the relationship between LMX and counterproductive performance. First, being to ensure that the impact of LMX is assessed against all aspects of performance, not only to fully assess LMX theory but also from a practical perspective with organizations becoming ever more concerned with ethical conduct. The importance of this is shown by Rotundo and Sackett's (2002) finding that counterproductive performance (together with task performance) contributed more to judgments of overall work performance than did citizenship performance. Furthermore, they found that for some managers, counterproductive performance had the greatest weight, out of the three performance dimensions, in predicting overall performance judgments. Second, counterproductive performance is the one

performance dimension that is based on negative rather than positive follower behaviors. Because positive and negative social exchanges can have different effects on relationships (Sparrowe, Liden, Wayne, & Kraimer, 2001), it is therefore important to determine whether high LMX not only leads to positive work behaviors (e.g., task and citizenship performance) but also to less engagement in negative behaviors (i.e., counterproductive performance).

In terms of the relationship between LMX and counterproductive performance, we make the following prediction. In high LMX relationships, followers feel an obligation to pay back the leader by meeting work demands, which should make it less likely that the follower engages in behaviors that harm the leader or the organization (as this could impact on their performance levels). By contrast, in low LMX relationships, followers might deal with perceived inequity or unfair treatment by their leader by engaging in counterproductive behaviors so as to harm the leader and organization. Therefore, based on this, we expect LMX should be negatively related to counterproductive behaviors.

Hypothesis 3: There is a negative relationship between LMX and counterproductive performance.

Mediators of the LMX and Performance Relationship

The second theoretical issue concerns the *mediators between LMX and performance*. LMX theory points to a number of possible mediators explaining why high LMX leads to performance. Therefore, we test the most common theoretical approaches (role theory, social exchange theory, and self-determination theory) that seek to explain how LMX leads to enhanced performance. The findings will help clarify not only what mediates LMX effects but also which theory accounts best for this effect. We describe each of these potential mediators in more detail below.

Based on role theory (see Graen & Scandura, 1987), good relationships develop when there is *role clarity* associated with each person. The labels "leader" and "follower" (and indeed, "leader–follower" relationship) bring with them a set pattern of expected behaviors (in a similar way to how followers have implicit theories of leaders; Epitropaki & Martin, 2004). For example, the leader role is one in which the person is expected to take responsibility, make decisions, coordinate resources, and so forth. The role expectations of the leader and follower will significantly affect the pattern of social exchanges and the resources that can be exchanged. Given this, one might expect that when the follower has a good relationship with the leader, then the nature of the exchanges should reduce uncertainty in

the work environment and create clear paths to good performance. On this basis we argue that role clarity is likely to mediate the relationship between LMX and performance.

Social exchange theory (Cropanzano & Mitchell, 2005) leads to the expectation that *trust* in the leader is a potential mediator between LMX and performance. Trust is at the heart of the LMX construct as LMX has been defined as a trust-building process (Bauer & Green, 1996; Liden, Wayne, & Stilwell, 1993; Scandura & Pellegrini, 2008). Through a series of social exchanges, the leader and follower develop trust with each other so that there is an expectation that the positive exchanges will continue (Sue-Chan, Au, & Hackett, 2012). In the leadership literature, more generally, the relationship between trust and behavioral outcomes such as performance and OCB has been well established (e.g., Burke, Sims, Lazzara, & Salas, 2007; Colquitt, LePine, Piccolo, Zapata, & Rich, 2012; Dirks & Ferrin, 2002; Pillai, Schriesheim, & Williams, 1999; Yang & Mossholder, 2010). Research has also shown that trustworthiness leads to trust, which in turn leads to performance (trustworthiness-trust-performance; Colquitt, Scott, & LePine, 2007). Based on prior research and LMX theory, we expect trust to mediate the relationship between LMX and performance.

In addition, *job satisfaction* and *organizational commitment* are work reactions followers exchange with their leaders in return for rewards and valued outcomes. Prior meta-analyses have examined work attitudes only as consequences of LMX rather than as an explanatory mechanism of the relationship between LMX and performance (e.g., Gerstner & Day, 1997). LMX theory proposes that high LMX is an interpersonal relationship characterized by high levels of affect and liking, and this leads to increased satisfaction and commitment to both the leader and the organization (Dulebohn et al., 2012). More generally, the relationship between work attitudes and performance has received considerable attention (e.g., Harrison, Newman, & Roth, 2006; Judge, Thoresen, Bono, & Patton, 2001; Riketta, 2005). The premise that attitudes lead to behavior is grounded in the social psychological literature (Fishbein & Ajzen, 1975). Based on this, we suggest there is reliable evidence, and strong theoretical grounds, to propose that work attitudes (in this case, job satisfaction and organizational commitment) will be an important mechanism through which LMX affects performance outcomes.

Self-determination theory (Deci & Ryan, 1985, 2000; for similar arguments, see theorizing on empowerment, Spreitzer, 1995) is a relevant framework for understanding how high LMX can lead to enhanced performance. Self-determination theory represents a broad framework for understanding human motivation that focuses on intrinsic and extrinsic sources of motivation. People are motivated by both external (e.g., reward systems, evaluations) and internal (e.g., interests, curiosity, values)

factors. Conditions that support an individual's experience of autonomy, competence, and relatedness encourage motivation and engagement in work-related activities, including enhanced performance and creativity. It is clear that high LMX relationships tap into all three components of the theory; autonomy from greater job discretion provided by the leader, competence from increased leader feedback and support on performance, and relatedness from an enhanced interpersonal relationship with the leader. Therefore LMX should be positively related to followers' *motivation* and sense of *empowerment* (see also Liden et al., 2000). We therefore suggest that motivation and empowerment mediate the relationship between LMX and performance.

Hypothesis 4: The relationship between LMX and task and citizenship performance will be mediated by role clarity, trust, job satisfaction, organizational commitment, motivation, and empowerment.

Moderators of the LMX and Performance Relationship

The third theoretical issue examines *moderators of the LMX and performance relationship*. Previous reviews show that there is much unexplained variation in the relationship between LMX and performance, and have examined a number of moderators (e.g., Dulebohn et al., 2012; Gerstner & Day, 1997). This is important not only to provide boundary conditions for when LMX might lead to performance but also to address key theoretical issues. In this paper, we examine some important moderators that have not been examined (or not comprehensively). We do not make specific hypotheses concerning the moderators because, in some cases, they are not theoretically predicted and in others they are examined as possible boundary conditions. We examine three potential moderators.

The first concerns *common source and common method bias*, which refers to potential problems of measuring LMX and performance from the same source or method (e.g., leader-rated LMX quality and leader-assessed performance) and from different sources or methods (e.g., leader-rated LMX quality and objective performance). It is well known that effect sizes become inflated when they suffer from common method or common source bias or when employees rate their own performance (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). As a case in point, Gerstner and Day (1997) found that LMX was more strongly related to leader-rated performance when LMX was measured by the leader (common source, $\rho = .55$) than by the follower (noncommon source, $\rho = .30$). Gerstner and Day (1997) noted that the leader-rated LMX and performance correlation may be confounded with same-source bias. It is

therefore surprising that recent meta-analyses did not distinguish between performance that was follower-rated, leader-rated, or obtained from an objective source, and suffered from common source and common method bias and not on whether the effect sizes were obtained from a separate source or with a different method (Dulebohn et al., 2012; Ilies et al., 2007; Rockstuhl et al., 2012). Moreover, we would expect *objective performance* measures to be less positively related to LMX. Objective performance measures (e.g., sales, productivity, accidents) are less prone to rater bias but may also capture performance aspects that are less under the control of either the follower or leader. Indeed, Gerstner and Day (1997) in a meta-analysis reported a corrected r with LMX of .11 (eight samples). However, the removal of just one study (a field experiment by Graen, Novak, & Sommerkamp, 1982) resulted in the corrected correlation becoming .07.

The second moderator is the type of *LMX measure*. The LMX literature is dominated by two measures: First, the LMX-7 scale described by Graen and Uhl-Bien (1995; see also Dansereau et al., 1975; Scandura & Graen, 1984) consists of seven items reflecting a unidimension of LMX based on the observation that the LMX dimensions are so highly correlated that they tap into a single measure and, second, the multidimensional measure (LMX-MDM) developed by Liden and Maslyn (1998), which consists of 12 items reflecting four dimensions (contribution, loyalty, affect, and professional respect). Although there is broad consensus that LMX is a higher order construct and the correlation between the two main measures is extremely high (corrected $r = .90$; Joseph, Newman, & Sin, 2011), it would be prudent to examine this as a potential moderator, as each measure tends to be employed by different research teams.

The third moderator is the *type of rater*. In most cases, LMX is evaluated by the follower as, typically, this is related to follower-level outcomes (e.g., follower well-being and performance). Meta-analyses have found higher correlations between leader-rated LMX with performance than with follower-rated LMX (e.g., Gerstner & Day, 1997). These differences might be conceptual or methodological in nature (see Schyns & Day, 2010). It would seem, therefore, important to test whether there are differences between leader- and follower-rated effects on task, citizenship, and counterproductive performance, and whether these effects hold even when common source or method bias is controlled for.

Direction of Effects in LMX and Performance Relationship

The fourth theoretical issue concerns the *direction of effect in the LMX and performance relationship*. It is an assumption in LMX theory that LMX quality directly effects outcomes, that is, the higher the LMX

quality, the better will be a range of outcomes (including performance; e.g., Cogliser, Schriesheim, Scandura, & Gardner, 2009; Maslyn & Uhl-Bien, 2001; Uhl-Bien, 2006). For example, Dulebohn et al. (2012) state "it is the nature or quality of leader-follower relationships (i.e., the way in which the leader and follower characteristics and perceptions combine) that determines critical outcomes," and also Anand et al. (2011) state "LMX literature maintains that dyadic relationship quality exerts significant influence on a wide variety of organizational outcomes." This is reflected in research in which LMX is treated as the "independent" variable predicting other dependent variables (Liden et al., 1997). The assumption that LMX relationship quality causes outcomes is central in a number of LMX theories (e.g., Scandura & Lankau, 1996; model of impact of diverse leaders) and also in research designs in which LMX is often conceptualized as the mediating variable between antecedents and outcomes (e.g., LMX is tested as the mediator between transformational leadership and performance; Howell & Hall-Merenda, 1999).

Although there are strong theoretical reasons to suggest that LMX affects outcomes (like performance), one might also argue that the reverse can occur (i.e., outcomes affect LMX relationship quality). Indeed, the general attitude-to-behavior link, which underlies much theorizing in management science, has been questioned and alternative models of effect direction have been proposed. For example, theories such as expectancy-based models of motivation (Lawler & Porter, 1967; Vroom, 1964) explicitly state that the manipulation of follower rewards leads to performance, which in turn affects job satisfaction. Indeed, reverse causality has been examined in a number of meta-analyses between performance and work reactions (e.g., job satisfaction, Judge et al., 2001; organizational commitment, Riketta, 2008; and attitudes, Harrison et al., 2006) or it has been advocated for future research (conflict, De Drue & Weingart, 2003; team efficacy, Gully, Beaubien, Incalcaterra, & Joshi, 2002; business-level satisfactions, Harter, Schmidt, & Hayes, 2002). Finally, one might propose that the relationship between LMX and performance is reciprocal. Because social exchanges between the leader and follower occur over time and follower performance is an important exchange resource, it is possible that LMX and performance operate as a reciprocal process. Some theorists have expanded this analysis to include concepts from social network analysis, which emphasize the reciprocity inherent in leader–follower interactions (Sparrowe & Liden, 1997).

The issue of direction of effect between LMX and performance has not been examined in previous meta-analyses, possibly because most studies have been cross-sectional in design. However, more recently, there have been a sufficient number of studies that measure LMX and performance at different time points, allowing for issues of direction of effects to

be addressed. Although there are strong theoretical reasons to propose that LMX determines performance, it would be fruitful to also examine the possibility of different directions of effects such as reverse causality (i.e., good performance leads to enhanced LMX relationship quality) or reciprocal causality.

Hypothesis 5: There is a positive relationship between LMX and performance and this is stronger than the relationship between performance and LMX.

Method

Literature Search

To locate suitable studies investigating the relationship between LMX with task, citizenship, and counterproductive performance, we searched Proquest, PsychInfo, EBSCO, and ISI Web of Science until the year 2012 using keywords such as "Leader–Member Exchange," "LMX," "Vertical Dyad," "Team Member Exchange," "TMX," "Co-Worker Exchange," "CWX," "Leader–Leader Exchange," and "LLX." This search included journal articles, dissertations, book chapters, and conference proceedings. We also searched the reference lists from relevant review articles (Avolio, Walumbwa, & Weber, 2009; Graen & Uhl-Bien, 1995; Martin et al., 2010) and previous meta-analyses (Dulebohn et al., 2012; Gerstner & Day, 1997; Ilies et al., 2007, Rockstuhl et al., 2012). Furthermore, we contacted academics that publish regularly in the area of LMX asking if they had or knew of any unpublished papers or papers that were currently under review. This initial search resulted in 622 journal articles, dissertations, book chapters, and papers published in conference proceedings. These publications were all retrieved and scrutinized using the study inclusion criteria discussed next.

Study Inclusion

A study had to meet a number of criteria to be included. First, it had to provide a zero-order correlation between any measure of LMX and any of the three performance outcomes (i.e., task, citizenship, or counterproductive) or provide sufficient information to calculate the zero-order correlation. Second, LMX and the performance outcome had to be measured at the individual level of analysis. Accordingly, all studies that measured LMX or the performance outcome at the group level were excluded. Third, to calculate the sampling error, the study had to report sample size. Finally, the sample had to be independent and not overlap with another sample; if a sample appeared in more than one publication,

it was only included once. One hundred and ninety-five publications and 207 independent samples (several publications reported multiple samples) met these criteria. We encountered one redundancy of data (i.e., in which the same dataset has been published twice).

Dataset

Applying the specified inclusion criteria resulted in an initial set of 146 correlations for the relationship between LMX with task performance, 97 for the relationship between LMX and citizenship performance, and 19 for the relationship between LMX and counterproductive performance. Independent datasets were constructed for each of the specific categorical moderator analyses. Dependent correlations in the dataset were represented by unit-weighted composite correlations.

Coding

The initial coding scheme, along with instructions, was jointly developed by all authors on the basis of the extant LMX literature. Using this initial coding scheme, all authors coded 10 randomly selected studies. The coding was discussed between the authors; any ensuing discrepancies and problems were resolved, resulting in a refined coding scheme. On the basis of this refined coding scheme, one of the authors coded all studies; a nonauthor (who is conducting research in leadership) double checked 20% of the coding. No discrepancies were encountered. Data requiring subjective judgments (see later for details) were rated by two of the authors. The overall interrater reliability for the subjective judgments was 98.7% (performance: 96%, and mediators: 100%). Any discrepancies between the two raters were resolved by re-examining the original articles; if the discrepancies could not be resolved, the other authors were consulted.

The type of LMX measure (i.e., LMX-7, LMX-MDM, and LMX Other) was coded along with the specified performance outcome (i.e., task, citizenship, and counterproductive), sample size, reliabilities of either variable, and moderators (i.e., whether the leader or follower rated LMX; whether the performance outcome was objective or leader-, follower-, peer-, or customer-rated; whether LMX was measured before or after the performance outcome). We coded the LMX measure as LMX-7 when it was measured with one of the three available LMX-7 measures (Graen et al., 1982; Graen & Uhl-Bien, 1995; Scandura & Graen, 1984); LMX-MDM was coded when the LMX-MDM scale developed by Liden and Maslyn (1998) was used. Measures of LMX Other included modified versions of the LMX scales (Dunegan, Duchon, & Uhl-Bien, 1992; Stark & Poppler, 2009; Yi-feng & Tjosvold, 2008) as

well as dyad linkage (VDL) scales (Cashman, 1975; Graen & Cashman, 1975; Snyder & Bruning, 1985; Wakabayashi, Graen, & Graen, 1988) and the leader–member social exchange (LMXS) scale (Bernerth, Armenakis, Field, Giles, & Walker, 2007).

We coded two main types of task performance: In-role performance was assessed with objective measures, such as average sales per hour (e.g., Klein & Kim, 1998), frequency and magnitude of errors (Vecchio, 1987), and piece-rate pay systems (Lam, Huang, & Snape, 2007); leader-, peer-, customer-, and self-ratings of commonly used in-role performance scales, such as the ones developed by Williams and Anderson (1991) and Podsakoff and Mackenzie (1989), or performance appraisal data based on supervisor or peer reports, was retrieved from organizational files. Citizenship performance was coded when the study employed self-, leader-, or peer-rated measures of organizational citizenship behaviors (OCB), contextual performance, or extra-role behaviors, such as those developed by Podsakoff, MacKenzie, Moorman, and Fetter (1990) and Williams and Anderson (1991). Counterproductive performance coding included objective measures of absenteeism (e.g., van Dierendonck, Le Blanc, & van Breukelen, 2002), withdrawal behaviors (e.g., Erdogan & Bauer, 2010), and reported accidents (e.g., Hofmann & Morgeson, 1999); self-rated measures of psychological withdrawal (e.g., Aryee & Chen, 2006), resistance to change (e.g., van Dam, et al., 2008), and counterproductive behavior (e.g., Lindsay, 2009); leader-rated scales of retaliation behavior (e.g., Townsend, Phillips, & Elkins, 2000) and social loafing (e.g., Murphy, 1998; Murphy, Wayne, Liden, & Erdogan, 2003).

When a study included potential mediators, we also coded the relationship between LMX with the mediator, and the relationship between the mediator with any of the three performance outcomes (i.e., task, citizenship, or counterproductive). The most common mediators were role clarity, trust, job satisfaction, organizational commitment, motivation, and empowerment. Mediator variables in the primary studies were all self-rated by the follower. Role clarity included a range of variables such as reverse-coded role ambiguity and role conflict. Role clarity, role conflict, and role ambiguity were almost exclusively measured with scales developed by Rizzo, House, and Lirtzman (1970). Trust included measures of followers trust with their supervisors or, in one case, their management in general (van Dam, Oreg, & Schyns, 2008). Trust was most often measured with the Podsakoff et al. (1990) instrument. Measures of job satisfaction included one-dimensional scales with items focusing only on the job (e.g., general job satisfaction items from the revised job descriptive survey; Hackman & Oldham, 1980) to multidimensional instruments designed to assess various aspects related to job satisfaction (e.g., the satisfaction with the work itself scale of the job descriptive index; Smith et al., 1987) and

the Minnesota Satisfaction Questionnaire (Weiss, Dawis, England, & Lofquist, 1967). Commitment generally referred to commitment to the organization and, most commonly, affective organizational commitment measured using the Meyer, Allen, and Smith (1993) scale. Motivation included a number of different variables, the most common referred to the employee's intrinsic motivation for their job (e.g., Amabile, 1985). Finally, empowerment was measured using Spreitzer's (1995) scale or facets thereof (e.g., Basu & Green, 1997; Ozer, 2008).

Meta-Analytic Techniques

The meta-analysis relied on the widely-used Hunter and Schmidt (1990, 2004) approach: A random effects model that accounts for sampling bias and measurement error. Accordingly, we calculated a sample-weighted mean correlation (r), and a sample-weighted mean correlation corrected individually for unreliability in both criterion and predictor variables, hereafter referred to as the corrected population correlation (ρ). Missing artifact values (i.e., reliability of either predictor or criterion) were estimated by inserting the mean value across the studies in which information was given, as recommended by Hunter and Schmidt (2004). Objective performance data were not corrected for unreliability, because researchers frequently argue that measures based on objective performance data are unbiased (Riketta, 2005) and because no procedure is currently available to correct for unreliability of such measures.

In addition, we report the 90% confidence intervals (90% CI) of the sample-weighted mean correlation and the 80% credibility intervals (80% CV) of the corrected population correlation. Confidence intervals estimate variability in the sample-weighted mean correlation that is due to sampling error; credibility intervals estimate variability in the individual correlations across studies that is due to moderator variables (Whitener, 1990). If the 90% confidence interval around a sample-weighted mean correlation does not include zero, we can be 95% confident that the sample-weighted mean correlation is different from zero. Moreover, confidence intervals can be used to test whether two estimates differ from each other; two estimates are considered different when their confidence intervals are nonoverlapping. As some authors question the use of significance testing in meta-analyses, we also interpret the effect size of the corrected population correlation using the rule of thumb for small, medium, and large effect sizes (.10, .30, and .50) as suggested by Cohen (1992). If the 80% credibility interval of the corrected population correlation is large and includes zero, this indicates that there is considerable variation across studies, and moderators are likely operating.

To further corroborate that moderators were present, we assessed whether sampling error and error of measurement accounted for more than 75% of the variance between studies in the primary estimates (Hunter & Schmidt, 1990); accordingly, we report the percentage of variance accounted for in the corrected population correlation by sampling and measurement error (% VE). Moderators are assumed to be operating when sampling and measurement error account for less than 75% of the variance. Categorical moderators were computed using Hunter and Schmidt's (1990, 2004) subgroup analyses techniques by conducting separate meta-analyses at each of the specified moderator level. To examine whether there are significant differences between the mean-corrected correlations of sublevels of the hypothesized moderator variable, we compared their confidence intervals as discussed.

For the mediation and causal analyses, we applied the respective models discussed in the hypothesis section to the matrix of corrected mean correlations. To minimize common source variance and common method bias in the mediation analysis, the correlations between LMX and the performance outcomes, and between the mediators and the performance outcomes, were based on noncommon source estimates (Podsakoff et al., 2003). Following recommendations by Hom, Caranikas-Walker, Prussia, and Griffeth (1992; cf. Viswesvaran & Ones, 1995), we tested the mediation and causal models using structural equation modeling and the maximum likelihood estimate method in Mplus (Muthén & Muthén, 1998–2006). Given that sample sizes varied across the various cells of the inputted correlation matrices, we used the harmonic mean of each subsample to calculate model estimates and standard errors (Viswesvaran & Ones, 1995). Using the harmonic mean results in more conservative estimates, as less weight is given to large samples.

Results

Main Effects of the LMX and Performance Relationship

There is a positive relationship between LMX with task and citizenship performance and a negative relationship with counterproductive performance (supporting Hypotheses 1 to 3). As can be seen in Tables 1–3, LMX (overall) had a moderately strong positive effect on task performance ($\rho = .30$, 90% CI [.25, .28]), a moderately strong positive effect on citizenship performance ($\rho = .34$, 90% CI [.27, .32]), and a moderately strong negative effect on counterproductive performance ($\rho = -.24$, 90% CI [–28, –.16]). Because the relationship with objective performance has only been reported in one previous meta-analysis (Gerstner & Day, 1997), we specifically report this relationship. In our

TABLE 1
Meta-Analytic Results for the Relationship Between LMX and Task Performance

				90% CI					80% CV	
Variable	*k*	*N*	*r*	Lower	Upper	ρ	SD_ρ	%VE	Lower	Upper
LMX follower- or leader-rated										
LMX overall	146	32,670	.27	.25	.28	.30	.13	22.38	.13	.47
LMX-7	86	20,766	.27	.25	.29	.31	.13	21.21	.14	.48
LMX-MDM	27	6,065	.24	.21	.28	.28	.12	27.29	.13	.43
LMX Other	37	7,168	.26	.23	.30	.30	.14	24.64	.13	.48
Noncommon source										
LMX overall	121	26,574	.25	.23	.26	.28	.10	32.36	.15	.41
LMX-7	75	17,838	.25	.23	.27	.28	.10	32.07	.15	.41
LMX-MDM	25	5,671	.24	.21	.28	.27	.12	27.57	.13	.42
LMX Other	27	4,491	.22	.19	.25	.24	.09	45.28	.13	.36
Objective performance										
LMX overall	20	4,398	.22	.18	.26	.24	.11	29.73	.10	.38
LMX-7	14	3,742	.24	.19	.28	.26	.10	29.06	.13	.39
LMX-MDM	0									
LMX Other	6	656	.11	.03	.20	.12	.08	61.92	.02	.23
External performance ratings										
LMX overall	109	23,877	.25	.23	.27	.28	.10	34.65	.16	109
LMX-7	67	15,721	.25	.23	.27	.28	.10	33.26	.16	67
LMX-MDM	25	5,671	.24	.21	.28	.27	.12	27.57	.13	25
LMX Other	24	4,006	.24	.21	.27	.27	.07	57.74	.18	24
Common source										
LMX overall	43	9,016	.35	.31	.40	.42	.20	10.94	.16	.68
LMX-7	26	5,433	.38	.32	.44	.44	.22	9.02	.16	.73
LMX-MDM	3	816	.27	.15	.39	.33	.15	18.58	.14	.52
LMX Other	15	3,189	.34	.27	.41	.41	.17	15.96	.19	.63
LMX follower-rated										
LMX overall	134	31,140	.25	.24	.27	.29	.11	28.70	.15	.43
LMX-7	80	19,977	.25	.23	.27	.28	.11	28.14	.14	.42
LMX-MDM	27	6,012	.24	.20	.28	.27	.12	27.81	.12	.42
LMX Other	35	6,925	.26	.23	.29	.29	.10	35.05	.16	.43
Noncommon source										
LMX overall[a]	118	26,294	.25	.23	.27	.28	.10	33.03	.15	.41
LMX-7	72	17,173	.25	.23	.27	.28	.10	3.88	.15	.41
LMX-MDM	25	5,671	.24	.21	.28	.27	.11	28.50	.13	.42
LMX Other	22	3,855	.24	.21	.27	.27	.08	52.13	.17	.37
Objective performance										
LMX overall	17	4,004	.23	.18	.27	.25	.11	28.81	.11	.39
LMX-7	13	3,617	.24	.19	.29	.26	.11	26.20	.13	.40
LMX-MDM	0									
LMX Other	4	387	.11	.03	.19	.13	.00	100.00	.13	.13
External performance ratings										
LMX overall	108	23,672	.26	.24	.27	.29	.09	37.12	.17	.41
LMX-7	66	15,507	.25	.23	.27	.29	.09	38.09	.18	.40
LMX-MDM	25	5,671	.24	.21	.28	.27	.11	28.50	.13	.42
LMX Other	21	3,820	.24	.21	.27	.27	.08	51.34	.17	.37

continued

TABLE 1 (continued)

				90% CI					80% CV	
Variable	*k*	*N*	*r*	Lower	Upper	ρ	SD_ρ	%VE	Lower	Upper
Leader-rated performance										
LMX overall	107	23,998	.25	.24	.27	.29	.09	37.70	.17	.41
LMX-7	66	15,507	.25	.23	.27	.29	.09	38.16	.18	.40
LMX-MDM	25	5,671	.24	.20	.28	.27	.11	28.67	.13	.42
LMX Other	21	3,820	.24	.21	.27	.27	.08	51.34	.17	.37
Peer-rated performance										
LMX overall	2	313	.36	.32	.39	.38	.00	100.00	.38	.38
LMX-7	1	163	.33			.36				
LMX-MDM	1	150	.39			.40				
LMX Other	0									
Common source										
LMX overall	22	5,763	.26	.21	.31	.31	.16	16.12	.11	.51
LMX-7	8	2,436	.23	.13	.32	.26	.18	11.25	.04	.49
LMX-MDM	2	394	.18	.04	.32	.21	.10	40.36	.09	.34
LMX Other	12	2,933	.30	.25	.36	.37	.11	27.51	.22	.51
LMX leader-rated										
LMX overall	27	4,118	.45	.39	.50	.52	.20	12.34	.26	.78
LMX-7	20	3,343	.46	.40	.52	.54	.16	16.85	.34	.75
LMX-MDM	1	422	.36			.48				
LMX Other	7	775	.41	.24	.58	.45	.30	7.79	.06	.83
Noncommon source										
LMX overall	6	722	.13	.07	.19	.14	.04	84.07	.08	.20
LMX-7	3	387	.14	.09	.19	.16	.00	100.00	.16	.16
LMX-MDM	3	335	.11	.01	.22	.12	.08	62.37	.01	.22
LMX Other	0									
Objective performance										
LMX overall	4	477	.08	.03	.14	.09	.00	100.00	.09	.09
LMX-7	2	224	.10	.06	.13	.11	.00	100.00	.11	.11
LMX-MDM	0									
LMX Other	2	253	.07	-.02	.17	.07	.00	100.00	.07	.07
External performance ratings										
LMX overall	3	300	.22	.17	.26	.26	.00	100.00	.26	.26
LMX-7	1	163	.20			.24				
LMX-MDM	0									
LMX Other	2	137	.24	.16	.32	.27	.00	100.00	.27	.27
Follower-rated performance										
LMX overall	3	300	.22	.17	.26	.26	.00	100.00	.26	.26
LMX-7	1	163	.20			.24				
LMX-MDM	0									
LMX Other	2	137	.24	.16	.32	.27	.00	100.00	.27	.27
Peer-rated performance										
LMX overall	1	163	.20			.24				
LMX-7	1	163	.20			.24				
LMX-MDM	0									
LMX Other	0									

continued

TABLE 1 (continued)

				90% CI					80% CV	
Variable	*k*	*N*	*r*	Lower	Upper	ρ	SD_ρ	%VE	Lower	Upper
Common source										
LMX overall	27	3,971	.49	.44	.54	.58	.15	19.02	.38	.77
LMX-7	21	3,394	.49	.44	.54	.57	.15	19.21	.39	.76
LMX-MDM	1	422	.36			.46				
LMX Other	6	577	.56	.45	.67	.63	.16	19.18	.42	.84

Note. Results are corrected for criterion and predictor unreliability. k = number of correlations; N = number of respondents; r = sample-weighted mean correlation; ρ = corrected population correlation; SD_ρ = standard deviation of the corrected population correlation; % VE = percentage of variance attributed to sampling error in corrected population correlation; 90% CI = 90% confidence interval around the sample-weighted mean correlation; 80% CV = 80% credibility interval around the corrected population correlation.
[a]Corrected population correlation served as input for mediation analyses.

meta-analysis there was a positive relationship between LMX and objective task performance (20 samples, ρ = .24, 90% CI [.18, .26]) and a negative relationship between LMX and objective counterproductive performance (6 samples, ρ = –.11, 90% CI [–13, –.07]), though the small number of samples for the last finding should be noted. Due to the nature of citizenship performance, there were no studies with objective measures.

Mediators of the LMX and Performance Relationship

To test for mediation, we first derived the meta-analytic correlations for the relationship between LMX (follower-rated, noncommon source, LMX overall) and the mediating variables; role clarity, trust, job satisfaction, organizational commitment, motivation, and empowerment (all follower-rated). The results are displayed in Table 4; all the effects were significant (i.e., none of the 90% CIs included 0), positive, and strong (ρ = .48 for role clarity; ρ = .65 for trust; ρ = .61 for job satisfaction; ρ = .49 for organizational commitment; ρ = .31 for motivation; ρ = .34 for empowerment).

Next, we meta-analyzed the effects of these mediating variables (all follower-rated) on all measures of performance (all from noncommon sources). The results are displayed in Table 5. All correlations were significant and positive. For task performance, the effects ranged from medium to small (ρ = .12 for role clarity; ρ = .24 for trust; ρ = .20 for job satisfaction; ρ = .15 for organizational commitment; ρ = .21 for motivation; ρ = .23 for empowerment). For citizenship performance, the effects were stronger and ranged from large to medium (ρ = .19 for role

TABLE 2
Meta-Analytic Results for the Relationship Between LMX and Citizenship Performance

				90% CI					80% CV	
Variable	*k*	*N*	*r*	Lower	Upper	ρ	SD_ρ	%VE	Lower	Upper
LMX follower- or leader-rated										
LMX overall	97	23,039	.29	.27	.32	.34	.15	17.94	.15	.53
LMX-7	62	14,800	.28	.25	.30	.32	.15	18.55	.13	.51
LMX-MDM	25	5,332	.28	.24	.32	.32	.11	30.94	.18	.45
LMX Other	14	3,913	.36	.29	.43	.42	.16	12.62	.21	.62
Noncommon source										
LMX overall	74	16,186	.27	.25	.30	.31	.12	25.63	.16	.47
LMX-7	49	10,902	.27	.24	.30	.31	.13	24.19	.15	.47
LMX-MDM	21	4,568	.27	.23	.32	.30	.12	25.33	.15	.46
LMX Other	9	1,853	.25	.20	.29	.29	.06	62.08	.21	.36
Common source										
LMX overall	32	8,977	.33	.28	.39	.39	.19	9.56	.15	.64
LMX-7	21	5,764	.31	.24	.38	.36	.20	9.02	.10	.62
LMX-MDM	6	1,417	.30	.24	.37	.35	.09	34.76	.23	.47
LMX Other	5	2,060	.44	.33	.56	.52	.14	9.22	.33	.70
LMX follower-rated										
LMX overall	94	22,362	.29	.26	.31	.33	.14	18.41	.14	.51
LMX-7	59	14,123	.27	.24	.29	.31	.14	19.63	.12	.49
LMX-MDM	25	5,332	.27	.23	.31	.31	.11	30.36	.17	.45
LMX Other	14	3,913	.35	.28	.42	.41	.16	12.31	.20	.62
Noncommon source										
LMX overall[a]	72	15,365	.27	.25	.30	.31	.13	24.91	.15	.48
LMX-7	46	9,950	.27	.24	.30	.31	.13	23.43	.14	.48
LMX-MDM	21	4,568	.27	.23	.32	.30	.13	24.10	.14	.47
LMX Other	9	1,853	.25	.20	.29	.29	.06	62.08	.21	.36
Common source										
LMX overall	25	7,611	.30	.24	.35	.35	.18	10.71	.13	.58
LMX-7	15	4,556	.24	.18	.31	.29	.16	14.19	.09	.49
LMX-MDM	5	995	.25	.20	.30	.29	.02	95.37	.27	.31
LMX Other	5	2,060	.44	.33	.56	.52	.14	9.22	.33	.70
LMX leader-rated										
LMX overall	10	2,318	.42	.34	.50	.50	.16	14.57	.30	.70
LMX-7	9	2,160	.43	.34	.52	.51	.16	13.00	.31	.72
LMX-MDM	1	422	.44			.50				
LMX Other	1	158	.56			.74				
Noncommon source										
LMX overall	4	1,374	.30	.21	.40	.37	.11	23.15	.23	.50
LMX-7	3	952	.24	.17	.32	.30	.07	44.74	.21	.39
LMX MDM	1	422	.44			.50				
LMX Other	0									

continued

TABLE 2 (continued)

				90% CI					80% CV	
Variable	*k*	*N*	*r*	Lower	Upper	ρ	SD_ρ	%VE	Lower	Upper
Common source										
LMX overall	8	1,497	.52	.46	.57	.60	.09	31.46	.48	.72
LMX-7	7	1,339	.51	.44	.58	.59	.09	32.30	.48	.71
LMX-MDM	0									
LMX Other	1	158	.56			.74				

Note. Results are corrected for criterion and predictor unreliability. k = number of correlations; N = number of respondents; r = sample-weighted mean correlation; ρ = corrected population correlation; SD_ρ = standard deviation of the corrected population correlation; % VE = percentage of variance attributed to sampling error in corrected population correlation; 90% CI = 90% confidence interval around the sample-weighted mean correlation; 80% CV = 80% credibility interval around the corrected population correlation.
[a]Corrected population correlation served as input for mediation analyses.

clarity; $\rho = .46$ for trust; $\rho = .27$ for job satisfaction; $\rho = .24$ for organizational commitment; $\rho = .29$ for motivation; $\rho = .18$ for empowerment). Only five studies were available for counterproductive performance; the effects were weak ($\rho = .09$ for job satisfaction; $\rho = .04$ for organizational commitment; $\rho = -.07$ for motivation) and, due to the small number of available studies, were inconclusive.

To enhance the validity of our results, we only included those mediators in our analyses for which we obtained at least three studies for each link of the mediation sequence (cf. Harrison et al., 2006). Due to the small number of available primary studies, this left us with role clarity, trust, job satisfaction, organizational commitment, motivation, and empowerment as mediators of the relationships between LMX and task and citizenship performance. The results of our mediation analyses are displayed in Table 6.

As can be seen in Table 6, and in support of Hypothesis 4, the results suggest that trust, job satisfaction, motivation, and empowerment mediate the effects between LMX (follower-rated) and task performance (externally-rated or based on objective measures); organizational commitment and role clarity did not mediate this relationship. The mediator that explained most of the variance in task performance was trust (25.0%), followed by empowerment (17.9%), motivation (14.3%), and job satisfaction (10.7%).

The effects of LMX (follower-rated) on citizenship performance (externally-rated) are accounted for by trust, job satisfaction, organizational commitment, motivation and empowerment (see Table 6), which also supports Hypothesis 4. Role clarity did not mediate these effects. Trust appears as the mediator with the highest predictive validity; trust

TABLE 3
Meta-Analytic Results for the Relationship Between LMX and Counterproductive Performance

				90% CI					80% CV	
Variable	*k*	*N*	*r*	Lower	Upper	ρ	SD_ρ	%VE	Lower	Upper
LMX follower- or leader-rated										
LMX overall	19	6,342	−.22	−.28	−.16	−.24	.18	9.53	−.48	−.01
LMX-7	14	5,207	−.21	−.29	−.14	−.24	.19	8.01	−.48	.00
LMX-MDM	3	848	−.32	−.33	−.30	−.37	.00	100.00	−.37	−.37
LMX Other	2	287	−.04	−.14	.06	−.04	.03	89.16	−.08	.00
Noncommon source										
LMX overall	13	4,308	−.13	−.18	−.08	−.14	.10	25.49	−.27	−.01
LMX-7	10	3,899	−.13	−.18	−.08	−.15	.10	24.31	−.27	−.02
LMX-MDM	2	246	−.34	−.35	−.33	−.37	.00	100.00	−.37	−.37
LMX Other	2	287	−.04	−.14	.06	−.04	.03	89.16	−.08	.00
Objective performance										
LMX overall	6	3,122	−.10	−.13	−.07	−.11	.02	88.67	−.13	−.08
LMX-7	4	2,835	−.10	−.13	−.08	−.11	.00	100.00	−.11	−.11
LMX-MDM	0									
LMX Other	2	287	−.04	−.14	.06	−.04	.03	89.16	−.08	.00
External performance ratings										
LMX overall	7	1,186	−.23	−.34	−.12	−.26	.17	18.23	−.48	−.04
LMX-7	5	940	−.20	−.34	−.06	−.23	.19	14.78	−.47	.01
LMX-MDM	2	246	−.34	−.35	−.33	−.37	.00	100.00	−.37	−.37
LMX Other	0									
Common source										
LMX overall	9	3,188	−.33	−.42	−.24	−.38	.19	7.97	−.62	−.14
LMX-7	8	2,586	−.33	−.44	−.22	−.38	.21	7.06	−.65	−.12
LMX-MDM	1	602	−.31			−.36				
LMX Other	0									
LMX follower-rated										
LMX overall	18	6,230	−.22	−.28	−.16	−.25	.18	9.50	−.47	−.02
LMX-7	13	5,095	−.22	−.29	−.14	−.24	.18	7.88	−.47	.00
LMX-MDM	3	848	−.32	−.33	−.30	−.37	.00	100.00	−.37	−.37
LMX Other	2	287	−.04	−.14	.06	−.04	.03	89.16	−.08	.00
Noncommon source										
LMX overall	11	3,778	−.14	−.19	−.08	−.15	.11	22.91	−.29	−.02
LMX-7	7	3,245	−.13	−.19	−.07	−.15	.09	21.83	−.27	−.02
LMX-MDM	2	246	−.34	−.35	−.33	−.37	.00	100.00	−.37	−.37
LMX Other	2	287	−.04	−.14	.06	−.04	.03	89.16	−.08	.00
Objective performance										
LMX overall	6	3,122	−.10	−.13	−.07	−.11	.02	88.67	−.13	−.08
LMX-7	4	2,835	−.10	−.13	−.08	−.11	.00	100.00	−.11	−.11
LMX-MDM	0									
LMX Other	2	287	−.04	−.14	.06	−.04	.03	89.16	−.08	.00
External performance ratings										
LMX overall	5	656	−.34	−.42	−.25	−.38	.08	54.23	−.48	−.28
LMX-7	3	410	−.34	−.47	−.20	−.38	.12	32.76	−.53	−.22

continued

TABLE 3 (continued)

				90% CI					80% CV	
Variable	*k*	*N*	*r*	Lower	Upper	ρ	SD_ρ	%VE	Lower	Upper
LMX-MDM	2	246	−.34	−.35	−.33	−.37	.00	100.00	−.37	−.37
LMX Other	0									
Common source										
LMX overall	8	3,038	−.31	−.41	−.22	−.36	.18	8.18	−.59	−.13
LMX-7	7	2,436	−.32	−.43	−.20	−.36	.20	7.15	−.62	−.11
LMX-MDM	1	602	−.31			−.36				
LMX Other	0									
LMX leader-rated										
LMX overall	3	680	−.19	−.40	.02	−.22	.24	8.42	−.52	.09
LMX-7	3	680	−.19	−.40	.02	−.22	.24	8.42	−.52	.09
LMX-MDM	0									
LMX Other	0									
Noncommon source										
LMX overall	2	530	−.08	−.13	−.02	−.08	.00	100.00	−.08	−.08
LMX-7	2	530	−.08	−.13	−.02	−.08	.00	100.00	−.08	−.08
LMX-MDM	0									
LMX Other	0									
Objective performance										
LMX overall	0									
LMX-7	0									
LMX-MDM	0									
LMX Other	0									
External performance ratings										
LMX overall	2	530	−.08	−.13	−.02	−.08	.00	100.00	−.08	−.08
LMX-7	2	530	−.08	−.13	−.02	−.08	.00	100.00	−.08	−.08
LMX-MDM	0									
LMX Other	0									
Common source										
LMX overall	1	150	−.60			−.67				
LMX-7	1	150	−.60			−.67				
LMX-MDM	0									
LMX Other	0									

Note. Results are corrected for criterion and predictor unreliability. k = number of correlations; N = number of respondents; r = sample-weighted mean correlation; ρ = corrected population correlation; SD_ρ = standard deviation of the corrected population correlation; % VE = percentage of variance attributed to sampling error in corrected population correlation; 90% CI = 90% confidence interval around the sample-weighted mean correlation; 80% CV = 80% credibility interval around the corrected population correlation.

accounted for 93.6% of the variance in the direct effect of LMX on citizenship performance suggesting full mediation. Job satisfaction explained 25.8% of the variance; motivation explained 22.6%; organizational commitment explained 19.4% of the variance in the direct effect; empowerment accounted for 9.7% of the variance. Due to the small numbers on

TABLE 4
Meta-Analytic Results for the Relationship Between LMX (Follower-Rated) and Mediators (Follower-Rated)

				90% CI					80% CV	
Variable	*k*	*N*	*r*	Lower	Upper	ρ	SD_ρ	%VE	Lower	Upper
Role clarity	8	1,636	.39	.31	.46	.48	.11	30.37	.34	.62
Trust	8	1,217	.55	.45	.66	.65	.19	10.88	.41	.89
Job satisfaction	48	13,493	.53	.49	.56	.61	.15	9.47	.41	.81
Commitment	42	10,332	.43	.40	.45	.49	.11	24.18	.35	.63
Motivation	8	3,447	.26	.23	.28	.31	.04	67.16	.26	.36
Empowerment	15	3,110	.29	.23	.35	.34	.13	24.04	.17	.51

Note. Results are corrected for criterion and predictor unreliability. k = number of correlations; N = number of respondents; r = sample-weighted mean correlation; ρ = corrected population correlation; SD_ρ = standard deviation of the corrected population correlation; % VE = percentage of variance attributed to sampling error in corrected population correlation; 90% CI = 90% confidence interval around the sample-weighted mean correlation; 80% CV = 80% credibility interval around the corrected population correlation.

the second stage of the mediation model (i.e., fewer than three available studies), the findings for motivation should be interpreted with caution.

For the sake of completeness, we also tested whether job satisfaction, organizational commitment, and motivation accounted for the relationship between LMX and counterproductive performance; they did not. However, in light of the small number of available primary studies, these findings call for more corroborating evidence in the future.

Moderators of the LMX and Performance Relationship

The low amount of explained variation in, and the large credibility intervals around, the effects of LMX (overall) on task performance (22.38%, 80% CV [.13, .47]), citizenship performance (17.94%, 80% CV [.15, .53]), and counterproductive performance (9.53%, 80% CV [–.48, –.01]) in Table 1–3 suggest that moderators are operating.

Common source and common method bias concerns whether the LMX and performance measure were obtained from the same or different source or method. Tables 1–3 suggest that the effects of LMX (overall) on the performance outcomes tend to be lower when LMX and outcome measures were obtained from a different source or were assessed with a different method. When there was no bias, LMX had a weaker effect on task performance (ρ = .28 vs. ρ = .42), citizenship performance (ρ = .31 vs. ρ = .39), and counterproductive performance (ρ = –.14 vs. ρ = –.38). The 90% CIs were nonoverlapping for task performance ([.23, .26]; [.31, .40]) and counterproductive performance ([–.18, –.08]; [–.42, –.24]) but

TABLE 5
Meta-Analytic Results for the Relationship Between Mediators (Follower-Rated) and Performance

				90% CI					80% CV	
Variable	k	N	r	Lower	Upper	ρ	SD_ρ	%VE	Lower	Upper
Task performance (externally-rated or based on objective measures)										
Role clarity	6	816	.11	.06	.15	.12	.00	100.00	.12	.12
Trust	5	599	.20	.16	.24	.24	.00	100.00	.24	.24
Job satisfaction	27	5,825	.18	.14	.21	.20	.09	40.13	.08	.33
Commitment	30	7,029	.13	.10	.17	.15	.11	30.38	.01	.30
Motivation	5	835	.19	.12	.25	.21	.08	55.64	.11	.31
Empowerment	12	2,452	.21	.14	.27	.23	.13	26.05	.07	.40
Citizenship performance (externally)										
Role clarity	3	589	.16	.01	.31	.19	.16	19.44	−.02	.40
Trust	3	563	.42	.32	.52	.46	.11	27.88	.33	.60
Job satisfaction	16	3,238	.23	.20	.27	.27	.06	59.94	.19	.35
Commitment	20	4,785	.21	.17	.25	.24	.09	37.34	.12	.35
Motivation	2	395	.25	.13	.37	.29	.11	33.33	.14	.43
Empowerment	5	1,010	.15	.03	.26	.18	.15	22.33	−.01	.38
Counterproductive performance (externally-rated or based on objective measures)										
Role clarity	0									
Trust	0									
Job satisfaction	3	907	.08	.05	.11	.09	.00	100.00	.09	.09
Commitment	1	276	.04			.04				
Motivation	1	1,924	−.06			−.07				
Empowerment	0									

Note. Results are corrected for criterion and predictor unreliability. k = number of correlations; N = number of respondents; r = sample-weighted mean correlation; ρ = corrected population correlation; SD_ρ = standard deviation of the corrected population correlation; % VE = percentage of variance attributed to sampling error in corrected population correlation; 90% CI = 90% confidence interval around the sample-weighted mean correlation; 80% CV = 80% credibility interval around the corrected population correlation.

not for citizenship performance ([.25, .30]; [.28, .39]). However, when we increased the CI for citizenship performance to 80%, the two effects appeared to be different ([.16, .47]; [.15, .64]). This suggests that the effects of LMX (overall) on performance are indeed weaker for all three performance outcomes under conditions in which measures were obtained from a different source or assessed with a different method. For task performance (see Table 1), it seems not to matter whether performance is assessed with objective measures or with external ratings, the two effects of LMX (overall) on these outcomes are similar and their 90% CIs are overlapping (ρ = .24, [.18, .26] vs. ρ = .28, [.23, .27]). Similarly, the effect of LMX on counterproductive performance (see Table 3) for objective measures and external ratings is the same (ρ = –.11, [–.13, –.07] vs. ρ = –.26, [–.34, –.12]).

TABLE 6
Mediator Analyses for LMX (Follower-Rated) on Task and Citizenship Performance

Mediator	*N*	*a*	*b*	*ab*	*c'*	*c*	%VE
Task performance (externally-rated or based on objective measures)							
Role clarity	1,600	.48***	−.02	−.01	.29***	.28***	0
Trust	1,186	.65***	.10**	.07**	.22***	.28***	25.00
Job satisfaction	10,570	.61***	.05***	.03***	.25***	.28***	10.71
Commitment	10,827	.49***	.02	.01	.27***	.28***	3.57
Motivation	1,966	.31***	.14***	.04***	.24***	.28***	14.29
Empowerment	3,909	.34***	.15***	.05***	.23***	.28***	17.86
Citizenship performance (externally-rated)							
Role clarity	1,264	.48***	.05	.03	.28***	.31***	9.68
Trust	1,127	.65***	.45***	.29***	.02	.31***	93.55
Job satisfaction	6,696	.61***	.13***	.08***	.23***	.31***	25.81
Commitment	8,089	.49***	.12***	.06***	.25***	.31***	19.35
Motivation[a]	1,039	.31***	.21***	.07***	.24	.31***	22.58
Empowerment	2,179	.34***	.08***	.03***	.28	.31***	9.68

Note. *N* is harmonic mean. Standardized coefficients are presented. *a* = first stage mediation effect; *b* = second stage mediation effect; *ab* = indirect effect; *c'* = direct effect; *c* = overall effect; %VE = variance explained in overall effect by indirect effect. Each mediator was entered separately into the mediation analysis.
[a]Second stage mediation effect based on only two studies.
*$p < .05$. **$p < .01$. ***$p < .001$.

Type of measurement referred to the use of the LMX-7, LMX-MDM, or LMX Other scales and, as can be seen in Tables 1 and 2, type of measurement did not moderate the relationships between LMX and task performance, or between LMX and citizenship performance; the respective 90% CIs were overlapping for LMX-7, LMX-MDM, and LMX Other with task performance ([.25, .29]; [.21, .28]; [.23, .30]) and with citizenship performance ([.25, .30]; [.24, .32]; [.29, .43]). The results for counterproductive performance (see Table 3) are inconclusive. Although 14 studies looked at LMX-7, there are only three studies that looked at LMX-MDM and two that looked at LMX Other. The effects for LMX-MDM seem to be the most negative ([–.33, –.30]), followed by LMX-7 ([–.29, –.14]), and there are no effects for LMX Other ([–.14, .06]). Overall, this suggests that type of measurement does not moderate the LMX–performance relationship, at least for task and citizenship performance. To further corroborate these findings, we also meta-analyzed the intercorrelations between the different types of measures; as can be seen in Table 7, the three measures correlated very highly with each other (average $\rho = .87$). Although the number of studies is too low to draw any firm conclusion, this provides further support for the idea that the different measures are tapping into the same overarching construct.

TABLE 7
Intercorrelations Between LMX Measures

				90% CI					80% CV	
Variable	*K*	*N*	*r*	Lower	Upper	ρ	SD_ρ	%VE	Lower	Upper
LMX-7 with LMX-MDM	3	811	.71	.63	.80	.80	.08	13.76	.69	.90
LMX-7 with LMX Other	1	195	.86			.95				
LMX-MDM with LMX Other	1	195	.79			.87				

Note. Results are corrected for criterion and predictor unreliability. k = number of correlations; N = number of respondents; r = sample-weighted mean correlation; ρ = corrected population correlation; SD_ρ = standard deviation of the corrected population correlation; % VE = percentage of variance attributed to sampling error in corrected population correlation; 90% CI = 90% confidence interval around the sample-weighted mean correlation; 80% CV = 80% credibility interval around the corrected population correlation.

Type of rater refers to whether LMX was assessed by the leader or follower. Whether the follower or leader rates, LMX has an effect on the relationship between LMX (overall) with all performance measures. As can be seen in Tables 1–3, the effects tend to be weaker when the follower rates LMX as opposed to the leader, as indicated by their respective effect sizes and 90% CIs (task performance: $\rho = .29$, [.24, .27] vs. $\rho = .52$, [.39, .50]; citizenship performance: $\rho = .33$, [.26, .31] vs. $\rho = .50$, [.34, .50]; counterproductive performance: $\rho = -.25$, [–.28, –.16] vs. $\rho = -.22$, [–.40, .02]). However, due to the relatively smaller number of leader-rated LMX studies versus follower-rated LMX studies and the overrepresentation of leader-rated LMX studies that are prone to common source and common method bias, we caution not to read too much into these results. Even so, when we take common method and common method bias into account, the effects of follower-rated LMX and leader-rated LMX on the three performance outcomes are different. For task performance, the effects of LMX (overall) rated by the follower has a stronger effect on task performance than leader-rated LMX (overall) when there is no bias (non-common source; $\rho = .28$, [.23, .27] vs. $\rho = .14$, [.07, .19]); in contrast when there is bias (common source), the effects of follower-rated LMX (overall) on task performance are much weaker than those for leader-rated LMX ($\rho = .31$, [.21, .31] vs. $\rho = .58$, [.44, .54]). For citizenship performance, the effects are similar when there is no bias ($\rho = .31$, [.25, .30] vs. $\rho = .37$, [.21, .40]), however, when there is bias, follower-rated LMX (overall) effects are again weaker ($\rho = .35$, [.24, .35] vs. $\rho = .60$, [.46, .57]). For counterproductive performance, there are no differences between unbiased follower- and leader-rated LMX overall effects

($\rho = -.15$, [–.19, –.08] vs. $\rho = -.08$, [–.13, –.02]). Only one study looked at biased leader-rated LMX effects on counterproductive performance. With this caveat, there seems to be some indication that biased leader-rated effects on counterproductive performance also tend to be stronger (i.e., more negative) than follower-rated LMX overall effects on counterproductive performance ($\rho = -.36$, [–.41, –.22] vs. $\rho = -.67$).

Direction of Effects in the LMX and Performance Relationship

Whether LMX at Time 1 has a stronger effect on performance at Time 2 than performance at Time 1 on LMX at Time 2 could only be tested for task performance due the availability of primary studies. The meta-analytic results for the studies with a time gap between LMX (follower-rated) and task performance, as well as the respective cross-sectional studies are displayed in Table 8. LMX at Time 1 had a significant, positive, and strong effect on LMX at Time 2 ($\rho = .63$), and a significant, positive, and moderate effect on task performance at Time 2 ($\rho = .31$). Similarly, task performance at Time 1 had a significant, positive, and strong effect on task performance at Time 2 ($\rho = .54$); and a significant, positive, and moderately strong effect on LMX at Time 2 ($\rho = .21$). The cross-sectional correlations between LMX and task performance were also significant, positive, and of medium size ($\rho = .39$).

Next, we subjected these meta-analytic correlations to a structural equation model as displayed in Figure 1. As can be seen, LMX at Time 1 had a small significant positive effect on task performance at Time 2 ($\gamma = .12$, $p < .001$), whereas task performance at Time 1 did not have any effect on LMX at Time 2 ($\gamma = -.04$, ns). This was further corroborated by a Wald test that showed that both parameter estimates were significantly different from each other ($\Delta\chi^2$ (1) = 12.63, $p < .001$). Thus, LMX does affect task performance, supporting Hypothesis 5, but not the other way round.

Discussion

This paper reports a meta-analysis of the relationship between LMX relationship quality and performance. In doing this, we report an up-to-date review to reflect the rapid increase in research on LMX and performance. For example, in terms of the number of samples examining LMX and performance: Gerstner and Day (1997) reported 50 samples (42 performance ratings, 8 objective), Ilies et al. (2007) reported 50 samples (all OCB), Dulebohn et al. (2012) reported 135 samples (108 job performance, 27 OCB), and Rockstuhl et al. (2012) reported 200 samples (116 task performance, 84 OCB). By contrast, this meta-analysis reports 262 samples (146 task, 97 citizenship, 19 counterproductive performance).

TABLE 8
Cross-Lagged Correlations Between LMX (Follower-Rated) and Task Performance

				90% CI					80% CV	
Variable	*k*	*N*	*r*	Lower	Upper	ρ	SD_ρ	%VE	Lower	Upper
LMX (T1) – Performance (T2)	13	3,469	.28	.23	.32	.31	.12	23.26	.16	.45
Performance (T1) – LMX (T2)	5	1,021	.20	.12	.27	.21	.08	48.13	.12	.31
Performance (T1/T2) – LMX (T1/T2)	4	610	.36	.25	.46	.39	.09	47.88	.27	.51
LMX (T1) – LMX (T2)	4	756	.58	.51	.65	.63	.07	37.26	.55	.72
Performance (T1) – Performance (T2)	5	897	.51	.43	.60	.54	.12	18.05	.38	.70

Note. Results are corrected for criterion and predictor unreliability. k = number of correlations; N = number of respondents; r = sample-weighted mean correlation; ρ = corrected population correlation; SD_ρ = standard deviation of the corrected population correlation; % VE = percentage of variance attributed to sampling error in corrected population correlation; 90% CI = 90% confidence interval around the sample-weighted mean correlation; 80% CV = 80% credibility interval around the corrected population correlation; T = measurement point.

Summary of Findings and Implications for Theory and Research

We identified four theoretical issues in the introduction (main effects, mediating variables, moderating variables, and direction of effects), and we summarize the findings in each of these areas with reference to the implications of these findings for LMX theory and research.

Main effects. Guided by the integration of LMX and social exchange theories and the multidimensional model of work performance (Rotundo & Sackett, 2002), the first theoretical issue was to examine the *main effects* of LMX on a broader range of performance dimensions than had been previously conducted. The meta-analyses supported Hypotheses 1 to 3. There was a significant positive relationship between LMX and task performance with a corrected correlation of .30. This result compares to the two most recent meta-analyses: Namely, Dulebohn et al. (2012) and Rockstuhl et al. (2012) who reported corrected correlations between

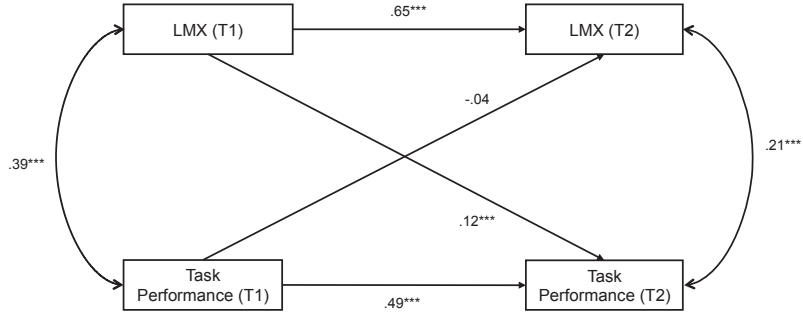

Figure 1: **Cross-Lagged Panel Correlation Analysis of LMX (Follower Rated) and Task Performance.**

Note. $N = 859$ (harmonic mean). Standardized maximum likelihood parameter estimates. T = measurement point. $*p < .05$. $**p < .01$. $***p < .001$.

LMX and "job performance" of .34, and .30 and .29 for individualistic and collectivist countries, respectively. However, in both the Dulebohn et al. (2012) and Rockstuhl et al. (2012) meta-analyses, only a global finding is reported and the results are not given for different raters of LMX or information on whether the correlations were from the same or different sources or methods. This is important if one wants to examine the relationship between LMX and objective measures of performance because these provide the most unbiased measure. Gerstner and Day (1997) reported a corrected correlation of .11 based on eight samples, and led them to conclude that "its practical meaningfulness is questionable" (p. 835). Because the recent meta-analyses did not differentiate between the source of different performance measures (i.e., subjective vs. objective), the relationship between LMX and objective performance has not yet been clearly established. The present meta-analysis can answer this question as it included 20 samples with objective performance (more than twice Gerstner & Day, 1997) and found a corrected correlation of .24 (as opposed to the .11 effect size reported by Gerstner & Day, 1997). Overall, the current meta-analysis confirms that LMX is positively associated with task performance, even if it involves objective measures of performance.

For citizenship performance, the corrected correlation was .34 and is similar to the corrected correlations of .37, .39, and .35/.28 (individualistic/collectivistic cultures) found by Ilies et al. (2007), Dulebohn et al. (2012), and Rockstuhl et al. (2012), respectively. Collectively, these results show a positive relationship between LMX and citizenship performance. Finally, the present meta-analysis, for the first time, examined

counterproductive performance. As explained in the Introduction, it is important to include this dimension of performance as it is significantly related to judgments of overall performance and an aspect of performance about which organizations are becoming ever more concerned. As expected, the corrected correlation was negative between LMX and counterproductive performance (–.24), which was also evident with objective measures of counterproductive behaviors (–.11), although we should be cautious with the latter finding due to a small number of samples (6).

Our meta-analytic results give greater confidence to the veracity of the LMX–performance relationship for three reasons. First, we triangulate across different kinds of evidence to show that LMX is robustly associated with performance, regardless of rating perspective, rating source, and type of measure. Moreover, we find larger effects for objective performance than did Gerstner and Day (1997: .24 as opposed to .11). Second, we extended LMX theory by incorporating the multidimensional approach to work performance (Rotundo & Sackett, 2002) and demonstrated that the predictive power of LMX extends across all three dimensions of work performance (task, citizenship, counterproductive performance). As such, we provided the first meta-analytic test of the LMX–counterproductive relationship and showed that high LMX reduces the incidence of negative work behaviors (i.e., counterproductive performance). Given that primary studies have revealed mixed results including both negative (e.g., Townsend et al., 2000) and null effects (e.g., Chullen , Dunford, Angermeier, Boss, & Boss, 2010) of LMX on counterproductive performance, our meta-analysis clarified the size and nature of this relationship. The finding concerning counterproductive performance is particularly important in extending LMX theory by showing that high LMX relationships not only lead to more positive work behaviors (i.e., task and citizenship performance) but also to *fewer* negative work behaviors (i.e., counterproductive performance). Third, this is the first meta-analysis to show that initial levels of LMX predict later task performance (and not vice versa). It is important to note that our cross-lagged analyses (see Figure 1) represent a particularly robust test of the LMX–performance relationship because it disentangled the effects of LMX and task performance, controlled for baseline levels of performance and LMX, and helped to rule out the alternative explanations of reverse and reciprocal causality. Thus, taken together, this meta-analysis triangulated across different sources, methods, performance dimensions, and time lags to provide both novel theoretical and empirical insights and the most compelling evidence to date for the LMX–performance relationship.

Mediators. The second theoretical issue was to examine potential *mediators* between LMX and performance. Based on role, social exchange,

and self-determination theories, we identified a number of potential mediating variables between LMX and performance.

The results showed that trust, motivation, empowerment, and job satisfaction mediated the relationship between LMX and task performance and between LMX and citizenship performance (supporting Hypothesis 4). In addition, organizational commitment mediated the relationship between LMX and citizenship performance. These findings are fully in line with self-determination theory. One would expect on the basis of self-determination theory that because high-quality relationships fulfill people's need for competence, autonomy, and relatedness, they should be both motivating and satisfying. At first glance it appears that these findings are more difficult to align with social exchange theory, as one would expect that followers to reciprocate high-quality relationships with higher levels of organizational commitment, mediating both the relationship between LMX and task performance and with contextual performance. However, another explanation for these findings may have to do with the elusive attitude–performance relationship (cf. Harrison et al., 2006), in that followers may pay back their obligation when it comes to task performance with higher levels of motivation rather than with higher levels of organizational commitment.

In contrast, our findings are not supportive of role theory. The results showed that role clarity did not mediate the relationship between LMX and either task or citizenship performance. According to role theory's account of LMX, one would expect better LMX relationships to be ones in which the leader clearly designs and clarifies the role for the follower (see Graen & Scandura, 1987). However, high LMX relationships might be ones in which the leader gives the follower considerable discretion over their work and opens up new work opportunities, and therefore the follower's job role remains unclear. Notwithstanding the plausibility of these arguments, further research is needed to provide more evidence on the role of different types of exchanges on the relationship between role clarity and LMX.

Overall, trust in the leader accounted for the most variance in the mediation models for both task performance and citizenship behavior. This finding shows the importance of trust in the leader as an important mechanism between LMX and performance. This is to be expected given that LMX is conceptualized as a trust-building process (Bauer & Green, 1996; Graen & Cashman, 1975; Liden et al., 1993; Scandura & Pellegrini, 2008). However, some caution is warranted when interpreting this effect as some LMX measures include items that are highly related to the concept of trust. For example, in the development of the LMX-MDM, Liden and Maslyn (1998) noted a strong overlap between the items in their loyalty scale and trust. As noted earlier, future research would benefit by

examining the different dimensions of LMX on performance to determine whether differential effects occur.

It is important to note, however, that our meta-analysis is not just a summary (i.e., the average effect size) of previous empirical studies that have tested mediation. In fact, there are surprisingly few empirical studies that have directly tested mediational models of LMX, despite the frequent calls in the literature (see Erdogan & Liden, 2002; Graen & Uhl-Bien, 1995; Martin et al., 2010). As such, we have advanced extant knowledge by examining the underlying process by which LMX affects task and citizenship performance, including some mediators that have not been tested before (e.g., trust, job satisfaction). Our findings speak little to what accounts for the LMX–counterproductive performance relationship because there were too few studies that would have allowed us to test for mediators of this effect. This is clearly an area for future research.

Moderators. The third theoretical issue of the meta-analysis concerns potential *moderators* of the LMX and performance relationship. First, confirming previous meta-analyses (e.g., Gerstner & Day, 1997), the correlation between LMX and performance was stronger when both measures were obtained from the same source or method than from different ones for all three performance measures. However, although same source/method data can potentially inflate correlations, this cannot explain the main effects observed earlier. When measures were obtained from different sources, the main effects were still statistically significant (task, 121 samples, $\rho = .28$; citizenship, 74 samples, $\rho = .31$; counterproductive, 13 samples, $\rho = -.14$).

Second, there was not a moderating effect of LMX measurement instrument. The effects of LMX-7, LMX-MDM, and LMX Other on all three performance outcomes were of equal size. The LMX-7 and LMX-MDM dominate the LMX literature despite some authors suggesting that neither sufficiently captures the quality of the exchanges between leader and follower (see Bernerth et al., 2007). Because LMX is seen as one higher order factor (Graen & Uhl-Bien, 1995), studies tend to collapse across the four dimensions of the LMX-MDM to give a single score of relationship quality. Unfortunately, there were insufficient samples in which the correlations are provided between the individual dimensions of the LMX-MDM and performance. However, this is something that should be encouraged in future studies to explore whether different dimensions of LMX differentially predict performance indexes.

Third, the type of rater (leader vs. follower) has also been identified as a potential moderator. This meta-analysis found the correlation between LMX and all performance measures was weaker when LMX was measured by the follower than the leader. However, a different and more

complex pattern emerged when we controlled for common source and method bias. Across all outcomes, common source- and method-biased effects were stronger for leader-rated LMX than for follower-rated LMX (task: .58 vs. .31, citizenship: .60 vs. .35, counterproductive: –.67 vs. –.36), whereas the differences were reversed (task: .14 vs. .28) or nullified (citizenship: .37 vs. .31) when the effects were unbiased. One reason for this might be due to leader ratings suffering from response inflation because items in LMX measures focus heavily on the leader and are thus perceived by leaders as a self-rating of their own performance (see Sin, Nahrgang, & Morgeson, 2009). When leaders rate LMX and follower performance ratings in the same questionnaire, this might prime leaders to also inflate follower performance ratings because they might perceive the follower performance rating items as an assessment of their effectiveness as a leader rather than follower performance. One implication of this would be to vary the order of measurement (LMX vs. performance rating) to determine whether this priming effect still occurs when the order is reversed. Furthermore, the same-source rating suggests that for leaders, high performance is almost conceptually equivalent with high levels of LMX, whereas for followers, LMX and performance are conceptually much more distinct. In contrast, the lower correlations for the unbiased ratings suggest that leader ratings of their LMX relationship are much less predictive of task and counterproductive performance than for citizenship performance.

Direction of effects. The fourth theoretical issue was to examine directionality in the LMX–performance relationship. Due to a low number of studies, we could only examine this issue in relation to task performance. However, we found that LMX predicts task performance but not vice versa (which supports Hypothesis 5). Although this direction of effect has been assumed in models of LMX (e.g., Cogliser et al., 2009; Maslyn & Uhl-Bien, 2001; Uhl-Bien, 2006), we provide the first evidence from a meta-analysis to support this crucial theoretical assumption. Our results, however, found no evidence for reverse causality or reciprocal causal effects. The lack of a temporal effect of performance on LMX may be due to the small number of studies that have measured initial levels of performance and later measures of LMX quality. Further research is needed to establish the temporal characteristics of the LMX–performance relationship, and in particular cross-lagged panel designs that help detect changes in both LMX quality and performance over time. In one of the few studies to measure the effects of performance on LMX over time, Nahrgang et al. (2009) showed that performance/competence was an important determinant in the embryonic stages (the first few weeks) of the LMX relationship. However, it is possible that, once initial impressions

are formed, subsequent changes in performance may have less influence on LMX development.

Although, our meta-analysis is the first to go beyond concurrent effects and test for temporal direction, we should exercise caution in reaching causal conclusions based upon correlational data. Although we provide a more rigorous test of causality, we cannot rule out alternative causal explanations (e.g., third variables that may covary with both LMX and performance). In addition, it is not clear whether the longitudinal samples included in our meta-analysis incorporated the optimal time lag between measurement points for detecting causal effects. Indeed, little is known about how long it takes for the effects of LMX manifest in changes in performance (and vice versa). Furthermore, panel designs are often designed according to logistical constraints rather than based upon theoretical considerations of the optimal time lag for measurement (Riketta, 2008; Williams & Podsakoff, 1989). Despite these limitations, we found initial evidence for the temporal effect of LMX on performance.

Due to a limited number of samples, we were only able to examine this issue in relation to task performance. However, given the consistent pattern of results across all three measures of performance, we would also predict similar findings for citizenship and counterproductive performance.

Tests of causal direction have important implications for theory development. This meta-analysis is a valuable starting point for teasing apart causal effects and extending LMX theory by showing evidence for prospective effects of LMX on performance but not reverse or reciprocal causality (albeit based upon a relatively small sample of studies that tested the prospective effect of performance on later LMX). Further research is needed to more comprehensively examine the temporal characteristics of the LMX relationship (e.g., how long it takes for LMX to influence performance and vice versa, and how long these effects last), to examine different types of models (e.g., moderated mediation; Tse, Ashkanasy, & Dasborough, 2012), and more generally increase our understanding of the process of LMX development. Regardless of the kind of performance dimension measured, there is a need for more studies employing cross-lagged panel and experimental designs, and in particular, multiple waves that permit the examination of within-dyad change (i.e., trajectories) over time (e.g., Nahrgang et al., 2009).

Implications for Practice

The link between LMX and performance also holds important implications for practice. At the individual level, research suggests that leaders should try to develop high LMX relationships with all of their followers (Graen & Uhl-Bien, 1995; Scandura, 1999) not only to enhance work

performance (as shown in this meta-analysis) but to increase a wide range of positive follower outcomes including; job satisfaction, health, and well-being (for reviews see Anand et al., 2011; Martin et al., 2010). The pursuit of high LMX with all followers is clearly desirable, but is it practical in organizational settings? Developing high LMX takes time and requires regular social exchanges and there may be several practical constraints that might limit this occurring such as a large span of control, time constraints on the part of the leader, and the potential scarcity of required material resources (Van Breukelen et al., 2006).

The range of organizational constraints (coupled with personal biases) often mitigates against leaders developing high LMX with all followers but to the development of different quality relationships (Liden et al., 2006), and this can lead to poor work outcomes. For example, higher levels of LMX differentiation (i.e., variability in LMX quality within work teams) is associated with greater work group conflict (Hooper & Martin, 2008) and lower individual task performance and OCB (Hu & Liden, 2013). In practice, the ability of a leader to develop high LMX relationships with all their followers requires not only good relationship-building skills but the ability to manage several followers and to ensure that the leader is seen as procedurally fair and unbiased in the treatment of all members of their team (Hooper & Martin, 2008).

In some respects, LMX research has focused on the benefits of high LMX without due consideration to the damaging effects of low LMX. Our meta-analytic results suggest that the costs of low LMX may be greater than is often recognized, in that neglected followers are likely to engage in counterproductive and deviant behavior that undermines both the leader and the organization (Jones, 2009). Moreover, organizations need to be aware that requiring leaders to use punitive strategies to deal with such counterproductive performance (see Atwater & Elkins, 2009) is likely to lead to a downward spiral in LMX quality. Therefore, organizations should look to use other corrective strategies to deal with counterproductive performance. One way to address the underlying cause, however, would be for organizations to remove the structural barriers to LMX development such as reducing group sizes and increasing leader's time and resources to reduce the likelihood of LMX differentiation in work groups.

Findings from the meta-analysis also have practical implications for human resource/personnel systems in organizations. First, the LMX–performance effect has ramifications for employee and career development systems in organizations. LMX quality is positively related to perceived organizational career opportunities, career and development organizational support, career mentoring (Kraimer, Seibert, Wayne, Liden, & Bravo, 2011), career satisfaction (Joo & Ready, 2012), speed of promotion (e.g., Wakabayashi & Graen, 1984), and salary growth (Scandura &

Schriesheim, 1994). Moreover, leaders in organizations routinely operate under a noncompensatory model of career development, in which followers must achieve both high LMX and high performance in order to progress in their careers (e.g., Scandura, Graen, & Novak, 1986). Thus, LMX quality plays an important role in determining followers' career progression. The longitudinal results of this study, however, raise questions about the fairness of this approach to employee and career development. For example, our finding that performance failed to predict later LMX (after controlling for initial LMX) suggests that once LMX is established it remains unaffected by follower's level of task performance (either better or worse). Therefore, in the interests of procedural justice, organizations should consider adopting a compensatory model of career and employee development in which high performance can compensate for low LMX. In addition, organizations need to provide other kinds of informal (e.g., career mentoring) and formal (e.g., training workshops; career planning workshops) employee development experiences, especially for low LMX followers to compensate for the lack of developmental support and growth opportunities provided by their immediate leaders (Kraimer et al., 2011; Scandura & Schriesheim, 1994).

Second, our results hold implications for performance management systems in organizations. Prior research has sometimes called into question the validity of leader performance evaluations of high LMX followers because they can be unduly influenced by prior reputation or the closeness of the LMX relationship (e.g., Duarte, Goodson, & Klich, 1993; Steiner, 1997). This is a major concern for organizations because supervisor-rated performance is typically the primary source of data used by performance management systems (Murphy & Cleveland, 1995). The results of our meta-analysis are informative with respect to this important issue. On the one hand, the fact that LMX quality predicted both leader-rated performance and objective performance suggests that leader-rated performance in organizations is to a certain extent accurate (see Funder, 1995), irrespective of LMX quality, and this provides some support for organizational reliance on supervisor-rated performance data. On the other hand, the relationship between LMX and objective performance is not as strong as it is for supervisor-rated performance. There are many potential explanations for this result including the possibility that leaders' ratings encompass a wider range of job performance criteria than objective measures (Smither & London, 2009). However, it is also likely that rater errors and biases might affect leaders' ratings, at least in part due to LMX quality (Erdogan, 2002; Martin et al., 2010; Steiner, 1997). Thus, organizations need to ensure that leaders and HRM specialists are aware of the natural inclination to be more lenient toward high LMX followers. Other ways for organizations to militate against appraisal bias and calibrate ratings is to

require leaders to justify their ratings with others such as the leader's manager (Smither & London, 2009), provide leaders with frame-of-reference training (Woehr & Huffcutt, 1994), and, where appropriate, integrate subjective and objective measures of performance (Bommer, Johnson, Rich, Podsakoff, & Mackenzie, 1995).

Finally, the meta-analysis has ramifications for leadership training and development systems in organizations. LMX research has emphasized that leadership training that focuses on improving the quality of the relationship between leader and follower is likely to have benefits for follower performance (Graen et al., 1982). The results of the meta-analysis go beyond this and start to identify some of the mechanisms that might account for why high LMX is beneficial and therefore what should be addressed in leadership training programs. Leadership training that focuses on techniques to improve LMX through enhancing follower's job satisfaction, trust, work motivation, and empowerment is likely to result in improvements in performance (see Korsgaard, Sapienza, & Schweiger, 2002). The meta-analysis gives a more differentiated picture of the LMX–performance relationship than was hitherto known. For example, the relationship between LMX and performance is not the same for followers and leaders, for example, leader ratings of their LMX relationship are less predictive of task and counterproductive performance than for citizenship performance. Therefore, leadership training needs to acknowledge that followers and leaders have different "lenses" in viewing what factors enhance performance. Leadership training could benefit from helping leaders understand the multiple "lenses" (for the leader and followers) that might operate in viewing work performance in helping to identify potential biases in judgments, to understand the causal relationship between LMX and different dimensions of performance, and to better direct leadership behaviors to enhance follower performance.

Conclusions

This meta-analysis was designed to address four main theoretical issues, derived from LMX theory, with respect to the relationship between LMX quality and performance. The main findings confirm that the effects of LMX on various indicies of performance (positive with task and citizenship performance and negative with counterproductive performance) are of moderate to large size and also establish a moderate positive effect size on objective performance. Also, a number of factors were found to mediate the LMX–performance relationship, with trust in leader having the largest effect. The findings concerning mediation supports social exchange and self-determination (but not role) theories as well as theoretical models of LMX that emphasize that LMX is a trust-building process. Finally,

evidence is found for a relationship between LMX and performance and not for reverse or reciprocal causality. Based on these results, we encourage scholars to extend LMX theory by examining theory-guided mechanisms that explain the link between LMX and the various dimensions of performance (task, citizenship, and counterproductive performance) and how this process develops over time.

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