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Managerial Gender Diversity and Firm Performance: An Integration of Different Theoretical Perspectives

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Abstract

This study examines the relationship between managerial gender diversity and firm performance. It outlines how extremely low and extremely high levels of managerial gender diversity can trigger group processes that can impede the attainment of the performance benefits associated with moderate levels of managerial gender diversity. Findings from a longitudinal panel data from financial service firms in Portugal suggest the effects of managerial gender diversity on firm performance are best captured by a nonlinear function with two breaking points. This study introduces a framework that combines different theoretical perspectives focused on tokenism, sub-group formation, divergent thinking, and other group processes linked to positive and negative gender-diversity consequences. Corresponding overall firm-performance outcomes are contingent upon the level of managerial gender diversity.

Keywords

Gender diversity, Organizational performance, Tokenism, Social identity

Disciplines

Business Administration, Management, and Operations | Business and Corporate Communications | Business Law, Public Responsibility, and Ethics | International Business

Comments

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Managerial Gender Diversity and Firm Performance: An Integration of Different Theoretical Perspectives

ABSTRACT

This study examines the relationship between managerial gender diversity and firm performance. It outlines how extremely low and extremely high levels of managerial gender diversity can trigger group processes that can impede the attainment of the performance benefits associated with moderate levels of managerial gender diversity. Findings from a longitudinal panel data from financial service firms in Portugal suggest the effects of managerial gender diversity on firm performance are best captured by a nonlinear function with two breaking points. This study introduces a framework that combines different theoretical perspectives focused on tokenism, sub-group formation, divergent thinking, and other group processes linked to positive and negative gender-diversity consequences. Corresponding overall firm-performance outcomes are contingent upon the level of managerial gender diversity.

Keywords: Gender diversity, organizational performance, tokenism, social identity.

The movement of women into management, including upper levels of management, has been an important research topic since the passage of the Equal Pay Act (1963) and the Civil Rights Act (1964) in the United States which prohibit gender based discrimination (President's Commission on the Status of Women, 1963; Helfat, Harrison, & Wolfe, 2007; Shore et al., 2009; Koenig et al., 2011; Jackson & O'Callaghan, 2009; Klarsfield, 2009; Omanovic, 2009). At first glance, research suggests gender discrimination has decreased with the increased representation of women in management and professional positions (Catalyst, 2014a). However, a more careful investigation suggests that these gains are largely at lower levels of management and with non-managerial professional positions. Barriers to the promotion of women into middle and upper level management positions still persist (Konrad, 2003). For example, Catalyst (2014a) reported that the representation of women in executive officer positions at Fortune 500 companies has stagnated at approximately 14.5% since 2010. For women in senior management positions, Catalyst (2014b) reported 21% representation for North America, 25% for Europe, 23% for Latin America, and 32% for ASEAN countries. Hence, the development of career ladders for women in management remains a concern for women with upwardly mobile aspirations and for organizations seeking greater managerial gender diversity.

The identification of positive firm performance outcomes associated with a higher percentage of women in management positions is likely to influence employer willingness to adopt programs and policies that develop and retain women who aspire to management positions (Olsen & Martins, 2012; Konrad & Linnehan, 1995). However, findings about the positive and negative consequences of gender diversity for firm performance have been inconclusive, and the majority of prior research has focused on the group level of analysis (Cox, 1993, Milliken & Marten, 1996, Williams, & O'Reilly, 1998; Webber & Donahue, 2001; Shore et al., 2009).

As Ali, Kulik, and Metz (2011) suggested, there is a need for more research to examine firm-level effects of gender diversity. Most of the extant research links firm performance with gender diversity of top-management teams (Roost & Osterloh, 2010) and boards of directors (Carter, D'Souza, Simkins, & Simpson, 2010; Ali, Ng, & Kulik, 2014). A research review of gender diversity on corporate boards (Terjesen, Sealy, & Singh, 2009) suggested that boards with at least three female directors outperform firms with all male boards. Carpenter's (2002) review of gender diversity on the top-management teams reported positive effects of gender diversity on firm financial performance. Combined these results suggest that gender diversity at the highest levels of an organization tends to improve firm performance.

We identified only four studies that considered broader managerial gender diversity (MGD) effects beyond top-management. These studies produced conflicting findings with regard to firm performance. One reported a positive linear relationship (Shrader, Blackburn, & Iles, 1997), one reported no relationship (McMillan-Capehart, & Simerly, 2008), and two reported a contingent relationship (Richard, Barnett, Dwyer & Chadwick, 2004; Dwyer, Richard, & Chadwick, 2003). Additionally, two studies examined the relationship between total employee gender diversity (including both managers and non-managers) and firm performance (Frink et al., 2003; Ali Kulik & Metz, 2011). Both studies reported that as employee gender diversity increased from low to moderate levels, there was a positive relationship of employee gender diversity with firm performance. However, as employee gender diversity moved from a moderate degree of diversity to parity, the effect diminished.

The present study examines different theoretical perspectives to address the positive and negative consequences of diversity based on the degree of managerial gender diversity. For example, we draw on social identity theory and tokenism research to suggest that at low levels of

managerial gender diversity (hereafter MGD), dysfunctional social dynamics are likely to dominate and inhibit potential positive effects of MGD on firm performance. As MGD increases, these negative social dynamics start to diminish and positive effects of divergent thinking on managerial decisions are likely to dominate (Dwyer et al., 2003). If MGD continues to increase and approaches parity, social identity theory suggests that the benefits of divergent thinking are likely to erode if communication between gender-based in-groups and out-groups diminishes. The next sections outline arguments and research supporting these processes in more detail. We integrate these various processes that so far have been studied primarily in isolation into a single causal framework. This framework suggests a complex non-linear relationship between MGD and firm performance – a relationship that changes not only in strength, but also twice in direction.

THEORY AND HYPOTHESES

Positive and Negative Effects of MGD on Firm Performance

One of the few areas of common agreement within diversity research is that the effects of group diversity on group and firm performance can be both positive and negative (Cox, 1993; Milliken & Martins, 1996; Bell, Villado, Lukasik, Belau, & Briggs, 2011). These reviews link positive outcomes with improved decision-making processes from improved information access and analysis. They link negative outcomes with dysfunctional group dynamics.

Improved managerial-decision making appears to be the most commonly mentioned benefit of MGD. In particular, gender-diverse groups promise a broader information base for making decisions than homogeneous groups (van Knippenberg, de Dreu, & Homan, 2004; Dahlin, Weingart, & Hinds, 2005). The underlying assumption is that men and women tend to have different experiences resulting in different knowledge and different sources of information.

Consequently, MGD is likely to provide managers with additional non-redundant information that promises to improve decision-making quality. A second source of improved decision making is that diverse groups tend to evaluate information more thoroughly than non-diverse groups (Dahlin et al., 2005). For example, men and women tend to use different evaluative criteria in assessing alternatives (Park, 1996; Crow, Fok, Hartman, & Payne, 1991). Talke, Salomo, and Rost (2010), for example, reported that gender diversity on corporate boards promoted creativity and more intense problem solving. Given that making complex decisions is a key managerial activity (March & Simon, 1956), MGD has the potential to improve managerial choices and subsequent firm performance.

On the other hand, MGD may trigger dysfunctional group processes. Related theories of social identity (Tajfel & Turner, 1979), self-identity theory (Leonard, Mehra, & Katerberg, 2008), and the categorization-elaboration model (van Knippenberg, et al., 2004) are all linked to diversity-based disruptive group processes. These theories assume that people create social categories based on individual differences, including gender, and argue that salient social categories foster the creation of in-group and out-group distinctions (Tajfel, 1978; Hewstone, Rubin, & Willis, 2002). Distinctiveness is a key factor that contributes to the salience of in-group and out-group differences (Leonard, Mehra, & Katerberg, 2008; McGuire & Padawer-Singer, 1976). Distinctiveness refers to the perceptual process of attending to numerically rare stimuli (McGuire & Padawer-Singer, 1976). This cognitive attention facilitates the creation of in-groups and out-groups bringing together those with highly similar stimuli versus those that are different. Gender is a demographic attribute that allows easy visual distinctions to be made and that for multiple social and biological reasons tends to be readily available for the creation of social categories (Ridgeway, 2009).

The formation of in-groups and out-groups has been associated with dysfunctional conflict, distrust, and reduced communication across subgroups (Chrobot-Mason et al., 2009; Li & Hambrick, 2005). When social categories emerge and create dysfunctional group dynamics, it becomes difficult to utilize informational resources effectively to improve decision quality (Joshi, Liao, & Jackson, 2006). Thus, the purported decision-making advantages of diversity are negated or may even deteriorate.

Research suggests that social categories are likely to become more prevalent as identity salience increases. Identity salience, which refers to the pervasive use of a given social category (Pelled, 1996), assumes that typically multiple social categories exist at any time. However, triggers can lead to one social category being more widely used than others. For example, management, a traditionally male occupation (Ryan & Haslam, 2007; Ragins & Winkel, 2011), is likely to trigger in-group and out-group distinctions for females in management positions. That is, a significant body of research suggests that female managers are commonly associated with the out-group categorization and the disadvantaged treatment tied to out-group status. Female managers, for example, are paid less than male managers (Bureau of Labor Statistics, 2014). Promotion of managers with feminine attributes is less likely than promotion of managers with masculine attributes (Metz & Tharenou, 2001; Gorman & Kmec, 2009). Female managers, in comparison to male managers, have shorter career ladders with more rungs that tend to place them in less influential staff positions (DiPrete & Soule, 1988; Baron, Davis-Blake, & Bielby, 1986).

From Homogenous Gender Representation to Token Representation

Gender distinctiveness at low levels of gender diversity has been linked to tokenism, which occurs when an isolated individual (or few individuals) with an ascribed characteristic,

such as gender, carry a set of assumptions about status and behavior (Kanter, 1977). Perceived distinctiveness influences the behavior of both those within the heavily represented group and those with token representation.

Token individuals appear to behave differently compared to members of the dominant group (Kanter, 1977). Tokens tend to communicate less and engage more in other types of withdrawal behavior, such as disruptive deviance, than non-tokens (Liao, Joshi, & Chuang, 2004). Numerous studies have supported related withdrawal behavior and the sense of isolation for tokens at the individual level of analysis (Yoder, 1991). All of these behaviors are consistent with being or becoming a member of an out-group. Furthermore, tokens tend to have more negative work attitudes compared to in-group members (Tsui, Egan, & O'Reilly, 1992). Negative work attitudes have been linked to turnover and other potentially negative consequences for firm performance (Ellmers, Gilder, & Haslam, 2004). The prevalence of withdrawal behaviors by tokens is likely to decrease a firm's ability to capitalize on diverse thinking, divergent information, and critical analyses for effective problem solving. Thus, a token status is likely to inhibit informational resource utilization otherwise associated with MGD.

In the presence of tokens, the behavior of in-group members is likely to change as well. Kanter (1977), for example, reported that males were likely to act with higher levels of masculinity in the presence of female tokens than in homogeneous gender groups or balanced gender groups. The distinctiveness component made it important for in-group members to emphasize masculine behavior so as to further distance themselves from the tokens. Consistent with these arguments, Bird (2003) reported that all-male groups tend to be more cohesive than gender-mixed groups. These changes of behavior by the dominant group are likely to further

intensify the isolation of individuals with token status and inhibit information resource utilization.

In research about tokens at the group level, Randel (2002) and Pelled (1996) reported that tokens were likely to exacerbate issues of identity salience that create relational conflict in groups. However, Graves and Elsass (2005) reported that tokens had no statistically significant effect on group interactions. More importantly, Chatman, Boisnier, Sapataro, Anderson and Berdahl (2008) reported that performance problems of tokens were more common in sex atypical jobs than sex typical jobs. This idea is clearly relevant to our study, as management has traditionally been viewed as atypical work for women (Tharenou, 2001; Ragins & Winkel, 2011).

We are unaware of any quantitative empirical research that examines tokenism at the firm level of analysis. Given the increased presence of women in management in North America (Catalyst, 2104a), it is increasingly difficult to identify large samples with token representation. An alternative is to test related theory-based hypotheses outside of the North American context. Given that tokenism is predicted to have mostly negative consequences for interactions among managers, we hypothesize the following negative effect on firm performance.

H1: As MGD increases from no MGD to token levels of MGD, firm performance will decline.

Increases of MGD beyond Tokenism

As MGD increases beyond token representation, any in-group and out-group categories are likely to become more diffused, and managers will be able to more effectively utilize the breadth and depth of informational resources that derive from MGD. Tokenism is inherently tied to being visibly rare. As the number of women in management increases, their rarity diminishes. The dynamics of moving beyond token representation are likely to be complex. Kanter (1977) reported that the effects of tokenism diminish after women attain 15% representation within a

given group. Women are likely to act differently as other women are increasingly present, and withdrawal behaviors diminish. For example, as women attain a critical mass on boards of directors, group decision-making processes and organization performance improve (Konrad, Kramer & Erkut, 2008; Torchia et al., 2011). In the presence of other women, women directors also report more information sharing and less self-censorship of ideas (Elstad & Ladegarde, 2012). This suggests that as gender representation increases beyond token representation, withdrawal behavior becomes less likely, which enables divergent thinking and information sharing processes with potential benefits for decision-making quality.

Other research suggests that work attitudes are related to social integration and willingness to offer input into work-related issues (Judge, Thoresen, Bono, & Patton, 2001). This is important because Yoder (1991) and Kanter (1977) reported that work attitudes improve as one moves away from token status to greater representation. Thus, research suggests that increasing MGD beyond token representation is likely to increase women's participation and involvement in managerial decision-making processes with potential benefits for firm performance.

H2: As MGD increases beyond token levels of representation, firm performance will improve.

As MGD Approaches Parity

As MGD approaches parity, we expect that communication problems among managers are likely to increase due to stronger in-group and out- group divisions within management. Reduced communication and dysfunctional group dynamics between in-group (male managers) and out-group members (female managers) may impede firm performance.

Several factors are likely to act collectively to increase gender-based in-group and out-group divisions as gender diversity increases. First, women are more likely to share similar career ladders that put them into certain types of managerial work (Lyness & Schrader, 2006).

Thus, based on propinquity of jobs, women are more likely to be networked with other women. Second, based on homophily, managers are likely to be more compatible with and attracted to managers of the same gender (Byrne, 1971; Tsui & O'Reilly, 1989). For example, studies have reported higher levels of group cohesion (Bird, 2003) and overlap in values and norms (Lau & Murnighan, 1998) for all male groups compared to mixed groups. Lower levels of interpersonal attraction, shared values, and shared norms suggest reduced communication and trust (Pickett, Silver, & Brewer, 2002; Stevenson, Pearce, & Porter, 1985).

These negative group dynamics appear to decrease overall group cohesion (Thatcher & Patel, 2011). It is important to note that homophily appears to co-vary with increases of female representation in organizations. Ely (1994) reported that in law offices women communicated more with other women as the numbers of female attorneys increased. Interpersonal attraction based on homophily tends to increase dysfunctional group dynamics across different demographic groupings (Standifer, Lester, Schultz, & Windsor, 2013).

Even when female managers are no longer a minority with increasing representation among managers, they may still be treated with lower status than male managers because of out-group social categorizations. Status disadvantages are a frequent characteristic of out-group membership (Phillips, 2003; Joshi, Liao, & Jackson, 2006). In the case of MGD, the status differences emerge in part because female managers are in a gender incongruent occupation and are treated differently than similar men. As such, women are likely to have different career ladders than men that cap careers at lower levels of management (DiPrete & Soule, 1988; Yamagata, Yeh, Stewman, & Dodge, 1997; Lyness & Schrader, 2006), have less influential managerial positions (Ohlot, Ruderman, & McCauley, 1994; Lyness & Schrader, 2006), are seen as having less expertise than similarly qualified men (Thomas-Hunt & Phillips, 2004), and have

lower levels of managerial pay (O'Neill & O'Reilly, 2010). Gender discriminating practices remain a strong trigger for subgroup formation. If female managers have lower managerial status than male managers, this implies an association with out-group status. This issue is likely to exacerbate the internal focus of both male and female manager groups. Chrobot-Mason, Ruderman, Weber and Ernst (2009), for example, reported that perceived discriminatory actions are likely to contribute to demographic faultlines in organizations and exacerbate dysfunctional group dynamics. This can decrease communication and trust with organizational members who belong to different sub-groups (Hornsey & Hogg, 2000; van Knippenberg et al., 2004). Thatcher & Patel (2011) based on a meta-analysis noted that increased representation by women within any collective entity, represents one of multiple diversity attributes that have the potential to increase negative conflict and dysfunctional behavior. In related empirical leadership research, Stewart and Johnson, (2009) reported that stronger leader LMX was needed to manage negative group dynamics in gender diverse teams in comparison to teams with less gender diversity.

In-group and out-group distinctions may be especially dysfunctional among managers. Management is responsible for critical decisions shaping organizational values, goals, structures, processes, and strategies. There are commonly conflicts among managers over these issues (Cyert & March, 1963; Amason, 1996; Eisenhardt, Kahwajy, & Bourgeois, 1997). Furthermore, due to high levels of uncertainty about decision outcomes, managers often face seemingly equally legitimate and equally attractive decision alternatives. In such cases, gender-based differences may overlap with differences in support for decision alternatives, such as strategic initiatives. Such differences can fuel organizational politics as different gender-based subgroups vie to pursue different values, goals, structures, processes, and strategies. As MGD approaches parity the gender-based groups become more similar in power and influence. Emerging

intergroup conflicts have the potential to become more intense with negative consequences for firm performance.

Empirical research has generally supported these arguments. Randel (2002) reported that as women became more prevalent in lower managerial ranks, the established males defensively tended to draw greater status distinctions based on gender criteria. For example, masculine qualities and behaviors are frequently viewed as positive attributes to reach upper levels of management (Williams & O'Reilly, 1998; Koenig, Eagly, Mitchell, & Ristikari, 2011). If a male group continues to negatively categorize women, resulting conflicts are likely to negatively influence the behavior of both women and men as they will feel increasingly threatened. To our knowledge, only Frink et al. (2003) and Ali et al. (2011) directly investigated the effects of high degrees of employee gender diversity on firm performance. Both studies reported decreasing returns as organizations approached gender balance. However, neither study differentiated between managerial and non-managerial gender diversity or considered two inflection points to capture negative diversity effects across the full range of feasible levels of gender diversity.

H3: As MGD approaches parity, related positive effects of MGD on firm performance will diminish.

METHODS

Empirical Setting

This study uses an archival data set collected by the Portuguese Ministry of Work and Social Solidarity that contains primarily human resource information for all firms that conducted business in Portugal from 1985 to 2000. The Portuguese government initiated this data collection in 1986, two years before Portugal joined the European Economic Community. Since then, Portuguese firms have been required by law to submit human resource related information every year, including each individual employee's gender, age, tenure and type of position. This

data set was acquired by the Economics and Business Management School of the Technical University of Lisbon for academic research.

Hofstede et al. (2010) characterized the Portuguese organizational culture as having low masculinity (31), high power distance (63), low individualism (27), very high uncertainty avoidance (99), low pragmatism (28), and low indulgence (33) (Hofstede, 2014). Portuguese business practices appear to focus on traditional ways of operating (low on pragmatism) and are resistant to change (very high on uncertainty avoidance). This characterization suggests that Portuguese businesses may be slow to change business practices, such as providing improved career opportunities for women as managers.

Portuguese and European Union policies and laws, however, consider gender equality in all areas of life a fundamental human right. Between 1985 and 2000, more than thirty laws were approved to reduce gender-based employment discrimination. Still, women continued to be underrepresented in the Portuguese workforce. In 1992, women represented 51.8 percent of the total Portuguese population, but only 44.8 percent of the employees (INE, 2011). In the period from 1992 to 2000, women increased their workforce participation by 5.5 percent to 50.3 percent while population gender demographics remained stable. The proportion of women in executive and managerial positions increased from 24.5 percent in 1995 to 26.7 percent in 1999 (Cabral-Cardoso, 2011).

We constructed a panel data set for all firms in the financial industry, which includes both banks and insurance companies. These sectors were selected because they represented a large number of firms and have been used in prior diversity studies (Dwyer et al., 2003; Richard et al., 2004; Richard, 2000). We excluded firms with less than five managerial employees to avoid potential influences of small numbers on gender diversity effects. Our results, however, were

robust when we used a three, four, six or seven employee cut-off instead. The final panel data set contained 1564 annual observations from 243 firms.

Variables

Firm performance. Based on prior managerial gender research in financial industries (Dwyer et al., 2003; Ali et al., 2011), we operationalized firm performance as the firm's annual sales per employee. This measure captures a firm's overall labor productivity (Datta, Guthrie, & Wright, 2005). One of the primary functions of management is to improve subordinate productivity and manage resources including human resources, in an efficient manner. Thus, we expect a link between a firm's managerial performance and overall employee productivity.

Firms self-reported their total sales in thousand Euros (mean = 24,091; s.d. = 163,125) and their number of employees (mean = 271; s.d. = 967). We calculated the inflation adjusted natural logarithm of total annual sales per employee (mean = 4.24; s.d. = .89). This variable, employee productivity, has been considered a robust "intermediate" firm performance measure with advantages compared to more global and distal performance measures, such as profitability, ROA, ROI, market capitalization, Tobin's Q or firm survival (Dwyer et al., 2003; Huselid 1995; Richard et al., 2004). Profitability, ROI or ROA, for example, are more likely affected by accounting choices and financial management practices. Market capitalization and Tobin's Q information for not-publicly traded firms is extremely difficult to estimate. Firm survival is unlikely to be a sensitive enough performance measure for our purposes. Finally, the use of an employee productivity measure also facilitates comparisons with the studies that we consider most directly related to our investigation (Ali et al., 2011; Richard et al., 2004; Frink et al., 2003) because they used similar measures. We lagged the dependent variable by one year to account for the delay of performance effects and to protect against reverse causality.

Gender diversity. Firms reported the gender and hierarchical status for all their employees. From this information we constructed managerial gender diversity. This measure counts all managers and includes top managers, middle managers, and supervisors. On average, 27 percent of the managers were female. Twenty-one percent of the firms in the data set had more than 80 percent male managers. In contrast, similarly female-dominated companies were a rare exception, at 0.05 percent of all observations. The rare occurrence of female dominated firms prevented the empirical investigation of differences between male and female-dominated firms. Our theoretical considerations also suggested fundamentally similar effects for male and female dominated firms. Thus, as had been done in prior studies (Dwyer et al., 2003; Ali et al., 2011), we calculated an annual Blau index of managerial gender diversity (Blau, 1977) for each firm in the panel, which treats male or female dominated firms similarly:

$$D_{j,i} = 1 - [pF_{j,i}^2 + pM_{j,i}^2]$$

where pF and pM are the proportions of women and men, respectively for each firm j and each year i . The average Blau index for managers is .22 (s.d. = .21). As gender represents a dichotomous variable, the Blau index provides us a proxy to capture both variety and separation related gender effects (Harrison and Klein, 2007).

Control Variables. We used various control variables to account for alternative explanations and influences. These control variables included the total number of employees (mean = 271.4; s.d. = 967.4), employee education (number of years attending school; mean = 11.1; s.d. = 1.8), employee tenure in years (mean = 7.6; s.d. = 4.7), employee age (mean = 36.2; s.d. = 4.5), and a dummy variable that identifies banks (coded '1') and insurance companies (coded '0'). We also accounted for effects of non-managerial gender diversity by constructing a corresponding annual Blau Index (mean = .43; s.d. = .10) for each firm. Non-managerial gender

diversity was substantially higher than MGD and did not show any non-linear effects on a firm's labor productivity. Most likely this result is explained by a lack of observations with low diversity for this variable and a weaker systematic impact of non-managerial employees on overall firm performance compared to managers. Hence, we controlled only for linear effects of non-managerial gender diversity. To rule out alternative sources of general employee diversity as potential explanations for observed effects, we also captured and controlled for employee educational diversity and employee tenure diversity, using standard-deviation based measures (Bedeian and Mossholder, 2000). Given that the firms were anonymous, it was not possible to collect any additional information about the firms or their employees that could have served as control or moderator variables.

RESULTS

Table 1 reports the descriptive statistics and correlation coefficients for the variables of interest.

-- Insert Table 1 about here --

For the one-year lagged dependent variable of the inflation adjusted logarithm of a firm's annual sales per employee, we fit two linear-mixed effect models to evaluate effects of MGD (Table 2). These models account for all of the above outlined firm characteristics as fixed effects and include a random intercept for each firm. Additionally, we accommodate for temporal dependency by including an autocorrelation structure that assumes annual sales rates depend on the previous year's rates of each firm.

First, we performed regression analyses for a linear gender diversity effect. Model 2 in Table 2 shows a strong positive linear effect of MGD on firm performance ($b = 2.568$; $p = .002$;

CI_{95%} [XXXX, XXXX]). The addition of this gender diversity variable improved overall model fit ($\Delta LR = 44.02$; $p < .001$).

In a second step, we probed for a simple non-linear effect of managerial gender diversity. In Table 2, Model 3 reports estimates for a model including a second-degree polynomial of MGD, which improved model fit ($\Delta LR = 9.59$; $p < .001$). Model 4 accounted for the third-degree polynomial of MGD, which further improved model fit ($\Delta LR = 5.00$; $p < .05$). Model 5, which accommodated MGD as a polynomial of degree four, did not improve model fit ($\Delta LR = 1.60$; n.s.). Consequently, we used Model 4, which optimized model fit, for hypothesis testing. The support for Model 4 with the first, second and third-degree polynomials is consistent with the non-linear effect pattern with two inflection points suggested by our hypotheses. We employed orthogonal polynomials to account for potential collinearity of the constructed multiplicative gender diversity terms (Bliese, 2009). In addition, our focus on overall model improvement captured by changes in log likelihood helps to protect against potential threats related to collinearity between independent variables.

-- Insert Table 2 about here --

Hypothesis Tests

In Model 4, all control variables have statistically significant effects, except for the dummy variable that identifies banks. Signs of estimates are in the expected direction. Average education and average age of employees have a positive impact. Accounting for non-linear tenure effects led to slightly better model compared to accounting for non-linear age effects. Average employee tenure has an initial strong positive effect, but beyond a firm tenure of 10 years, the effect becomes negative. Average employee tenure and average employee age are, as

expected, strongly correlated ($r = 0.73$; $p < .001$). Thus, our models control for related effects, but do not allow a clear differentiation between age and tenure effects.

In Model 4, the effect of MGD is captured by a first-degree polynomial ($b = 2.422$; $p = .003$), a second-degree polynomial ($b = 2.845$; $p = .0005$), and a third-degree polynomial term ($b = -1.603$; $p = .026$). The non-linear overall effect of MGD is captured in Figure 1, which shows average effects of MGD (thick line). The 95% confidence interval (thin lines) indicate uncertainty associate with estimates as the dispersion and the number of observations vary across gender diversity levels.

-- Insert Figure 1 about here --

The graphed effect clearly favors a model accommodating for non-linear effects. For diversity values of less than .15 on the Blau index, which represent about 45% of our observations, we observe a negative effect of increased diversity on firm performance consistent with the tokenism hypothesis (H1). At Blau index values of .15 to .45, which correspond with 8.2% to 34.2% female managers and represent about 35% of our observations, MGD tends to have a positive linear effect, consistent with the general effect hypothesis for moderate levels of MGD (H2). For high values of MGD above .45, which represent about 19% of the observations, we find diminishing benefits consistent with our diminishing returns hypothesis (H3).

Figure 1 provides a detailed visual representation of the complex overall effect pattern resulting from the various underlying gender-related opportunities and challenges firms face. The reported conditional effects are the combined effects of the three polynomial terms that capture MGD effects in the full model. Each of the points of the graph represents an estimated effect size conditional on a specific value of MGD and its 95% confidence interval. The scales on the horizontal axis report both the Blau index and the corresponding gender-minority

percentages. Hence, Figure 1 enables a comparison of effect differences for any feasible value of MGD. These comparisons and the resulting overall effect pattern are consistent with the hypotheses for specific ranges of MGD levels (H1, H2 and H3).

Internal Validity and Additional Robustness Tests

Similar to most prior research, the presented results involve a substantial "black box" connecting diversity changes with firm performance outcomes (Miller & Triana, 2009; Andrevski et al., 2014). We address related internal validity challenges by drawing directly on prior empirical and theoretical studies of mediating processes -- especially research on the group level of analysis. The alternative of capturing mediating processes more directly was constrained by the unavailability of the required more fine-grained data in the governmental data set we used. The lack of firm identifying information also prevented us from engaging in any related additional data collection efforts. To better understand mediating processes, we also probed for gender-related dynamics and effects at each firm in the sample over time. These investigations further increased our confidence that gender diversity mattered and changed in systematic ways over time in the firms we studied.

DISCUSSION

The support for all three hypotheses suggests that the relationship between MGD and employee productivity, as an indicator of firm performance, is influenced by the relative degree of MGD. The movement from all male managerial cohorts to one or a few female managers is linked to weaker firm performance. The movement from such token representation to a greater degree of MGD improves firm performance. When firms approach gender parity in management, the positive effect of MGD on firm performance diminishes. The empirical results

further support the organizational relevance of all three ranges of MGD effects as they respectively represent 45%, 35% and 19% of the observations.

Most importantly, the curvilinear relationship between MGD and firm performance suggests that no single theory is sufficient to describe the overall pattern of MGD effects. A variety of different theories regarding social dynamics in group setting have been proposed and supported in the gender-diversity research. The results of this study suggest that different theories regarding related group dynamics appear to be applicable at different levels of MGD. Tokenism and the isolation of distinctive individuals appear to be most relevant at very low levels of gender diversity. Divergent thinking and broader knowledge bases appear to be relevant at moderate levels of MGD. Gender-based sub-groups that are increasingly similar in size and power can inhibit the effective utilization of broader knowledge bases and productive divergent thinking processes at higher levels of MGD.

This curvilinear MGD effect pattern is also consistent with the recently growing body of evidence that antecedent variables widely accepted as leading to desirable outcomes lead to asymptotic and often negative consequences when they reach context-specific inflection points (Pierce & Aguinis, 2013). The associated meta-theoretical principle has been labeled the “too-much-of-a-good-thing” effect. The identification of corresponding inflection points represents an important contribution to both our theoretical understanding and management practice.

Theory Contributions

Historically, research efforts have primarily focused on identifying universal and monotonic effects of gender diversity on firm performance. As empirical evidence accumulated, however, contingency approaches to gender diversity started to emerge. These approaches suggest that effects of diversity depend on certain context conditions. For example, diversity

appears to be more relevant when firms encounter needs for divergent thinking (Dwyer et al., 2003) or engage in risk-taking behavior (Richard et al., 2004). Other research reports social integration mechanisms can ameliorate the negative influences of gender diversity (Guillaume, et al., 2012). Our research supports arguments for such contingency perspectives. We report that the effect of MGD on firm performance depends on the degree of MGD.

Our study identifies and illustrates the strong firm-level performance decrements of tokenism. Why has prior research had difficulty identifying these strong negative effects? Most prior studies examined tokenism at the individual level of analysis (Yoder, 1991), in controlled laboratory settings (Bird, 2003) or in case studies (Kanter, 1977). Most of these studies simply did not capture the strength of related detrimental effects on firm performance. The few firm-level field studies that investigated overall firm performance effects did not differentiate between gender diversity at the managerial and non-managerial level (e.g., Frink et al., 2003; Ali, et al., 2011). These studies also focused on larger, publicly-traded firms. Both conditions make missing managerial tokenism effects more likely. At large and publicly traded firms, extremely low levels of gender diversity are likely to be rare, especially in North America with its established gender discrimination laws. We intentionally focused on managerial gender diversity and collected data from small, medium and large firms for a time when a substantial portion of firms started hiring female managers in Portugal. Consequently, low degrees of MGD are not a rare occurrence in our sample. Instead, 45% of our observations had diversity values below .15 on the Blau Index, which represent firms with less than 8.2% female managers. This empirical approach enabled us to capture performance effects across the full range of MGD. Our findings support a strong firm performance decrease as firms move from homogeneous, all male managers, to firms with token female managerial representation (see Figure 1). Furthermore, the

firm performance increase after token representation is also visibly strong. These results illustrate both the potential benefits of MGD and the severity of the challenges associated with managerial token representation.

On first thought, it may seem difficult to understand how the addition of a few token individuals can lead to performance decreases for the entire organization. However, if one takes into account that our sample contains a substantial number of small and medium sized firms and that managers tend to have more impact on firm performance than other employees -- then the observed firm performance effects no longer seem so unreasonable. The negative performance effects of tokenism are also consistent with results of studies of negative group dynamics (Kanter, 1977) and reduced group cohesiveness (Bird, 2003), which support arguments that single individuals can alter collective performance.

The extension of research from employee-gender diversity to MGD identifies several fields for future inquiries. While there are some similarities between the two cohorts, management represents a highly distinct subset of all employees. Managers tend to identify stronger with organizational goals than other employees. Their decisions tend to affect directly the behavior of non-managerial employees. As managers determine and implement the firm's overall strategy, they need to coordinate their efforts. Managerial gender parity can diminish the ability of managers to coordinate their efforts because of the formation of gender-based in-groups and out-groups. Unlike the triggers for tokenism, the underlying processes leading to the formation of these groups are far less clear. Thus, we direct future research toward a more careful capturing of related mediating processes. For example, to what extent does discriminatory behavior by male in-groups, greater accommodations for women, or segregated occupational ladders contribute to in-group and out-group distinctions and associated behavioral

conflicts? Identifying these underlying processes has the potential to discover deeper and more fine-grained explanations on how higher levels of managerial gender parity affects firm-level performance outcomes. In the process, future research should also consider broader sets of firm-level outcomes that were not available in our archival data set and could not be added because firm identities were unknown.

Managerial Implications

As previously mentioned, rational organizational behavior suggests that firms should embrace MGD, if there is evidence that it improves firm performance (Friedman, 1962). Consistent with some of the accumulated empirical evidence, this study supports the potential for both positive and negative performance outcomes. The potential of negative outcomes might discourage firms from investing in MGD. However, we expect no such response to our findings, for several reasons. First, we provide evidence for positive firm effects if MGD increases beyond tokenism. Thus, our evidence actually encourages firms to seek at least moderate levels of MGD to start obtaining related benefits. Second, the knowledge of negative tokenism effects may still offer indirect benefits as it can guide firms toward viable tactics on how to best invest in MGD. For gender homogeneous firms committed to increasing MGD, our findings suggest that they should anticipate initial negative effects, as it will take time to move past the tokenism stage and reach moderate levels of MGD that promise positive performance effects. Recognition of initial negative tokenism effects will prevent firms from underestimating the eventual long-term benefits of MGD beyond tokenism. It will also enable firms to develop and adopt strategies to proactively address tokenism challenges and to speed up the transition to higher levels of MGD.

Hence, we suggest that at low degrees of MGD, negative performance effects justify specific efforts to better address adverse tokenism effects, to complement any other universal approaches for supporting women in managerial positions. For example, social integration of minorities ameliorates negative effects of gender diversity (Guillaume, Brodbeck, & Riketta, 2012). Male managers can be trained to realize how tokens influence their actions. Women can be trained in managing issues related to distinctiveness to address retention. As MGD expands, development efforts may need to focus on how to exploit diverse knowledge and ideas for managerial decision making. Again, related efforts can focus on both male and female managers. Finally, as firms approach MGD parity, firms will start to struggle with a set of new challenges. Perhaps firms will need to alter career ladders that place women into different types of managerial positions than men. The diminishing positive MGD effects offer strong motivation to investigate related implementation efforts and opportunities in more detail. The success of any such improved MGD management efforts of course have the potential to alter the firm performance patterns reported in this study. In a sense, the motivation of our study is to discover systematic and to a degree stable effect patterns, but with the ultimate objective to enable managers to change and improve these effect patterns.

Future Research

As mentioned before, data set limitations associated with firm identity confidentiality prevented the investigation of additional moderating effects and further probe for boundary conditions. Future research with the ability to identify firms is encouraged to empirically examine related moderating effects and to further extend the introduced framework of MGD effects.

Finally, to what extent are results from Portuguese firms generalizable to other national settings? High levels of uncertainty avoidance and traditionalism represent context conditions that may provoke stronger gender responses in Portugal than in countries where these characteristics are weaker. These arguments identify potential boundary conditions and moderating factors that future research may gainfully pursue. At the same time, the theories of tokenism, social identity and group-decision making that motivate this study's hypotheses all claim to capture very fundamental patterns of human social behavior. Hence, we expect the strength of related effects to be affected by contingency factors, but the overall direction and pattern of effects to be robust across different time periods and different countries.

CONCLUSIONS

In our introduction, we suggested that organizations would be more willing to embrace MGD if empirical results demonstrated that MGD improves firm performance. As long as firms move beyond token representation, the results of this study provide encouragement to initiate programs to develop and retain female managers. More importantly, the introduced conceptual framework captures the effects of managerial gender diversity on firm performance across the full range of feasible diversity levels. The framework covers the effects of tokenism, increasing representation beyond tokenism, and the presence of subgrouping along gender lines at high levels of MGD. Combining these different processes in a single model helps resolve conflicting findings in the literature and offers important guidance for both future research and managerial practice.

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TABLE 1

Means, Standard Deviations, and Correlations

Variables	Mean	S D	Min	Max	1	2	3	4	5	6	7
1 Sales per Employee (log)	4.24	0.89	0.41	7.01	1.00						
2 Number of Employees	271	967	5	12,200	0.04	1.00					
3 Average Employee Age	36.2	4.5	24.9	53.4	0.11	0.13	1.00				
4 Average Employee Tenure	7.65	4.69	0.0	27.6	0.00	0.21	0.73	1.00			
5 Average Employee Education	11.09	1.80	5.3	17.0	0.38	-0.03	-0.42	-0.53	1.00		
6 Non-Managerial Gender Diversity (Blau Index)	0.43	0.10	0	0.5	0.16	0.00	0.00	-0.07	0.13	1.00	
7 Managerial Gender Diversity (Blau Index)	0.22	0.21	0	0.5	0.17	0.07	0.10	0.09	0.11	0.23	1.00

N = 1564

Correlation coefficient of .05 or larger are statistically significant at the .05 level.

Correlation coefficients and their CI_{95%} for orthogonal polynomial terms of Managerial Gender Diversity with the DV are: $r_{poly1} = 0.17 [0.12, 0.22]$; $r_{poly2} = 0.06 [0.01, 0.11]$; $r_{poly3} = -0.06 [-0.11, -0.01]$.

TABLE 2
Multi-Level Mixed-Effect Regression of Log-Transformed Sales Per Employee (One-Year Lag)

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Autocorrelation Correction (AR 1)	Yes	Yes	Yes	Yes	Yes
Maximum Likelihood Estimation Procedure	Yes	Yes	Yes	Yes	Yes
<i>RANDOM EFFECTS</i>					
<i>sd(constant)</i>	0.454	0.449	0.455	0.458	0.460
<i>sd(residual)</i>	0.579	0.577	0.574	0.573	0.572
<i>ICC</i>	0.382	0.377	0.386	0.390	0.392
<i>FIXED EFFECTS</i>					
Constant	-0.335	-0.216	-0.225	-0.190	-0.190
Bank	0.059	0.107	0.086	0.090	0.091
Average Years of Employee Education	0.219 ***	0.213 ***	0.212 ***	0.211 ***	0.210 ***
Standard Deviation of Employee Education	-0.133 ***	-0.136 ***	-0.138 ***	-0.138 ***	-0.139 ***
Average Age of Employees	0.071 ***	0.069 ***	0.070 ***	0.070 ***	0.070 ***
Average Employee Tenure	5.590 **	5.718 **	6.153 **	6.621 ***	6.635 ***
Average Employee Tenure (squared)	-7.567 ***	-7.348 ***	-7.318 ***	-7.257 ***	-7.244 ***
Standard Deviation of Employee Tenure	-0.015	-0.016	-0.017	-0.020 †	-0.020 †
Non-Managerial Gender Diversity (linear)	5.223 ***	5.005 ***	5.169 ***	5.190 ***	5.182 ***
Managerial Gender Diversity (linear)		2.568 **	2.336 **	2.422 **	2.434 **
		(0.808)	(0.809)	(0.809)	(0.809)
Managerial Gender Diversity (squared)			2.506 **	2.845 ***	2.896 **
			(0.808)	(0.821)	(0.822)
Managerial Gender Diversity (3rd degree polynomial)				-1.603 *	-1.730 *
				(0.718)	(0.724)
Managerial Gender Diversity (4th degree polynomial)					0.862
					(0.683)
Log Likelihood	-1484.91	-1478.99	-1474.19	-1471.69	-1470.89
Δ Log Likelihood		44.02 ***	9.59 ***	5.00 *	1.60
Pseudo R ²	0.021	0.028	0.034	0.037	0.038
Within Firm Variance	0.454	0.449	0.455	0.458	0.460
Between Firm Variance	0.579	0.577	0.574	0.573	0.572
N	1564	1564	1564	1564	1564
Two-tailed tests: † p < .10; * p < .05; ** p < .01; *** p < .001					

FIGURE 1
Managerial Gender Diversity and Firm Performance

