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Women In Management And Firm Financial Performance: An Exploratory Study

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Abstract

Modern business is clearly con- ducted in uncertain contexts. Today's firms are faced with ever increasing international competitive pressures, unstable capricious markets, new and complex technologies, and with dramatic changes in society in general. Paramount among these changing contexts is the change in the management composition of firms due to women assuming management positions. The American work force is one of the most ethnically and gender diverse in the world (Cox and Smolinski, 1994). For firms, this diversity affords new opportunities and challenges. According to Nichols (1993), in this decade, women managers will redefine managerial work and will provide firms with opportunities to capitalize on the challenging contexts they face. Zellner (1994) further notes that women are starting new businesses at a rate nearly twice that of men, and are "bringing to the table" skills such as team building and employee development that are very much in tune with today's competitive realities.

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Women In Management And Firm Financial Performance: An Exploratory Study*

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Modern business is clearly conducted in uncertain contexts. Today's firms are faced with ever increasing international competitive pressures, unstable capricious markets, new and complex technologies, and with dramatic changes in society in general. Paramount among these changing contexts is the change in the management composition of firms due to women assuming management positions. The American work force is one of the most ethnically and gender diverse in the world (Cox and Smolinski, 1994). For firms, this diversity affords new opportunities and challenges. According to Nichols (1993), in this decade, women managers will redefine managerial work and will provide firms with opportunities to capitalize on the challenging contexts they face. Zellner (1994) further notes that women are starting new businesses at a rate nearly twice that of men, and are "bringing to the table" skills such as team building and employee development that are very much in tune with today's competitive realities.

Our goal in this study is to provide conceptual arguments and empirically explore the firm-level relation-

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ships of women in management with financial performance outcomes. To this date, few studies have been directly concerned with firm-level financial performance issues. We will justify and build on the assumption that firms employing more women managers have probably done a better job of recruiting capable managers from the total available talent pool, and consequently will be in a better position to link with customers, employees, and other constituencies. Firms employing higher percentages of women are likely to perform better inasmuch as they are more progressive and more competitive because their management contingents more closely mirror the composition of existing markets.

EXPLANATORY FRAMEWORK

Rationale for these arguments is found in the "resource-based" theory of competitive advantage and strategy analysis (e.g., Barney, 1991, 1997; Grant, 1991). Basically, according to Barney (1997), resource-based theory argues that it is not industry structure that leads to competitive advantage and better performance. Rather, it is the ability to capitalize on and apply the firm's internal resources in uncertain and dynamic industry contexts. The theory proposes that firms are defined as sets or "bundles" of resources. Firms can develop strong competitive advantages by accumulating unique or difficult to duplicate bundles of resources, and these resources can allow firms to take advantage of environmental opportunities or counterbalance threats. Supportive of the theory, research by Robins and Wiersema (1995) indicated that the ability to build these advantages paid off in terms of return on investment.

Barney goes on to say that human capital resources are key to competitive advantage. Employee and management capabilities are firm-level resources that are among the most sustainable and difficult for competitors to imitate. The notion of human resources being the key to competitive advantage is prominent in the current popular management literature. For example, writing of their collective experience with numerous company change efforts, Katzenbach et al. (1995) concluded that many firms have underutilized human resources in this modern era of international competition and organization change. The underutilized resources tend to include females and those of diverse racial and ethnic backgrounds who might otherwise bring different perspectives to the firm. By better utilizing the contributions of women and minorities, firms can become more creative and accepting of change. Katzenbach et al. contend that if fully tapped, it is this cadre of middle-level, diverse, change-oriented managers that sets the high performing firms apart from the others. Iles and Auluck (1993) found that diverse work forces were beneficial to firms because they facilitated team problem solving and synergy. The ability to manage diversity fostered the incorporation of various perspectives into organizational decision making, and firms that united a wider range of participants performed well.

Further evidence that women have been underutilized is found in the works of Jelinek and Adler (1988) and Rosener (1995). Jelinek and Adler (1988) studied the achievements of female expatriates in the context

of their being "nontraditional" managers. They interviewed managers sent by North American firms to foreign assignments and found that females were very successful at developing good interpersonal relations and cooperative alliances with their foreign counterparts. Rosener (1995) argues that women managers can actually enhance the firm's capabilities to be flexible and deal with ambiguity. She goes on to say that the underutilization of women in management in a period of great change and uncertainty is a national economic problem. It stands to reason then that firms employing large percentages of women can gain financially. Rosener puts forth the argument that firms must seriously consider human resource management to be the major determinant of global competitiveness, and that firms fully utilizing the diverse talents of women managers stand to gain competitive advantages over those that do not. Another recent work by Hamel and Prahalad (1994) is based on the resource based notion that the use and development of unique resources in relation to competitors is the key to competitive advantage. Firms that are expert at leveraging, or getting the most out of their set of unique resources, compete better in their industries, and human resources obviously play a major role in this process.

Our contention is that firms employing a greater percentage of women managers have, according to resource-based theory, been successful at acquiring a significant bundle of difficult to obtain resources. Empirical evidence supports this line of reasoning by showing that women make at least as good, if not better, managers than men (Rizzo and Mendez, 1988; Schwartz, 1989; Powell, 1990; Flynn, 1994). There is also some evidence that firms employing more women managers actually perform better financially (Blackburn et al., 1994; Throup, 1994) and that firms with heterogeneous management teams are better able to facilitate strategic change (Wiersema and Bantel, 1992). In this study, we will explore the relationship of women in management with firm financial performance for a sample of very large U.S. firms. Archival data are available for these firms in terms of numbers, rankings, and percentages of women in management, as well as for financial performance. We feel that resource-based theory provides a solid backdrop for this investigation. Because women managers comprise a growing, and perhaps heretofore somewhat neglected resource for firms, we feel that we can now logically test for women in management and performance relationships.

HYPOTHESES ON WOMEN IN MANAGEMENT AND FINANCIAL PERFORMANCE

Percentage of Women in Management

Firms have increased the percentage of women in all management positions over the last decade (Gregory and Kleiner, 1991; Shenhav, 1992; Eisman, 1993; Fagenson, 1993). Yet it is clear that women have been underutilized in management positions (Katzenbach et al., 1995; Rosener, 1995). Because of this underutilization, firms are foregoing the opportunity to fully tap into their human resources. Thus, we argue that firms utilizing these human resources will perform well. Specifically, firms with large percentages of women in man-

agement are taking better advantage of the total pool of managerial resources and will be more likely to perform well financially (Blackburn et al., 1994; Rosener, 1995). We assume managerial talent to be distributed normally among women and men (Rizzo and Mendez, 1988; Powell, 1990).

Support for our case is found in the works of Cox and Blake (1991) and Powell (1990). Cox and Blake view the employment of women in management as a resource acquisition issue. They observe that as women and minority managers proportionally increase in representation in the labor pool, firms will need to be able to compete to hire the best talent. Some firms, such as Merck and Hewlett-Packard have gained reputations for being excellent places for women to work and advance. Cox and Taylor argue that because of these firms' reputations, their abilities to acquire managerial resources are correspondingly magnified, and their competitive abilities are enhanced. Likewise, Powell notes that because of increasing involvement in the management of firms, women managers will have an important impact on organization performance. As a result, we expect firms which have large numbers of women managers to perform well financially.

The fundamental logic for our contention lies in the skills women bring to managerial positions. There is evidence that women are more oriented toward supporting and maintaining relationships than men (Hisrich and Brush, 1994; Rosener, 1995). Women are also strong in the areas of idea generation and innovation, and are generally more satisfied with their jobs than men (Rosener, 1995). Therefore, as more and more women assume management positions, organizational learning, climate, and performance should improve. Consequently, we offer the following hypotheses:

Hypothesis 1: The percentage of women in management is related positively to firm financial performance.

Women in Top Management

It appears that while women have made strides into the managerial ranks, the very top positions are still the bastion of men. The glass ceiling report indicates that men believe that the careers of women are too easily diverted from top management because of family concerns and because women are not "tough" enough (U.S Department of Labor, 1994). The report also claims that a major obstacle is that men are simply not comfortable with women in top management positions. This is consistent with a survey published by Fisher (1992) and with recent work by Bily and Manoocherhri (1995). Additionally, Marsh (1991) and Sharpe (1994) report that the number of women Fortune 500 chief executives is very low and has not changed much over the last decade. It is estimated that only three percent of the top managers in the top 1000 firms in the U.S. are women (Fagenson, 1993; Bily and Manoocherhri, 1995; Rosener, 1995).

There is little research dealing with woman as top managers. We feel that women top managers will have a positive impact on firms for the same reasons as noted for hypothesis 1. Moreover, we suggest that management skill is even more critical at the higher organizational levels. In this vein, Rosener (1995) suggests that women top managers may give their firms' the edge in terms of overall management

process and agenda setting. She states that women are good at seeing the big picture issues and can have a strong impact as top managers on productivity, morale, and profits. Kalleberg and Leicht (1991) found that small firms led by women were more oriented toward quality strategies and were equally as successful as those led by males. Therefore, we argue that, even though women are underrepresented in top management positions, firms that have recruited a greater number of women on the top management team should perform well.

Hypothesis 2: The percentage of women in top management is related positively to firm financial performance.

Percentage of Women on the Board of Directors

Relatively little is known about boards in general and about women on boards in particular. Yet the board should play a critical role in monitoring management and in providing strategic direction for the firm. Active board members help firms gain access to important resources (Shrader et al., 1991). And, as previously stated, women in management may serve to link the firm with stakeholder groups. Research on board composition indicates that women, regardless of qualifications, are favored over men for public affairs board committee positions in firms (Kesner, 1988; Bilimoria and Piderit, 1994). Kesner found in a study of 250 large firms that women directors came from more diverse backgrounds and from outside the company more often than men. Bilimoria and Piderit sampled 175 women and 3,940 men directors in 133 large firms and found that men were favored for membership on board committees considered central to firm governance such as the finance, executive, and compensation committees. Women were more often associated with "soft" board committee assignments and with noncorporate boards. The study concluded that women directors on average sat on as many boards and were better qualified than their male counterparts. Bilimoria and Piderit noted, however, that gender bias against women still exists in the boardroom.

Rosener (1995) argues that both business firms and not-for-profit organizations should consider placing more women on their boards because of their managerial skills. One female board member, Rosener says, is often dismissed as a token. Two females are not enough to be taken seriously. But three gives the board a critical mass and the benefit of the womens' talents. Kesner (1988) found that because of the likelihood of their being outsiders, women have a great deal to offer boards. Thus, it stands to reason that boards with high percentages of female members will be well positioned in their environments and will, therefore, perform well.

Hypothesis 3: The percentage of women on the board of directors is related positively to firm financial performance.

METHODS

Sample

Data on women in management were obtained from a set of articles published in the *Wall Street Journal* by Sharpe (1994) and Foldessy (1994). The articles presented data on women in management obtained from reports made by the 200 US firms with the largest market value, in compliance with Equal Employment Opportunity Commission (EEOC) guidelines. Firms with 100 or more

employees must file with the EEOC reports indicating the number of employees by type of job, race, and gender. According to Sharpe and Foldessy, the EEOC classification "manager" refers to any manager or official. This included positions ranging from supervisor to Chief Executive Officer of the firm. The *Wall Street Journal* authors obtained these reports from the EEOC on computer tape and published the number and percentage of women in management for the 200 firms. For the firms included in the survey, approximately one-fourth (23.68%) of the jobs classified as "manager" were occupied by women.

Women in Management Measures

Data on total women managers and percentage of women in management were reported by the *Wall Street Journal* for each of the 200 firms for 1992. We added to the *Wall Street Journal* data the number and percentage of women in top management and women on the board of directors for the firms in the sample. The *Wall Street Journal* percentage is a ratio based on all the management positions in the firm. We felt that it was also important to identify members of the top management team and members of the board of directors who were female. These groups are considered to be substantively different from the general management/supervisory category of the *Wall Street Journal*. We obtained the top management and board data from the Compact Disclosure database (1990-92). This database listed the top management team and the board of directors by name for each firm. Top managers listed in the database were those that appeared in the 1992 annual reports including the chief executive officer, and the senior vice presidents and officers of the company. We examined the list of names in an attempt to identify those that were feminine. The result was a simple number of females as a percentage of the total reported by the firm. Our list of female top managers and board members was checked with the *Corporate Yellow Book* (1993) leadership directory in an attempt to get as accurate an estimate as possible. Therefore, the number and percentages of women top managers and women board members are estimates based on these firm level data.

All the firms in the sample are considered to be large in terms of assets, employees, and revenues. However, these firms vary in the relative sizes of their top management teams and total number of managers. Consequently, we developed measures for the total number of managers, total number on the top management team, and total number on the board of directors from the data sets. These measures were included because they allowed us to partially control for firm size effects in the analysis. Accordingly, the percentage of women managers measure is defined relative to the total number of managers; the women in top management measure is relative to the total number of top managers; and the percentage of women on the board is relative to the total number on the board as reported by firms. Thus, an attempt was made to control for size and management level.

The average percentage of women in management in 1992 for the 200 firms was 23.68%. The 1992 percentages of women in top management and board positions was much smaller at 4.59% and 8.04%, respec-

tively. Our figure for top management (4.59%) corresponds well with the research of Bilimoria and Piderit (1994) whose sample produced a figure of 4.4%. The percentage of women in management ranged from a low of 2.6% to a high of 66.1%, while the top management percentage range was only from .0% to 27.3%. Thus, the difference between the percentage of women in management/supervisory positions and the percentage in top positions was quite great. Women did not represent a proportionate number of managers at the top levels for the large firms in this sample. It should also be noted that we did not find a single female chief executive among the 200 firms. The average board was 8% female or approximately one female member per board. The average firm had a total of 4,637 managers, 19 top managers, and 13 board members. Firms varied a great deal in the total number of managers.

Financial Performance Measures

Financial measures of firm profitability were obtained from the Compact Disclosure database. Corresponding to the list of firms in the *Wall Street Journal*, we collected data on firm financial performance for 1992 and 1993. The dependent financial performance measures chosen were net income divided by net sales (profit margin, return on sales or ROS), net income divided by total assets (commonly referred to as return on assets or ROA), net income divided by invested capital (return on income or ROI), and net income divided by common equity (return on equity or ROE). We chose these net income or profitability ratios because they are among the most commonly used to indicate the firm's earnings and returns to shareholders, and they convey a basic sense of the overall profitability of the firms. We chose to measure ROS because it is ultimately an indicator of the firm's competitive advantage and resource/competitive flexibility (Hill and Jones, 1995). ROA, ROI, and ROE were chosen by reason that they measure the return on the value of the stockholder's investment and, therefore, worked well with the *Wall Street Journal*'s criterion for including the 200 firms based on their market value. Performance measures for 1992 and 1993 were included because we felt that these were the most relevant time periods in terms of logically making a link between the 1992 percentage of women managers and performance.

There are three independent variables (percentage of women in management, percentage of women on the top management team, and percentage of women on the board), three control variables (total number of managers, total number of top managers, and total number of board members), and four dependent measures at two points in time (net income/net sales or ROS, net income/total assets or ROA, net income/invested capital or ROI, and net income/common equity or ROE) examined in this study. Hierarchical regression is the statistical technique used to test the hypothesized relationships (hypotheses 1-3). Hierarchical regression is chosen because it allows for the test of hypothesized relationships while explicitly controlling for the size variables.

RESULTS

A correlation matrix with means and standard deviations is given for

the variables used in this study in Table 1. One notable statistic is the high variance among firms in the total number of managers. One possible explanation for this is that it is likely that some of these firms had "downsized," and basic middle-level and supervisory managers were most affected. The intercorrelations among the variables are not high with the exception of the financial performance measures which should be expected. Intercorrelations among most of the performance variables range from approximately .23 to .92. The exception is the 1993 ROE measure which has very low intercorrelations with the other performance measures. The other intercorrelations are .26 and below.

To test the hypotheses, the measures of women in management were examined relative to the four financial performance measures. Results of the hierarchical regressions are given in Tables 2-9. Table 2 reports the results of the 1992 ROS estimate which explains approximately 14% of the profit margin variable. The results of the hierarchical F-test indicates that the percentage of women in management variables contribute significantly to the explained variance of the ROS performance variable ($F = 6.57$, $p < .01$). Tables 3-5 report the hierarchical regression results for 1992 ROA, ROI, and ROE, respectively. The incremental F-tests for the other three financial performance variables are also all significant, indicating a strong predictive contribution of the three percentage of women in management variables in explaining performance. Consequently, it is appropriate to interpret the 1992 standardized regression coefficients estimated in the second equations of each table.

The regressions for the 1993 performance variables do not produce as clear results. None of the incremental F-tests are significant and the amount of explained variance is very small in all four cases. Contrary to the three hypotheses, percentage of women managers, percentage of top women managers, and percentage of women board members in general are not found to be significant predictors of the 1993 performance variables.

In examining specific independent variables, the percentage of women in management variable exhibits a clear pattern of findings in the regressions. It is related positively to all four 1992 financial performance measures. The standardized regression coefficients for percentage of women managers are all at significant levels and are in the direction hypothesized—ROS (.23, $p<.001$), ROA (.14, $p< .05$), ROI (.14, $p< .05$), and ROE (.18, $p< .01$) with regard to the 1992 dependent measures. Thus, for 1992 the percentage of women managers is an excellent predictor of firm profitability. For 1993, however, the only significant standardized coefficient is for ROS (.15, $p <.05$). This is in the direction hypothesized, but caution should be used in interpreting this finding because the overall estimate is weak. For the other nonsignificant 1993 coefficients, two are positive and one is negative. Therefore, there is mixed support for hypothesis 1.

The findings with regard to the percentage of women in top management and the test of hypothesis 2 indicate a different pattern altogether. There are no significant positive coefficients for the percentage of women in top management and financial performance relationships. In fact, the coefficients are either

Table 1
MEANS, STANDARD DEVIATIONS, AND CORRELATIONS

	$\bar{X}$	S.D.	% Women Mgrs.	% Women Top Mgrs.	% Women on Board	Total Mgrs.	Total Top Mgrs.	Total on Board	ROS 1992	ROA 1992	ROI 1992	ROE 1992	ROS 1993	ROA 1993	ROI 1993
Percent Women Managers	23.68	14.50													
Percent Women Top Managers	4.53	5.80	.15												
Percent Women on Board	8.04	5.83	.04	.25											
Total Managers	4,636.79	5,441.34	.06	.13	.05										
Total Top Managers	18.92	10.35	-.09	.10	.03	-.06									
Total on Board	13.46	3.42	.17	.01	.04	.01	.20								
ROS 1992	.06	.08	.18	-.13	-.15	.12	-.21	-.11							
ROA 1992	.04	.07	.04	-.06	-.17	.10	-.01	-.26	.77						
ROI 1992	.06	.28	.13	.03	-.12	.10	-.20	-.13	.54	.55					
ROE 1992	.08	.35	.16	-.01	-.11	.13	-.20	-.08	.60	.56	.92				
ROS 1993	.07	.08	.13	-.04	-.06	.06	-.17	-.11	.58	.43	.23	.22			
ROA 1993	.05	.07	-.04	-.01	-.12	.02	.00	-.28	.48	.73	.30	.29	.71		
ROI 1993	.08	.14	.06	-.01	-.07	.05	-.03	-.15	.43	.57	.26	.27	.78	.92	
ROE 1993	.17	.38	-.07	.01	.08	.13	-.05	-.10	.07	.10	.00	-.02	.31	.30	.34

Table 2
HIERARCHICAL REGRESSION SUMMARY
1992 ROS ESTIMATE

	Equation 1		*Equation 2*	
	Standardized Regression Coefficients		Standardized Regression Coefficients	
Explanatory Variables	*(β)*	*t*	*(β)*	*t*
Total Managers	.12	1.760	.13	1.862
Total Top Managers	-.19	-2.695	-.15	-2.077
Total on Board	-.08	-1.073	-.12	-1.669
Percent Women Managers			.23	3.305[a]
Percent Women Top Managers			-.12	-1.649
Percent Women on Board			-.12	-1.666
Cumulative R^2	.067		.142	
F-Value	4.587[b]		5.193[c]	
Degrees of Freedom	3/191		6/188	
Incremental R^2			.075	
F-Value			6.57[b]	
Degrees of Freedom			3/188	

[a] $p < .001$ for a one-tail *t*-test.
[b] $p < .01$ for an *F*-test.
[c] $p < .001$ for an *F*-test.

Note: The test of statistical significance of the contribution of variables explaining the variance of the dependent variable is the following *F*-test:

$$F = \frac{(R_1^2 - (R_2^2) \div (k_1 - k_2)}{(1 - R_1^2) \div (N - k_1 - 1)}$$

where R_1^2 and R_2^2 are the coefficients of determination for the regression equations with the larger and smaller number of predictor variables, respectively, k_1 and k_2 are the degrees of freedom for the larger and smaller equations, respectively, and *N* equals the number of observations (Teas, 1981).

quite small or they are negative. As a result, there is no support for hypothesis 2.

Percentage of women on the board also decreases performance. The coefficients for the 1992 performance estimates (ROS, −.12; ROA, −.14; ROI, −.13; and ROE, −.10) are in the opposite direction hypothesized. The same pattern holds, for the most part, for 1993 performance. Only one of the 1993 coefficients is positive but it is small (ROE, .09). Hypothesis 3, therefore, is not supported.

DISCUSSION AND CONCLUSIONS

This study explored the relationships among various measures of women in management and firm financial performance. Drawing from the resource-based theory of competitive advantage we hypothesized that

Table 3
HIERARCHICAL REGRESSION SUMMARY
1992 ROA ESTIMATE

	Equation 1		*Equation 2*	
	Standardized Regression Coefficients		Standardized Regression Coefficients	
Explanatory Variables	*(β)*	*t*	*(β)*	*t*
Total Managers	.14	1.972	.14	2.065
Total Top Managers	.04	.53	.07	.961
Total on Board	-.28	-3.99	-.30	-4.242
Percent Women Managers			.14	2.039[a]
Percent Women Top Managers			-.07	-.926
Percent Women on Board			-.14	-2.016
Cumulative R^2	.094		.137	
F-Value	6.649[c]		5.045[c]	
Degrees of Freedom	3/193		6/190	
Incremental R^2			.043	
F-Value			2.956[b]	
Degrees of Freedom			3/190	

[a] $p < .05$ for a one-tail *t*-test.
[b] $p < .05$ for an *F*-test.
[c] $p < .001$ for an *F*-test.

firms utilizing high percentages of women at all managerial levels would perform well. Our results, however, denote mixed relations among measures of women in management and firm financial performance. Most supportive of the theory are the relations among the percentage of women managers and the financial profitability measures. It appears in general that large firms with high percentages of women managers also have high ROS, ROA, ROI, and ROE. This clearly coincides with the resource-based theory of competitive advantage. While it could be argued that, given these findings, women in general do make better managers, it seems more prudent to state that firms that have utilized more of these resources are reaping the benefits. Indeed, these findings are in harmony with the recent arguments of Rosener (1995) and Katzenbach et al. (1995) who contend that women and middle managers hold the keys to better firm performance.

We did not find that higher percentages of women managers on the top management team or on the board of directors were disproportionately associated with higher financial performance. An apparent explanation for the top management finding is that there simply are very few women top managers. In our study females made up only 4.5% of the top management teams and there were no female chief executives.

With respect to the board, these findings are consistent with those of Bilimoria and Piderit (1994). One

Table 4
HIERARCHICAL REGRESSION SUMMARY
1992 ROI ESTIMATE

	Equation 1		*Equation 2*	
	Standardized Regression Coefficients		Standardized Regression Coefficients	
Explanatory Variables	*(β)*	*t*	*(β)*	*t*
Total Managers	.11	1.521	.10	1.390
Total Top Managers	-.18	2.472	-.16	-2.234
Total on Board	-.09	-1.309	-.12	-1.609
Percent Women Managers			.14	1.987[a]
Percent Women Top Managers			.05	.662
Percent Women on Board			-.13	-1.829
Cumulative R^2	.061		.097	
F-Value	4.119[c]		3.363[c]	
Degrees of Freedom	3/191		6/188	
Incremental R^2			.036	
F-Value			2.500[b]	
Degrees of Freedom			3/188	

[a] $p < .05$ for a one-tail *t*-test.
[b] $p < .10$ for an *F*-test.
[c] $p < .01$ for an *F*-test.

possible reason for the board of director findings may be as Bilimoria and Piderit suggest, that women directors are somewhat disadvantaged by the type of board committee assignments they are traditionally given. Women tend to be given assignments that have less instrumental impact for the firm. Another explanation is, as Rosener (1995) argues, that there is not enough of a "critical mass" of females at the top management levels to have much of an impact on the firm. Given that there is on average only one female per board in our study this seems like a plausible explanation. In this same vein, it is likely that women have not been in top management and board positions long enough to have much impact. Future research efforts examining firms with higher percentages of female directors, who have average tenure compared with their male counterparts, should be undertaken to clarify this notion.

We attempted to control for firm size in our study. For each major independent variable of women in management we also considered its aggregate firm-level counterpart. We not only examined the percentage of women in management with financial performance, but we included the total number of managers as well. The total number of top managers and board members were also included in the analysis with the percentage of women measures.

The sample of firms examined in this study is homogeneous with respect to firm size. The very large U.S.

Table 5
HIERARCHICAL REGRESSION SUMMARY
1992 ROE ESTIMATE

	Equation 1		*Equation 2*	
	Standardized Regression Coefficients		Standardized Regression Coefficients	
Explanatory Variables	*(β)*	*t*	*(β)*	*t*
Total Managers	.13	1.894	.12	1.766
Total Top Managers	-.18	-2.567	-.16	-2.224
Total on Board	-.03	-.391	-.06	-.802
Percent Women Managers			.18	2.443[a]
Percent Women Top Managers			.02	.266
Percent Women on Board			-.10	-1.429
Cumulative R^2	.058		.096	
F-Value	3.914[c]		3.346[c]	
Degrees of Freedom	3/192		6/189	
Incremental R^2			.038	
F-Value			2.646[b]	
Degrees of Freedom			3/189	

[a] $p < .01$ for a one-tail *t*-test.
[b] $p < .05$ for an *F*-test.
[c] $p < .01$ for an *F*-test.

firms examined here are among the highest market value firms in the world. Moreover, because of the variety of businesses represented our results should be applicable to large firms across industries. Consequently, future research should attempt to replicate this study in small and mid-sized firms.

As with most research efforts, this study has several weaknesses. First, and perhaps foremost, is that we do not know the exact levels or nature of the managerial positions captured in the *Wall Street Journal* data. We also had no way to assess the extent of each firm's compliance with EEOC guidelines. We only know generally what was reported to the EEOC. Future efforts may try to replicate this research by more carefully examining managerial levels and legal compliance.

We have made some rather utilitarian assumptions by examining the relationship of gender with financial performance. Future research also should consider nonfinancial firm-level performance indicators. By examining other indicators, the complete impact of gender on all relevant corporate stakeholders could be examined.

We also emphasize the exploratory nature of this study. Our results are based on somewhat of a snapshot in time for some relatively complex firm-level phenomena, and are drawn from archival data sets. The long-term effects of women managers on performance need to be examined in much more detail. Therefore,

Table 6
HIERARCHICAL REGRESSION SUMMARY
1993 ROS ESTIMATE

	Equation 1		*Equation 2*	
	Standardized Regression Coefficients		Standardized Regression Coefficients	
Explanatory Variables	*(β)*	*t*	*(β)*	*t*
Total Managers	.05	.650	.05	.668
Total Top Managers	-.15	-2.049	-.13	-1.699
Total on Board	-.08	-1.107	-.11	-1.451
Percent Women Managers			.15	1.958[a]
Percent Women Top Managers			-.04	-.573
Percent Women on Board			-.05	-.621
Cumulative R^2	.038		.061	
F-Value	2.407[b]		1.947[b]	
Degrees of Freedom	3/183		6/180	
Incremental R^2			.023	
F-Value			1.480	
Degrees of Freedom			3/180	

[a] $p < .05$ for a one-tail *t*-test.
[b] $p < .10$ for an *F*-test.

changes in percentages and performance measures over time should be considered in future studies.

The amount of confidence we can place in findings based on this sample of firms must be questioned. These firms are very large and well known, and should be at the forefront of business practice. However, using a sample of large firms does not necessarily allow for the control of growth and turbulence that may characterize some industries. In addition, some of these firms may be in the process of restructuring or may have undergone other significant changes which may have affected firm performance as well. As a case in point, we found a large standard deviation for the measure of "total managers." This large deviation could be the result of restructuring, and that some firms have perhaps reduced managerial staff a great deal and some have not. An avenue for future research would be to consider gender balance issues in light of environmental and industry context.

The implications of this research for practicing managers are clear. The results indicate that having a high percentage of women managers pays off. Consequently, firms should freely consider using greater numbers of talented women managers. Staffing policies for managerial positions should be created and implemented to be more receptive to the contributions of females. Training programs to help managers identify and overcome gender bias should be developed. The results also point to the importance of not overmanaging regardless of gender issues.

Table 7
HIERARCHICAL REGRESSION SUMMARY
1993 ROA ESTIMATE

	Equation 1		*Equation 2*	
	Standardized Regression Coefficients		Standardized Regression Coefficients	
Explanatory Variables	*(β)*	*t*	*(β)*	*t*
Total Managers	.02	.308	.03	.353
Total Top Managers	.05	.701	.06	.741
Total on Board	-.29	-4.012	-.29	-3.909
Percent Women Managers			.02	.261
Percent Women Top Managers			-.01	.111
Percent Women on Board			-.11	-1.479
Cumulative R^2	.081		.093	
F-Value	5.385[a]		3.066[a]	
Degrees of Freedom	3/183		6/180	
Incremental R^2			.012	
F-Value			.800	
Degrees of Freedom			3/180	

[a] $p < .01$ for an *F*-test.

Table 8
HIERARCHICAL REGRESSION SUMMARY
1993 ROI ESTIMATE

	Equation 1		*Equation 2*	
	Standardized Regression Coefficients		Standardized Regression Coefficients	
Explanatory Variables	*(β)*	*t*	*(β)*	*t*
Total Managers	.03	.403	.03	.406
Total Top Managers	.00	.001	.02	.194
Total on Board	-.15	-1.941	-.16	-2.105
Percent Women Managers			.09	1.235
Percent Women Top Managers			-.01	-.164
Percent Women on Board			-.06	-.836
Cumulative R^2	.022		.038	
F-Value	1.359		1.053	
Degrees of Freedom	3/183		6/180	
Incremental R^2			.016	
F-Value			1.000	
Degrees of Freedom			3/180	

Table 9
HIERARCHICAL REGRESSION SUMMARY
1993 ROE ESTIMATE

	Equation 1		*Equation 2*	
	Standardized Regression Coefficients		Standardized Regression Coefficients	
Explanatory Variables	*(β)*	*t*	*(β)*	*t*
Total Managers	.05	.642	.05	.610
Total Top Managers	-.02	-.324	-.03	-.435
Total on Board	-.10	-1.309	-.09	-1.180
Percent Women Managers			-.06	-.741
Percent Women Top Managers			-.00	-.003
Percent Women on Board			.09	1.132
Cumulative R^2	.013		.024	
F-Value	.833		.723	
Degrees of Freedom	3/183		6/180	
Incremental R^2			.011	
F-Value			.685	
Degrees of Freedom			3/180	

Even more significant are the implications for governmental policy makers. This is evidence that the EEOC guidelines may be paying off for firms. In an era where there is considerable debate over the merits of diversity programs and affirmative action, this study's findings suggest that these programs should be very seriously examined before they are discontinued.

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