

The Impact of Women Managers on Firm Performance: Evidence from Large U.S. Firms

James J Cordeiro and
Susan Stites-Doe,
State University of New York,
United States of America

ABSTRACT

Drawing on arguments from the management and human resource economics literatures, we hypothesise that the percentage of women managers employed in firms will be positively related to the performance of firms. A correlational research design is employed, and 1992 employment and performance data for 183 U.S. firms is utilised in data analysis. The hypothesis is strongly supported.

INTRODUCTION

Proponents of gender equalisation in the ranks of United States (U.S.) corporations advance the notion that the presence of women managers adds value to firms (Sandroff, 1988; Trost, 1989; Cox & Blake, 1991; Morrison, 1992; Cox & Smolinski, 1994; Wright, Ferris, Hiller & Kröll, 1995). The common thread running through these arguments is the notion that the presence of women managers makes a difference to the bottom line performance of firms. That is, the presence of female managers in firms *enhances* performance.

Despite the preponderance of propositions carrying this message in the popular and academic press, arguments in support of hiring and promoting women managers exist largely in the absence of research evidence regarding the relationship between individual firm performance and firm gender diversity. This stems, in part, from the dearth of hard data available to support empirical exploration. Whereas industry-level data is available from government sources such as the United States governmental agency, the Equal Employment Opportunity Commission (E.E.O.C.), firm-level data on the employment of women managers has been extremely difficult to obtain. The reticence of firms to disclose employment details that may expose them to regulatory scrutiny, and to the wrath of the general public, has very likely interfered with public disclosure of this important facet of human resource management.

A recent *Wall Street Journal* article provided us with a rare opportunity to progress toward the development of theory linking women managers with firm

performance (Foldessy, 1994). The article reported data on the percentage of women managers employed at top-performing U.S. organisations, as gathered by the E.E.O.C.

The purpose of this paper is to assess the impact of progressive, gender-sensitive employment policies that lead to increased female managerial representation on broad firm-level performance outcomes. The research design incorporates consideration of both firm-level controls and industry factors, in order to disentangle the effects of competitive dynamics and institutional patterns from those that are more directly related to gender diversity.

Reviewing the literature on the costs and benefits associated with gender diversity, we hypothesise that the percentage of women managers employed by the firm will be positively related to firm performance. We argue that women managers promote *productivity* via their abundant availability and skills. Women managers *reduce costs* because of the unfortunate and disturbing fact that they continue to command relatively lower wages, alleviate legal exposure of firms, and have a positive impact on the ability of firms to attract capital and remain competitive. Our empirical investigation shows that firms that have a higher percentage of women managers, relative to their industry counterparts, display superior performance across a variety of performance indicators. Practical and strategic implications of these findings are discussed, as well as suggestions and an agenda for future research.

THE LEVELLING OF THE PLAYING FIELD

A great deal of attention has been paid to gender diversity in management in recent decades (Powell, 1988), with the vast majority of articles focusing on women's disadvantages in achieving equality in organisations. Their disparate salary levels (Becker & Bowers, 1984; O'Neill, 1985; Sutton & Moore, 1985; Baum, 1987), their narrowed promotion opportunities (Taylor & Ilgen, 1981; Morrison, White & Van Velsor, 1987; Hitt & Barr, 1989; Morrison & Von Glinow, 1990; Jamieson & O'Mara, 1991), and their varying styles of leadership and management (Lodan, 1985; Eagly & Johnson, 1990; Rosener, 1990; Bass, 1991) have been explored in the comparative assessment of female managers over male managers in organisations.

A recent report from the International Labour Organisation indicates that women have fewer than 6 per cent of management jobs in the global labour force (Kleiman, 1996). However, women managers remain hopeful about their future. A 1992 Korn/Ferry survey of the situation in the United States indicated that, while the vast majority of women executives surveyed (n=439) believe that a glass ceiling for women still exists, the majority (60 per cent) expect to be members of top senior management by the year 2000. Interestingly, two-thirds of the women in the 1992 Korn/Ferry sample rejected the idea that male backlash had increased with the increased levels of women in competitive management positions.

The levelling of the playing-field is occurring very gradually. Measurement of the precise rate of this growth is complicated by data availability and source. Each data set has its own metrics and unique sampling characteristics. However, the gradual nature of the trend is apparent and consistent across each source. The 1992 Korn/Ferry survey indicated that between 1982 and 1992 the proportion of women holding the title of Executive Vice President rose from 4 to 9 per cent. Also, in that

period, the proportion of women at the senior vice president level rose from 13 to 23 per cent.

Data compiled by Ries and Stone (1992) of the Women's Research and Education Institute indicates that between 1975 and 1992 the percentage of women managers rose from 5.2 to 12.2 per cent. The data for this study was provided by the Bureau of Labor Statistics, a United States government agency.

Other reports indicate that, since 1970, women have increased in number from 18.5 per cent of all executive, administrative, and managerial positions to 30.5 per cent in 1980, 39.3 per cent in 1988 (Kelly, 1991) and 41.5 per cent in 1992 (Fagenson & Jackson, 1993). Though the rate of growth in all managerial positions has slowed in recent years, the decline in growth for both white and black women managers has declined less slowly (1991-92) than it has for their male counterparts (Bell & Nkomo, 1994).

In the final analysis, however, despite significant gains in education and skills-based technical training, the perception persists that women do not have equal footing in the managerial ranks in most organisations (Kelly, 1991). On balance, the bulk of the evidence suggests that many more women are available for managerial positions than are actually holding them.

The growth rate of women in management, and corresponding salary levels, are each expected to change in the near future. Forecasts from both the Workforce 2000 committee (Johnston & Packer, 1988), and the joint U.S. Department of Labor, and U.S. Department of Commerce Glass Ceiling Commission (1994) indicate that demographic trends and the overall slowed growth in the labour force will prompt organisations to turn to women and minorities for necessary human resources in coming years, as white males - the traditional source of managerial talent - continue to decrease in number (Dreyfuss, 1990; Thomas, 1990; Johnston, 1991; Morrison, 1992).

In coming decades, we expect that women managers will be sought out to motivate and provide career incentives to front-line employees. They will grow in number in response to demographic shifts occurring in the U.S. population (U.S. Department of Labor Report on the Glass Ceiling Initiative, 1991; Morrison, 1992; Ries & Stone, 1992). In short, organisations will turn to women managers for the same reasons that they will invite lower-level female workers into the fold, because they need them to provide critical human resources (Morrison, 1992; Wright *et al.*, 1995).

WOMEN IN MANAGEMENT AND FIRM PERFORMANCE

Madden (1985) identifies three practices that promote discrimination against women: wage discrimination, devaluation of jobs, and job placement discrimination. Our concern here is with job placement discrimination, a practice that determines whether or not women are hired, the jobs to which they are initially assigned, and the jobs to which they are promoted. A large body of evidence attests to the persistence of discriminatory hurdles in the form of job placement discrimination in U.S. corporations (Stewart & Gudykunst, 1982; Cox & Nkomo, 1986; Morrison, White & Van Velsor, 1987; Cox & Blake, 1991; Jamieson & O'Mara, 1991; Kelly, 1991; Wright

et al., 1995). Our specific concern in this paper is with the percentage of women promoted to managerial ranks in large U.S. corporations.

We suggest that a firm's strategic positioning with regard to the hiring and promotion of women to managerial positions has a direct effect on both its *cost* and *productivity* levels. As such, firms that discriminate against women in hiring and promotion decisions suffer lower performance, as they incur added costs and/or lower productivity. As the review below demonstrates, this position is supported by theories presented in both the labour economics and management literatures.

A growing interest in the relationship between human resource strategies and firm-level performance (Huselid, 1995) is forging the way for careful examination of the firm-level effects of discriminatory practices (Wright *et al.*, 1995). Early works in the human resource economics discipline provide useful grounding for our thesis that women managers have a positive effect on firm performance by lowering costs associated with remaining competitive.

Neo-classical view of gender discrimination: A cost-saving argument

Becker (1957, 1971) provided the seminal neoclassical analysis of discrimination against female and minority workers. Male and female workers are considered to be perfect substitutes for each other in the model. Females are subject to the 'tastes for discrimination' of employers, co-workers, and consumers. Tastes for discrimination are founded on individual or personal prejudices (Madden, 1985). Taking issue with Becker's position, Arrow (1973) questioned whether employers whose placement policies discriminate against women can survive in perfectly competitive markets. According to Arrow, firms that hire lower-cost female labour should be better able to attract capital and have a better chance of survival over the long-run.

Other arguments in the management literature support Arrow's thesis regarding the cost advantages of female labour. Theoretical linkages have been drawn between the proactive hiring of women managers and organisation-level benefits such as lower costs, enhanced productivity and higher revenues (Morrison, 1992; Bass & Avolio, 1994; Rice, 1994), and greater firm value in the stock market (Wright *et al.*, 1995).

Arrow's cost-saving argument is especially cogent today because of the following factors:

- (a) Although there is some evidence that the wage discrimination trend is losing momentum, women continue to be employed at lower wages for work and skills comparable to those provided by their male counterparts. Wage-gap differentials between male and female workers have been widely documented, particularly among managers and professional-level workers (Terborg & Ilgen, 1975; Madden, 1985; Schwartz, 1989; U.S. Bureau of Census, 1989, 1990; Ollenburger & Moore, 1992; O'Neill & Polachek, 1993; Wood, Corcoran & Courant, 1993; Light & Ureta, 1995;).
- (b) Women managers *have* largely achieved parity with men with respect to education, skills and competencies. Thus, female managers who have equivalent stocks of human capital (Von Glinow & Mercer, 1988; Kelly, 1991; Antal & Izraeli, 1993) may expect to enjoy expanded opportunity. When combined with the aforementioned demographic trends, this fact serves as a

strong predictor of the growth in numbers of women managers in U.S. firms in coming decades.

Although women appear to carry human capital that is equivalent to that of their male counterparts, current labour market conditions still favour wage discrimination against women, which lowers the effective cost of their skills and expertise to hiring firms. We join others in advocating enlightened wage reform that level wages across gender. Even in the wake of such reform, however, it should be pointed out that advances in education and skill levels should permit women managers to provide at least the same set of skills and expertise as their male counterparts.

Turnover reduction, social comparison effects, and other indirect cost-saving arguments

In a related argument, Cox and Smolinski (1994) refer to the impact of homogeneity on work groups, and use social comparison theory to explain the growth of diversity programs. The theory holds that people tend to seek homogeneity and conformity in groups. By doing so they facilitate social comparisons which are more reliable when the comparison person is viewed as similar, all other things being equal. Though Cox and Smolinski utilise this theoretical base to defend the need for diversity management programs, one may also argue that homogeneity permits comparison, and can thus serve to motivate members who are in a minority status in work groups to seek comparison others. That is, women managers may themselves promote the hiring of other women managers in order to attain valuable comparison others. This may contribute to lower costs via reduced turnover rates.

Trost (1989) also suggests that the employment of female managers results in a reduction of costs associated with voluntary turnover. He argues that the bulk of this voluntary turnover results from females' perceptions of lowered opportunity in organisations. Though some turnover is desirable, organisations normally do what they can to reduce or eliminate turnover that is directly related to group identity differences (Cox & Smolinski, 1994). Stuart (1992) estimated the cost of identity-group gender bias in organisations to be one per cent of total operating expenses. These costs include those associated with turnover, absenteeism and lost productivity.

A study conducted by Tsui, Egan and O'Reilly (1992) measured the impact of diversity management on non-minority group members. Their conclusion was that the impact of diversity programs is not equally distributed across the organisation. That is, diversity programs effect not only minority members, but also non-minority co-workers. In their findings, based on a field study of 1705 employees, men associated increasing levels of gender diversity with lower levels of psychological attachment, increased absence, and lower intent to stay with the organisation. These same findings did not hold true for women. While their conclusions raise many new questions regarding the bottom line and the collective impact of diversity on work groups, they also reinforce the notion that diversity can reduce the turnover intentions of at least one subset of the diverse population, namely females.

An interesting glimpse into the impact of women managers' perceptions is provided by Rosen, Miguel and Peirce (1989). Their findings provide insight into the factors that contribute to employment and turnover costs associated with women managers. The women managers cited personal matters such as the pressing needs

and concerns for children and family issues as secondary in their decisions to leave organisations. Primary in their decisions were their perceptions of lowered opportunity, institutional-level gender bias, and limited access to challenging and rewarding task assignments. Statistics report that females have higher levels of absenteeism, and voluntary turnover which may be artefacts of much larger organisational forces. These forces serve to elevate costs in organisations.

The hiring and promotion of female managers have also been discussed in the light of costs associated with absenteeism. Cost savings have been said to accrue from the provision of role models, who are said to inspire lower-level female employees. These role models give lower level employees elevated perceptions of career opportunity in organisations, and serve to lower absenteeism rates and voluntary turnover (Cox & Blake, 1991).

Legal fees incurred to combat accusations of discrimination are likewise reduced when diversity issues are addressed and reflected in employment patterns (Sandroff, 1988; Wright *et al.*, 1995). An example is the glass ceiling case against Texaco in which a woman who was repeatedly passed over for promotion was awarded \$US20 million dollars (Filipowski, 1991).

Lastly, the costs of job-related stress can be reduced via the establishment of organisational environments that clear the way for non-traditional managers (Cummins, 1990). As Rosen, Miguel and Peirce (1989) point out, women's career stress is two-fold. First, they experience stressors associated with caring for family and children while they balance life and career issues. Secondly, they experience institutional stressors that result from organisational policies and practices. These macro-level forces provide a lack of access to challenging and rewarding task assignments, lowered promotional opportunities, and fewer female role models to serve as social comparisons. Rosen *et al.* (1989) conclude that although the first set of stressors act on both women and men, the second set of macro level stressors may have more insidious and long-lasting consequences for women.

Productivity arguments

Other advantages have been hypothesised to result from the hiring of women managers. At the aggregate firm level, these benefits may be expected to contribute to performance differences between firms. Cox and Smolinski (1994) present the Interactional Model of Cultural Diversity. The model is based on the premise that the management of diversity has important implications for the economic performance and effectiveness of organisations. Organisational effectiveness is measured across a variety of factors, including turnover, profits, market share, and the achievement of public sector goals. Two sets of forces are said to act on organisations to improve their effectiveness. One force addresses the organisation's diversity climate, and the second addresses employees' individual outcomes. The organisation's diversity climate includes its workforce demographics, stereotypes, cultural differences and institutional bias in management practices. Employee outcomes include measures that capture employees' affective state, in terms of their levels of satisfaction, commitment, and involvement, in addition to those that address important achievement-related factors, or their levels of performance, promotion, and compensation. The model indicates that the climate for diversity acts on both individual outcomes and on organisational effectiveness. Thus, following this model, an organisation's climate for diversity has both direct and indirect effects on organisations.

Morrison (1992) explores many organisational and individual benefits that accrue to organisations that actively seek to advance diversity in hiring, promotion, and other human resource practices. She suggests that a side benefit of the globalisation of business concerns the focus that businesses will give to new customer groups, such as female buyers, senior citizens, immigrant and foreign buyers. Firms competing for these buyers' attention should be motivated to hire non-traditional managers from diverse demographic and socio-economic backgrounds, so they can be assured of the ability to stay in touch with the needs of buyers. A manager of the same gender or ethnic background as the firm's consumers should have greater understanding of their needs, and may enjoy greater integrity in a leadership position (Morrison, 1992).

Other evidence supports the view that the percentage of women managers employed in organisations may be positively linked to productivity advantages. For example, Chusmir and Durand (1987) suggest that a 12 per cent productivity gain can be achieved among female employees by reducing barriers to their advancement. In a related argument, Thompson and DiTomaso (1988) posit that organisational productivity is improved when firms adopt a multicultural approach, due to the effects of multiculturalism on employees' perceptions of equity, their morale, goal setting, effort, and individual performance. Cox and Blake (1991) present evidence that diversity can be linked to enhanced creativity and innovation. Morrison (1992) argues that the employment of non-traditional workers sharpens managers' skills, and thus serves as a development tool.

To date, there is very little empirical evidence regarding the *firm-level effects* of hiring and promotion practices that promote gender diversity (in terms of the hiring of women) at the managerial level. The thrust of the literature reviewed above is that firms which discriminate against women managers in their hiring and advancement policies will be penalised for their practices. Gender discrimination lowers a firm's hiring options, and leads to lower performance due to elevated costs and lowered productivity. Conversely, firms that capitalise on the cost and productivity advantages offered by women managers are expected to benefit in terms of superior performance. The review of literature concerning the cost and productivity advantages associated with the employment of women managers prompts statement of the hypothesis that *firm performance levels are positively related to the percentage of women managers that they employ.*

METHODS

Data Collection

Sample

Two secondary data sources were used for this research: the Foldessy (1994) research report and the 1993 SEC Disclosure CD-Rom database. Foldessy (1994) obtained data from the E.E.O.C. in the form of computer tapes. Individual firms were listed by code number only. Foldessy later obtained firm names to match the coded data by filing a request for them under the U.S. government's Freedom of Information Act, which grants access to government-sponsored information sources through a formal request process. The top 200 firms, on the basis of stock value, or market capitalisation, were selected to form the focus of the article in which the data

appeared. Both 1982 and 1992 data are reported in the article, and data for each year is used in the present research.

Firm Performance Variables

The SEC Disclosure CD-Rom data base was utilised to obtain firm performance data for each of the 200 firms listed in Foldessy (1994) for the year 1992. These data were modified to control for industry effects, using the method detailed below. In keeping with common practice in the strategic management and human resources areas, return on assets (net income divided by total assets), return on equity (net income divided by owner's equity) and return on sales (net income divided by sales) were utilised as the performance measures.

Control Variables

Following recent work in the human resource economics area (Huselid, 1995), we provided controls for a number of variables that impact on individual firm performance. These included firm size (defined as the log of sales to correct for skewness), firm leverage (defined as long-term-debt divided by equity), market share (defined as firm sales relative to total industry sales), capital intensity (defined as property, plant and equipment divided by firm sales) and employee compensation levels (defined as selling, general and administrative expenses divided by sales).

Industry controls were incorporated into all variables. For example, the variable that measures the percentage of women managers was computed by taking the data originally reported in Foldessy (1994), and adjusting it in the following manner. Each firm's primary Standard Industry Classification (SIC) code was identified, as were those of all firms reporting to be primary competitors in the same two-digit SIC code category. Industry effects stemming from processes of momentum, institutionalisation, and culture formation were controlled by taking the mean reported percentage, and subtracting it from each firm's individual firm percentage. Thus, the percentage of women manager variable reflects each firm's percentage, less industry norms. This sort of adjustment is critical for studies of this nature. In our sample, for example, firms in the commercial banking industry tend to employ substantially greater percentages of women than those in the chemical or energy industries. Consequently, failure to adjust for this industry influence may seriously undermine the reliability of results. The need to adjust for industry-wide influences is well-documented in the work of Rosen, Miguel & Pierce (1989) who find significant differences in the attraction, retention, and career performance of women across industries.

We extended the adjustment for industry effects to each of the performance and control measures to account for differences in industry profitability and structure. As computed, each performance indicator is a distance score and therefore carries a mean of zero. For example, firm size was adjusted for industry effects by subtracting the median firm size figure for competitors in the same two-digit SIC code category from each individual firm value. The resultant measure reflects each firm's *relative* size, fully reflecting the industry's unique set of market dynamics and forces.

Missing data

Missing data reduced the final sample to 187 firms for 1992 (out of 200 firms reported in Foldessy (1994), and 146 firms for 1982 (out of 155 firms reported in Foldessy (1994)).

Analytical approach

Pearson correlation coefficients reflected the correlation between the performance variables and the variable that measured the percentage of women managers employed. This analysis was supplemented by ordinary least squares regression analysis (OLS), to determine the association between the percentage of women managers and firm performance, after controlling for firm size, leverage, market share, capital intensity and employee compensation levels.

The general form of the OLS regression models was:

$$\text{Firm performance} = f (b_0 + b_1 \text{Percentage of women managers employed} + b_2 \text{firm size} + b_3 \text{leverage} + b_4 \text{market share} + b_5 \text{capital intensity} + b_6 \text{employee compensation level} + \text{error}).$$

All data was drawn from 1992 sources and adjusted for industry effects. A separate set of lag-effect regressions was run, replacing the percentage of women managers employed in 1992 with the corresponding percentage employed in 1982. The purpose of these models was to test the long term effects of the presence of women managers on firm performance.

RESULTS

Descriptive statistics and correlations between the variables are reported in Tables 1 and 2.

Table 1 Descriptive Statistics^a

<u>Variable</u>	<u>(N)</u>	<u>Mean</u>	<u>Std. Deviation</u>
Percentage of Women Managers: 1992	199	23.61	14.50
Percentage of Women Managers: 1982	155	15.52	13.23
Firm Size	199	15.67	1.04
Leverage	187	.71	.75
Market Share	199	.07	.12
Capital Intensity	194	.84	.99
Employee Compensation Level	199	.29	.18
Return on Assets	199	.04	.07
Return on Equity	199	.08	.34
Return on Sales	199	.06	.08

^a These variables have NOT been adjusted for industry effects. The means and standard deviations for the adjusted variables are 0 and 1, respectively, due to standardisation.

Table 2 Correlation between Variables^{1,a}

Variables	1	2	3	4	5	6	7	8	9	10
1 (%) Women Mgrs. 1992	1.00									
2 (%) Women Mgrs. 1982	.76***	1.00								
3 Firm Size	-.05	.07	1.00							
4 Leverage	-.07	-.001	.02	1.00						
5 Market Share	-.04	-.08	.48***	.07	1.00					
6 Capital Intensity	-.12*	-.04	-.04	.09	-.10	1.00				
7 Employee Compensation Level	.12*	.07	.09	-.10	.08	.03	1.00			
8 Return on Assets	.31***	.15*	-.35***	-.29***	-.11	-.16**	.06	1.00		
9 Return on Equity	.20***	.15*	-.29***	-.17**	-.09	-.10	.15**	.60***	1.00	
10 Return on Sales	.25***	.19**	-.34***	-.31***	-.12*	-.04	.08	.85***	.60***	1.00

¹ * = significant at .10 level, 2-way tests

** = significant at .05 level, 2-way tests

*** = significant at .01 level, 2-way tests

^a All variables have been adjusted to reflect the performance of firms relative to other companies in the same 2-digit SIC code in the sample. Relative performance measures were computed as distance scores. The performance of each firm was subtracted from the within-sample industry median across all variables.

The correlations between the percentage of women managers in 1992 and all three performance variables ranges from .20 to .03, and each is significant at the .01 level or better, using two-way tests. These results support our hypothesis. OLS multiple regression analyses were also conducted to permit controls for industry effects and firm-level controls for size, leverage, market share, capital intensity and employee compensation.

Table 3 provides the results for the multiple regression models for 1992. The F-statistic for each of the models is significant at the .000 level. The R-squared statistics range from .13 to .23, indicating that the models explain between 13 to 23 per cent of the variation in firm performance levels in 1992. After controlling for firm and industry-level effects, the percentage of women managers in 1992 variable is significant in all models at significance levels of $p < .003$.

Table 3 OLS Regression of Percentage of Women Managers on Return on Assets^a

Model	R ²	(N)		Independent Variables:	b	Std Error	Beta	Significant Probability
Model With Percentage of Women Managers Variable:								
1	.22	183	ROA	Relative (%) of Women Managers 1992	.0017	.0001	.2313	.0008
				Firm Size	-.0191	.0048	-.2985	.0001
				Leverage	-.0270	.0074	-.2467	.0004
				Market Share	.0491	.0436	.0856	.2616
				Capital Intensity	-.0121	.0077	-.1062	.1186
				Employee Compensation Level	.0146	.0239	.0417	.5407
				Constant	-.0026	.0033		.4384
Model Without Percentage of Women Managers Variable:								
2	.17	183	ROA	Firm Size	-.0186	.0049	-.2899	.0003
				Leverage	-.0295	.0076	-.2694	.0001
				Market Share	.0404	.0448	.0704	.3686
				Capital Intensity	-.0152	.0079	-.1331	.0562
				Employee Compensation Level	.0251	.0244	.0714	.3051
				Constant	-.0035	.0034		.3066
Incremental F Test (Significance at .01 level of alpha):					11.3785 ***			
*** = significant at the .01 level of alpha, for F statistic (1,177)								
^a All variables have been adjusted to reflect the position of each firm within their industries. Relative adjusted measures are actually distance scores, computed by subtracting firm performance across each variable from the median within-sample (two-digit SIC code groupings) industry values.								

More importantly, for the purposes of the present study, the incremental F-test of change in the R-squared resulting from addition of the percentage of women managers in 1992 variable is significant at the .01 level for all three performance measures. Thus, the addition of the percentage of women managers in 1992 variable helps explain significantly more of the variation in firm performance than does the control variables. Both correlation and OLS regression results support the hypothesis that the percentage of women managers employed significantly impacts on firm-level performance.

*The Impact of Women Managers on Firm Performance:
Evidence from Large U.S. Firms*

Another aspect of the regression results bears mention. Although they must be interpreted with caution (Achen, 1982; Pedhazur, 1982; Lewis-Beck, 1990), the standardised beta coefficients in the regression models of Tables 3 and 4 indicate that after firm size and leverage, the variable that measures the percentage of women managers has the highest impact on firm performance. Thus, the women in management variable has an even larger magnitude effect than do the strategic variables that measure market share, capital intensity and employee compensation levels.

**Table 4 OLS Regression of Percentage of Women Managers on Return on Equity^a
(ROE)**

Model	R ²	(N)		Independent Variables:	b	Std Error	Beta	Significant Probability
Model With Percentage of Women Managers Variable:								
1	.13	183	ROE	Relative (%) of Women Managers 1992	.0065	.0021	.2162	.0030
				Firm Size	-.0587	.0213	-.2200	.0065
				Leverage	-.0644	.0362	-.1416	.0495
				Market Share	.1974	.1915	.0828	.3041
				Capital Intensity	-.0265	.0341	-.0555	.4385
				Employee Compensation Level	.1561	.1049	.1069	.1387
				Constant	.0091	.0148		.5382
Model Without Percentage of Women Managers Variable:								
2	.09	183	ROE	Firm Size	-.0566	.0217	-.2119	.0102
				Leverage	-.0741	.0331	-.1629	.0267
				Market Share	.1635	.1955	.0686	.4039
				Capital Intensity	-.0384	.0346	-.0807	.2684
				Employee Compensation Level	.1967	.1064	.1347	.0663
				Constant	.0055	.0151		.7147
Incremental F Test (Significance at .01 level of alpha): 9.0164***								
*** = significant at the .01 level of alpha, for F statistic (1,177)								
^a All variables have been adjusted to reflect the position of each firm within their industries. Relative adjusted measures are actually distance scores, computed by subtracting firm performance across each variable from the median within-sample (two-digit SIC code groupings) industry values.								

Structural Equation Modelling

As an alternative specification, we included a path model (using the LISREL 8.03 package) that specified the following relationships in a single system. The first equation specifies that 1992 firm performance (measured as firm ROA) is a function of the percentage of women managers employed in 1992; sales and profitability growth over the preceding five years (as an index of firm resources available for diversity initiatives) and controls for firm capital intensity; market share; and leverage. The equation is:

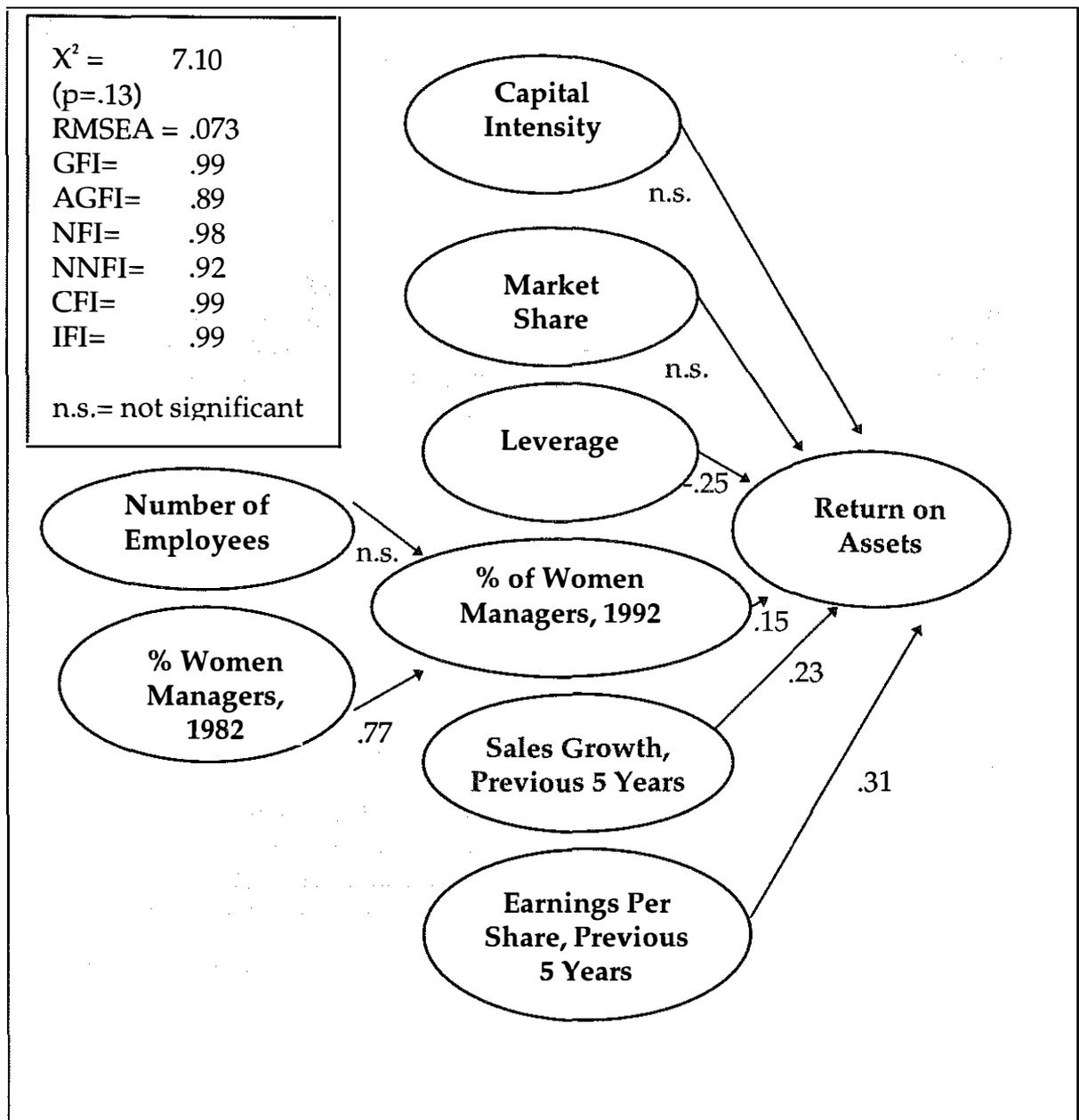
$$1992 \text{ Firm Performance} = f(1992 \text{ Percentage of Women Managers; Sales growth for past 5 years; profitability growth for past 5 years; 1992 market share; 1992 leverage})$$

The second equation models the percentage of women managers employed by the firm in 1992 as a function of the percentage of women managers employed in 1982 as well as the number of employees in the firm. Since the number of employees is highly skewed, the natural log transformation was used. This equation is:

$$1992 \text{ Percentage of Women Managers} = f(\text{Ln}(\text{Number of employees in 1992}); 1982 \text{ Percentage of Women Managers})$$

Figure 1 portrays the resulting LISREL model. The fit of the model is very good using conventional tests of significance. Its Chi-square is 7.10, the Root Mean Square Error of Approximation is 0.073, the GFI or goodness-of-fit index is 0.99 and the AGFI or adjusted goodness-of-fit index is 0.89. Finally, the Normed Fit Index is 0.98 and the Non-normed Fit Index is 0.92. The R-squared values for the first and second equations are 0.40 and 0.65 respectively.

Figure 1 A Path Model of the relationship between percentage of Women Managers in 1982 and 1992, and ROA, 1992



The LISREL model supports the notion that the 1992 percentage of women managers leads to 1992 firm performance, even after controlling for the 1982 percentage of women managers and employees and growth in firm resources (sales and earnings per share). Thus, the system of equations employed estimated controls for the influence of total firm hiring (number of employees) and the past percentage of women managers (in 1982) on the 1992 percentage of women managers.

DISCUSSION

The premise underlying Cox & Smolinski's (1994) seminal work on managing diversity and glass ceiling initiatives is that glass ceiling initiatives, as a central subset of work devoted to the management of diversity, have important implications for the economic performance of organisations. Managers who are reticent to hire or promote women should take notice of our economic results. They provide us with strong initial evidence that gender diversity in the managerial ranks of corporations makes a positive difference in firms' performance, reinforcing legal and moral imperatives to correct gender bias in organisations. Though obstacles remain in the path of female careerists, these findings suggest that after having controlled for industry influences, firms' performance increases in direct line with the percentage of female managers that they employ. Previous research indicates that a diverse work force reduces costs (Sandroff, 1988; Trost, 1989; Cummins, 1990; Cox & Blake, 1991; Morrison, 1992;) and increases productivity and may have implications for competitive advantage in international competition (Cox & Smolinsky, 1994).

Our findings extend the above arguments by suggesting that women managers hold considerable promise for improved firm-level performance. Each of the models explored provides support for the hypothesis presented. It would appear, then, that the impact that women managers have on organisations reaches across industries, and several different facets of performance. Our results are consistent with those found in the Covenant Investment Management study, and, separately, in the U.S. Department of Labor studies (both summarised in Cox & Smolinski, 1994). Each of these studies conclude that the stock-market performance of firms that have ambitious glass ceiling-related goals is better than that of firms that invest little in them.

LIMITATIONS AND A RESEARCH AGENDA

These findings are limited by the cross-sectional nature of the research design. Cross-sectional data limits one's ability to draw causal inferences due to the lack of temporal ordering in the data points. Thus, though we may draw conclusions based on our inference of causal ordering, more robust longitudinal studies would provide us with an even more concrete basis upon which to infer causal linkages.

The findings are also limited by the nature of the variables themselves. Data collected by the E.E.O.C. aggregates managerial positions in terms of executive and administrative categories, and are dependent upon the accurate and candid reporting of firms. It is sometimes difficult to delineate management positions from others that entail little or no actual administrative and/or supervisory duties (Fagenson & Jackson, 1993). Although we have used the best secondary data available, precise delineation and definition of managerial positions is not possible using the current data set (U.S. Department of Labor, 1995, p29).

However, this same problem may be said to exist in field research, which relies on data provided by organisational sources or by individual respondents. It is simply no easy matter to get a definitive handle on the nature and scope of managerial positions in the private sector. Unlike governmental systems, employment progression in the private sector is often a tenuous process. What may be referred to as a 'managerial' position in one department may not be so described in another department within the same organisation, despite almost identical job tasks and responsibilities.

The data may also be said to be affected by sample selection techniques utilised by Foldessy (1994). Since the sample was limited to the 200 firms with the highest market valuation, it has limited external validity, with results most appropriately generalisable to large U.S. firms. While the restriction to large firms is clearly a limitation, it is not necessarily a serious one since large firms are more visible and therefore influence the behaviours of smaller firms in their industries. Future research should extend our investigation to medium and small-sized firms. Detailed intra-industry studies would serve as valuable extensions to the present research, as would studies that utilise alternative research designs, such as surveys and qualitative research.

Studies that address the impact of managerial level would bring a new dimension to the research, since they would respond to the data definition problem inherent to the E.E.O.C. data. Structural and group-level factors could be incorporated into future research that would uncover other interesting effects, e.g. the impact of functional division membership, and the impact of women managers' education, job tenure, and special training on firm performance. In this fashion, we would eliminate other previously unexplored factors from a vast realm of alternative causal forces. We would also benefit from research that relates the percentage of women managers employed in organisations to the actual cost savings and productivity benefits realised and, separately, to other enlightened management policies upon which astute firms may capitalise. Examples of these might include the promotion of employee diversity, customer satisfaction and environmentally-friendly policies.

CONCLUSIONS

Our findings are powerful in that they offer insight into an implicit puzzle that has gone unsolved for some time. The puzzle itself carries high value. Firm performance is a crucial outcome variable of interest to academics and practitioners alike, as supported by the following comment by Nowak (1995, p58):

... there is a received wisdom (or is it a politically correct view?) that organisations will wish to broaden their talent pool to include women, and that the employment of women in management will be a 'bottom-line' issue for organisations. Much as some of us may want to believe that this is so, the proposition does need to be explored and analysed, rather than accepted. Does it really 'go without saying' that cultural diversity will improve the 'bottom line'?

We suggest that our research provides an initial answer to this question by providing preliminary evidence that women managers do have a significant positive impact on firm performance that is *enduring*. Though some of these positive effects

undoubtedly occur at the group and individual levels, they appear to have aggregate effects on the totality of the firm.

The levelling of the playing field does matter. It matters to top-level leaders and shareholders pursuing higher profits and enhanced returns on their investments, and to human resource directors who are charged with developing strategic plans that will assure the supply of human capital over time. A level field is also no small matter to those women who seek senior managerial positions. These findings join those of Workforce 2000 in saying that *we have reason* to be interested in the promotion and hiring of women managers. Ethical issues aside, we must do so in order to continue to be profitable.

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*The Impact of Women Managers on Firm Performance:
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