

WORKING PAPER SERIES

**Wall Street Likes Its Women:  
An Examination of Women in the Top  
Management Teams of Initial Public  
Offerings**

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Working Paper 99-07



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This paper has not undergone formal review or approval of the faculty of the ILR School. It is intended to make results of Center research available to others interested in preliminary form to encourage discussion and suggestions.

**WALL STREET LIKES ITS WOMEN:  
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As part of an overall research project exploring the determinants of initial public offering (IPO) firm success, I examine the effect of having women on the top management teams of IPO firms on the organizations' short and long-term financial performance. Looking at three different samples, I found that trend data indicate IPO firms are gaining in the number of women they employ in their top management teams (where top management team is defined as those listed in the firm's prospectus). The results of the study reported in this paper suggest one reason why the trend is growing; women appear to have a positive effect on the firms' short-term performance (Tobin's Q, which is market price to book value per share), three-year stock price growth, and growth in earnings per share.

Pick up any newspaper or popular press magazine and you're bound to find an article or two (or more) about women in management. Fortune, for example, recently published an issue on the 'The 50 most powerful women' (Sellers, 1998). The Wall Street Journal published an article featuring women who are leading successful high technology firms (Schmerken, 1998). These articles tend to feature successful women, tell their stories, and then leave the reader with some type of 'lessons learned' or inspirational words for would-be women executives. Although these types of stories are popular, they say little about the real effect of women in top management on the performance of their organizations. The research that has been done relating firm performance to the presence of women comes from the entrepreneurship field and seems to be focused on women as business owners, rather than women as part of the overall executive team (for example, see Brush, 1992; Chaganti & Parasuraman, 1996).

To date, the question of how women in the top management teams of corporations affect the performance of those organizations appears to be uncharted territory. And, equally unknown, is the effect that women in top management have on Wall Street's perception of those firms as investment opportunities. Thus, the purpose of this paper is to report the results of a study that begins to fill a gap in our knowledge. The study empirically links the presence of women in the top management team to firm performance within a sample of initial public offering (IPO) firms. Although the research lacks the richness and detail that studies profiling successful women provide, the advantage of this work is that it begins to show how women may be perceived by the investment community. And, using a longitudinal methodology, the research

examines the effect that having women in the top management team has on a firm's longer-term performance.

By studying a sample of initial public offering (IPO) firms, I explore the impact that the presence of women has on initial stock performance and longer-term firm performance. The impact on initial stock performance is interesting not only from a financial perspective (of course organizations want a higher stock price when they go public) but also from a social perspective.

When a company goes public, its initial stock price is set based on a number of things that may have nothing to do with their current financial performance. Consider the companies that were priced far above what they were worth because the 'market' (primarily the investment banking community and managers of institutional funds) thinks the company has promise (internet companies are excellent examples of this phenomenon: Netscape, Amazon.com, etc.). One key to evaluating the 'promise' of a firm is the composition and characteristics of the top management team. I was interested in trying to assess how Wall Street and/or the investment banking community evaluated women as members of a firm's top management team. Are women sending a signal that the firm does not discriminate, is a future-oriented company, and that it has a diverse team able to make more informed business decisions? Does the presence of women signal risk that the management team may have problems making decisions or that its members are somehow less qualified? Or, do investors ignore the gender mix of the top executive group?

Given that an examination of data from a sample of firms that went public in 1988 showed there were no women on any of the top management teams, I thought this was a timely and important question. The trend data are themselves compelling. In 1988, as I noted, there were no women in the management teams or in the boards of the 134 firms that went public. However, in 1993, I find that 27% of the firms in the sample (535 companies) have women in their top management teams. And, in a study that is still in progress, I find that 41% of the companies that went public in 1996 have women in the top management ranks.

The research presented in this paper is exploratory in nature, and it examines the effect of having women on the top management team (measured as percentage of women in the top team) on both short and long-term firm performance. The effects on short-term performance should be an indicator of how investors evaluate the presence of women on top management teams, and the effects on long-term performance demonstrate whether investors are making informed decisions (are assessments at time 1, when the firm goes public, accurate in the long run?). The long-term results show the relationship between the percentage of women on the

top team and both stock price growth and growth in earnings per share over a three-year period of time (from the IPO to year-end 1996).

## METHODS

The research strategy involves selecting a specific cohort of IPO firms that went public in a given year and then tracking those same firms over time to study the effects of their early decisions regarding management structure on their subsequent firm performance. For the analysis relating the presence of women with firm performance, I selected a sample of firms that went public in 1993. That allowed me to study both short-term IPO performance and long-term firm performance (e.g. performance from 1993 to year-end 1996). The number of firms that went public in 1993 and that produced a good or service (real estate trusts and financial groups with no employees were included) was 585; of those companies I was able to obtain the prospectuses (which are one of our primary data sources) for 535 firms. The sample was further reduced to 476 because the dependent variables for the long-term analysis are stock price and earnings per share for 1996.

As of December, 1996, 59 firms had changed form so that the financial data needed were no longer available. Of the 59 firms that no longer reported stock price (or earnings), 50 had engaged in a merger or acquisition, 2 filed for bankruptcy, 1 went private, and for 6 no information was available. In order to examine potential survival bias (the firms that dropped out were in some way inferior performers), I conducted an ANOVA to determine how those firms for which I did not have complete data (the 59 that dropped out of the sample) differed from the overall sample. I found that there were no significant differences in any of the variables used in the analyses for this research (e.g. risk factors at time of IPO, age of firm, size measured by sales and number of employees, and net profitability). The lack of significant differences, should be due to the fact that mergers may be conducted for healthy as well as financially troubled firms, and most of the firms for which I could no longer find data had engaged in a merger or acquisition.

### *Data Collection and Coding*

The primary data source was the prospectus of each firm. The prospectus is the document provided to the Securities and Exchange Commission (SEC) prior to the public offering, and it is also the document circulated by the underwriter to assess demand for the firm's stock. The SEC requires that firms follow strict guidelines in the format. In fact, the firm is legally liable for any information that might mislead investors (O'Flaherty, 1984). As noted by Beatty and Zajac (1994), top management is accountable to the SEC and to stockholders regarding the contents of the prospectus. The Securities Act of 1933 sets the requirements for

the prospectus, thus assuring consistency in the type of information that is included in the document. The typical prospectus writing process involves at least three lawyers (one for the company and one for each of the investment bankers), two investment banking firms, and at least one certified public accountant. Each party has a vested interest in providing the public with an honest view of the company. Thus, we can be reasonably assured that the prospectus is a useful data source (Marino, Castaldi, & Dollinger, 1989).

The coding strategy was developed and refined based on earlier research on IPO firms (see method used by Welbourne and Andrews, 1996). Code sheets and a coding handbook were given to each coder after each individual attended an initial training session. A total of five coders worked on the data. In addition, weekly meetings were held with coders to go over problems and/or inconsistencies in the prospectuses. Finally, we randomly cross coded prospectuses (every 10th prospectus). For the variables used in this study, agreement was 90% or higher among the coders. Financial data were also obtained from COMPUSTAT, Going Public: The IPO Reporter (for financial data at the time of the IPO), and from a database obtained from the Securities Data Corporation.

#### *Sample Characteristics*

At the time of its IPO, the average firm in the sample was 7.06 years old (s.d. 7.07). The median firm, however, was 6 years old, and the range was from 1 to 47 years old, with most of the firms (80%) being less than 10 years old. Given that the age data were skewed, the variable used in the analysis was logged. The average firm in the sample employed 796 people (s.d. 1,721). The median firm had 209 employees, with a range from 1 to 22,793.

On average, net profit per share was \$0.30 (s.d. \$0.84) and the adjusted initial offering price per share was \$10.20 (s.d. \$7.27). Using the classification scheme reported by the Small Business Administration to determine industry, the sample's highest concentration of firms was in manufacturing (50.6%). A total of 19% of the firms were in service industries, while 5.2% were in wholesale trade, 7.4% in transportation and/or communications, and 8.2% in retail trade. Other industries include .2% in agriculture, 3% in mining, 1.9% in construction, and 4.4% in health care and financial services. Table 1 provides a summary of the means, standard deviations, and medians for variables used in the analyses.

TABLE 1: Means, Standard Deviations, Medians, and Correlations for Variables used in the Regression Analyses

|                               | Mean  | Standard<br>Deviation | Median | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   |
|-------------------------------|-------|-----------------------|--------|------|------|------|------|------|------|------|------|------|------|
| 1. Percentage of women        | .06   | .13                   | .00    | 1.00 |      |      |      |      |      |      |      |      |      |
| 2. 1996 Stock price           | 14.07 | 12.29                 | 11.00  | -.04 | 1.00 |      |      |      |      |      |      |      |      |
| 3. 1996 Earnings per share    | .16   | 1.62                  | .33    | .01  | .48  | 1.00 |      |      |      |      |      |      |      |
| 4. Tobin's Q (log)            | .66   | .23                   | .62    | .13  | .01  | -.03 | 1.00 |      |      |      |      |      |      |
| 5. Adjusted stock price (IPO) | 10.20 | 7.29                  | 9.75   | -.01 | -.04 | -.15 | -.02 | 1.00 |      |      |      |      |      |
| 6. Age of company (log)       | 1.76  | .93                   | 1.94   | -.06 | .10  | .17  | -.02 | .00  | 1.00 |      |      |      |      |
| 7. Number of employees (log)  | 5.29  | 1.73                  | 5.41   | -.02 | .24  | .16  | .07  | .27  | .28  | 1.00 |      |      |      |
| 8. Paragraphs in risk section | 15.95 | 5.01                  | 15.00  | .04  | -.36 | -.28 | .06  | -.25 | -.22 | -.26 | 1.00 |      |      |
| 9. Net income per share (IPO) | .30   | .84                   | .29    | .04  | .36  | .33  | -.09 | -.04 | .11  | .08  | -.39 | 1.00 |      |
| 10. Union                     | .20   | .40                   | .00    | -.11 | .21  | .21  | -.05 | .23  | .30  | .41  | -.26 | .21  | 1.00 |

All correlations above .08 are significant at the .10 level; above .10 are significant at the .05 level, above .12 are significant at .01 level, and above .17 are significant at the .001 level.

### *Independent Variables*

Percentage of women on top management team. The number of women on the top management team was coded by reading through the management section of the prospectus. Companies are required by the SEC to list the names (in addition to other data such as compensation and ownership) of members of the top executive team and members of the board. The name of the executive was examined to indicate whether the individual was male or female; when in doubt (due to a name that could be either male or female), coders read the description of the manager's duties and searched for a reference to him/her or he/she. The percentage was calculated by taking the number of women as a percent of the number of people in the total management team (as reported in the firm's prospectus). Only full-time executives were included; members of the board who were not employees were not included in the total count. The average percentage is .06, with a median of zero, and a standard deviation is .13 (the maximum is .86). In 1993, 1% of the firms reported more than 50% of the team having women, 9% reported between 20% and 50%, 17% reported between .08 and 20% women on the top management team, and 73% of the sample reported no women on the top management team.

### *Dependent Variables*

Short-term performance was measured as Tobin's Q (market price / book value per share). Tobin's Q is preferred to absolute stock price because it reflects the market's reaction to the firm. The mean Tobin's Q is 3.40, with a standard deviation of 29.73 and a median of 3.20. The natural log of the value was used for the data analysis. Tobin's Q reflects the investment community's expectations about the potential of the organization.

Given that the primary reason investors choose to put money into an IPO is to make money when the firm's stock price increases over time, I examined measures related to stock price growth. After controlling for initial stock price (adjusted for splits), the analysis that predicts 1996 performance reflects the increase in value of the firm in the first three years following the IPO. In order to supplement our study, I added year-end 1996 earnings per share as a dependent variable. Earnings per share (EPS) is a measure of internal performance that is often used by analysts and investors to assess future value of the firm. In the EPS analyses, I included earnings per share at the time of the IPO as a control variable. By conducting the analyses in this way, I eliminate measurement issues surrounding the use of change scores.

### *Control Variables*

Several control variables, selected based on a review of both the IPO literature were used in the analyses. Net profit per share at the time of the IPO was included as a performance



measure. In addition, I included a code for whether the firm was unionized or not. Union presence is an important control because a union presence may affect hiring practices within the firm. In addition, I included the percentage of the company owned by the CEO prior to the IPO as a control variable. This was done because a CEO with high ownership may be able to exert more pressure in the hiring process (particularly of the top management team). Nine (one is omitted) industry classifications, based on categories reported by the Small Business Administration, were used for the analyses.

Although the sample of IPO firms consists of companies that are considered to be higher risk investments than companies currently in the public market (due to their having no prior stock price history), I expect that each firm will be subject to varying degrees of risk. Therefore, an additional control variable indicates the level of risk faced by each firm. Each prospectus contains a section listing all risk factors faced by the firm. These risk factors must be disclosed to meet the requirements of the Securities and Exchange Commission. The total number of paragraphs in the risk section of the prospectus was coded as a measure of firm level risk. Prior research on initial public offering firms found that this measure was a useful way to code risk (Beatty and Zajac, 1994; Rasheed and Datta, 1994).

Lastly, I included a series of dummy variables for geographic area. Due to the number of high tech firms concentrated in given geographic areas, and the fact that firms in close proximity may share management practices, this control variable was added. Nine dummy codes (0/1) were included in the analyses.

## RESULTS

Table 1 includes the bivariate correlations for the variables in the analyses. The results show that the percentage of women on the top management team is significantly related to Tobin's Q (.13;  $p \leq .01$ ), union presence (-.11;  $p \leq .01$ ), and CEO ownership (.10;  $p \leq .05$ ). The percentage of women is not correlated with stock price or earnings per share in 1996.

### *Regression Analyses*

Three different ordinary least squares (OLS) regression analyses were run. Each equation included all of the control variables and the independent variables of interest to initial stock performance (Tobin's Q) and year-end 1996 stock price and earnings per share.

Tobin's Q: Short-term performance. Table 2 shows the results for predicting Tobin's Q at the time of the IPO. The overall  $R^2$  is .16 ( $F=3.26$ ,  $p \leq .000$ ). As can be seen in the table, the percentage of women on the top management team is positively related to Tobin's Q. The Beta coefficient (standardized Beta) is .12 ( $p \leq .01$ ). Other variables that are significant include: number of employees (negative) and CEO ownership prior to the IPO (negative relationship).

TABLE 2: Regression Analyses for Year End Stock Price (1996)

| Variables                                 | Tobin's Q<br>Beta coefficient | Stock price, 1996<br>Beta coefficient | Earnings per share, 1996<br>Beta coefficient |
|---|-------------------------------|---------------------------------------|--|
| Percentage of women<br>on management team | .12***                        | .07+                                  | .07+   |
| Adjusted offering price                   |                               | -.40***                               | -.45***                                      |
| Age of company (log)                      | .03                           | -.05                                  | .05  |
| Size (number of employees log)            | -.24***                       | .18***                                | .12**  |
| Paragraphs in risk section                | .008                          | -.43***                               | -.35***                                      |
| Net income per share (IPO)                | -.06                          | .02                                   | -.02   |
| Union presence (0/1)                      | .06                           | .12**                                 | .17***                                       |
| CEO ownership percentage, prior to IPO    | -.09*                         | -.13***                               | -.04   |
| R <sup>2</sup>                            | .16                           | .44                                   | .38  |
| F   | 3.26***                       | 11.95***                              | 9.03***                                      |
| *** p ≤ .001                              | ** p ≤ .01                    | * p ≤ .05                             | + p ≤ .10                                    |

Standardized beta coefficients are reported. Industry codes and codes for geographic area, although not reported, are included in the analyses.

**Effects on 1996 Stock Price.** Table 2 also includes the results of OLS regression analyses predicting future stock price. The overall R<sup>2</sup> is .44 (F=11.95, p ≤ .000). Again, the percentage of women on the top management team is positively related to the measure of firm performance, this time being stock price in 1996. The Beta coefficient (standardized Beta) is .07 (p ≤ .10).

**Effects for Earnings Per Share.** The last equation shows the results for earnings per share in 1996. The overall R<sup>2</sup> for that equation is .38 (F=9.03, p ≤ .000). The percentage of women on the top management team is positively related to 1996 earnings. The Beta coefficient (standardized Beta) is .07 (p ≤ .10).

## DISCUSSION

The strongest results (in terms of statistical significance) were obtained for the effect of the percentage of women on the top management team on Tobin's Q (results for longer-term performance, while significant, were a bit weaker). Given the lack of women in the earlier IPO sample (1988) that I studied, the positive reaction by Wall Street and the investment community to women is somewhat surprising. In order to further explore the findings, I looked at the types of firms that had a higher percentage of women. Although I included controls for industry and geographic location, there may still be something about the firms that employ women (they may be in 'women friendly' businesses that happened to be 'hot' in 1996) that would explain the findings but that were not included in the analysis.

I examined data for those firms that employed 20% or more women in their top management teams. Of the 73 firms that were listed, only four in what may be considered “female-related” businesses: A Pea in the Pod, Mothers Work, Cygne Designs, Inc., and Chiro's (all sold women's clothing, although Chiro's sells both men's and women's clothing). In addition, there was one businesses that catered to children (Gymboree, which sells children's clothing). The other firms were in multiple industries, including telecommunications, financing services, publishing, specialty teas, software, manufacturing, hotels and casinos, water treatment services, fast food restaurants, banking, etc. etc. There was no discernable pattern in terms of type of business or industry.

### *Do Women in Management Signal Something?*

But the question remains: do investors notice women on the top management teams and then take that piece of data into consideration when deciding whether or not to buy a company's stock? Given that the topic of women in executive management has been so popular, not only within the academic realm but in the popular press, it is quite possible that investors perceive having women in top management as a benefit to a firm. A study reported in USA Today, for example, showed that when women and men were rated on leadership skills, women took ‘top honors’ in 28 of the 31 categories studied (Neuborne, 1996). Those categories included ability to meet deadlines, generate ideas, and productivity. Those kinds of reports may have lasting impressions on investors, although there is no research to verify that fact.

In addition, we cannot forget the fact that many investors today are women, and it is quite possible that women are a bit biased toward firms with top management teams that employ women. Or, ‘hot companies’ (those that are getting higher levels of market/book or Tobin's Q at the IPO) may be the types of firms that can attract women executives. Unfortunately, given the relative lack of data on this subject, most of these explanations are speculative.

In order to further examine this issue, a variety of research studies and designs (in-depth interviews with investors, surveys sent to investors, reactions from women who attend the road show, etc.) are warranted. It would be interesting to know whether it's the presence of women in general or women in certain types of jobs that may hold appeal to investors. And what of the internal dynamics of the management teams that have women vs. those that do not? Particularly for IPO firms, where the firm faces high levels of risk, and where the IPO process itself can be so draining to a firm, studies that consider the effects of diverse management teams (both considering women and other minority groups) on the top team's dynamics would be useful.

### *Do Women Really Make a Difference?*

Of course, the long-term results may help us understand the short-term results. We know that in the world of investing, profits and stock price growth matter. Investors put their money into a firm's stock in hopes that their wealth will increase. The results from the long-term study indicate that having women on the top management team results in higher earnings and greater shareholder wealth. Investors learn by experience, and it is quite possible that they know something about the dynamics of women in the top management team that leads them to value their presence.

But what is happening in the top management team that can be affecting long-term firm performance? It is important to remember that the maximum percentage of women in the top management teams of the firms in the study was 86 per cent (with only 1% of the firms having more than 50% women). Therefore, it is not women per se that make the difference; it is the 'mix' of women and men on the top management team that results in higher long-term firm performance.

There has been considerable research examining the differences between women-owned and men-owned businesses, generally indicating that there were discernable differences in things like performance, business strategy, performance goals, and management practices (Fischer, Reuber & Dyke, 1993; Hisrich & Brush, 1984). A recent study conducted by Chaganti & Parasuraman (1996) found significant differences between performance of women-owned businesses (WOB) and men-owned businesses, with the WOB obtaining lower sales (no differences in employment growth or ROA). Although results are not conclusive, this research stream seems to suggest that WOB may use different strategies, which result in different results.

It would be interesting to know how many WOB have men on their top management teams. Given the results of my study, I would suggest that WOB would also benefit (I say also because all of the IPO firms had men in the CEO or founder job) from having a diverse gender mix on the top management team. Given that the maximum percentage of women on the top management team in the IPO sample is 86%, this means that firms benefiting from women on the top team are actually benefiting from diversity in the executive ranks. Thus, it seems that WOM businesses would also benefit from gender diversity.

### *Limitations*

The study reported in this paper is exploratory in nature, and as a result, the findings should be viewed with caution. Theories of how women contribute to decision making, particularly for younger, and riskier firms such as those in the IPO sample, should be expanded

to help explain my research findings. Only then, with a merging of theory and additional qualitative and quantitative data analyses, can we begin to untangle the meaning of these results.

In addition, the study was done with a sample of IPO firms. The degree to which these results can be generalized to other organizations is unknown. Given that most larger organizations have multiple business units, and some that would proxy the environment of an IPO firm, it is quite possible that similar results may be found in those groups. Again, this is an opportunity for future studies.

In addition, causation is unknown, particularly for the analysis with Tobin's Q. This is because the data for the Tobin's Q analysis were all obtained at one period in time. As noted earlier, the presence of women may be a cause of higher Tobin's Q, or it may be that firms with higher Tobin's Q are better able to attract (and pay) women who are qualified to be in the top executive team. We can have more confidence in causation for the long-term analyses because the data on top management team were obtained at time 1 (time of IPO), and the performance data were from time 1 through time 2 (IPO through year-end 1996). But at the same time, there may have been changes in the firm from IPO to year-end 1996 that impacted performance and that were not included in my study. Unfortunately, I do not know what the stability of the team composition was after the IPO. Further research is needed to explore stability and changes in the top management team (women leaving, being added to the team, etc.).

Lastly, the measure of presence of women on top management may be flawed. Alternative measures, in addition to more or different control variables (perhaps more in-depth controls for industry) are needed in future studies.

#### Conclusion

Although there are indeed some limitations in this study, the results are consistent for both short-term and long-term firm performance, which suggests that this is a topic worthy of future research. It appears that Wall Street does indeed like its women (at least when they're on the top management teams of IPO firms), and in this case, Wall Street seems to know its business. The presence of women on the top management team of IPO firms is growing, and that may result in better performance of IPO firms and more opportunities for skilled female executives.

In fact, the results of this study may say more about the exodus of highly qualified women from larger firms to smaller organizations than anything else. Although only speculative, the results may be the result of very highly qualified women (perhaps more qualified than the

level of men that can be attracted to these firms) working for IPOs. If a smaller, riskier company has the choice of a very qualified women and a less qualified male employee, the choice of the female should help the organization. As noted in the popular press articles, women seem to agree that a glass ceiling of some sort still exists. Perhaps highly talented women are leaving the firms with such a ceiling, moving to more entrepreneurial firms, and helping those organizations in ways that benefit the firm in both the short and long run.

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