

## Women on the Board: Diversity and Firm Performance

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### Abstract

While there have been significant increases in recent years in the independence level on boards due to stricter regulations, there have been modest increases in women and minority board memberships. Women directors have accounted for 15% of all directors sitting on S & P 500 firms and just 9% for small-cap firms the last few years. Several recent studies have examined the possible relationship between the size and composition of the board of directors and firm performance. Specifically, a study of S & P 500 firms (Lee, Carlson 2008) shows that firms with relatively higher levels of independence on their boards perform significantly better. Adams and Ferreira (2009) conclude that gender diversity is helpful only for firms with weak governance. Is the board more effective when there is an inclusion of different views and perspectives? This study reports the inclusion of women on the board in different economic sectors and examines the possible effects of board gender diversity on firm performance.

### I. Introduction and Background

Many studies have addressed board size and composition and possible effects on firm performance. The average board independence levels have been steadily rising, to 78% in 2008, up from 74% in 2007 and 72% in 2003. The percentage of companies, whose boards are at least two-thirds independent, rose to 85% in 2008, a 7% increase from 2007. In an examination of the board structure of nearly 7,000 firms, Linck et. al (2008) find that since the passage of SOX, there has been an accelerated trend toward more independent boards and larger boards. With this trend, there is also some increasing pressure to select female directors to increase the diversity composition of the board.

Several corporate governance experts believe that the different views and perspectives brought about by a more diverse board may lead to greater corporate success, for all its stakeholders. TIAA-CREF's *Policy on Statement on Corporate Governance* states that the board should be composed of qualified individuals and should reflect diversity of experience, gender, race, and age. [TIAA-CREF] Also, the California Public Employees' Retirement System (CalPERS), the nation's largest public pension fund, recommends that the board consider the mix of director characteristics, experiences, diverse perspectives and skill when nominating individuals to the board. [CalPERS] In a report commissioned by the British Department of Trade (Higgs, 2003), it is recommended that firms actively draw new board members from professional organizations that have major female representation. In Sweden, the government has strongly encouraged at least 25% gender diversity on boards of firms in their country. On the other hand, adding diversity encourages larger board sizes. Cheng (2008) suggests that the larger the board size, the less variability of corporate performance. Their results are consistent with the view that it takes more compromises for a larger board to reach a decision, which may not be in the best interests of shareholders.

A recent study of S & P 500 firms [Lee, Carlson; 2007] shows that firms with the most

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independent boards perform significantly better than firms with less independent boards. Independent directors may be more likely to monitor management more effectively by challenging management if it appears that the value of the firm is not being maximized. As a result, the presence of outside or independent directors may decrease agency costs experienced by most firms, and should increase the overall performance and value of the firm. In another study using a sample of small-cap firms of the Super S & P 1,500 Lee (2008) finds no significant relationship between the level of independence on the board and firm performance. In relatively smaller firms, the goals of management and shareholders may be more aligned than that in larger firms such as the S & P 500. In many cases with small-cap firms, management may have significant shareholdings in the firm and therefore have a vested, perhaps also emotional, interest in the performance and value of the firm.

Adams and Ferreira (2009) find that the relationship between gender diversity and firm performance is not a simple one. Diversity appears to have a positive impact on performance in firms that have “weak” governance, as measured by the firm’s ability to resist takeovers. Conversely with firms that have strong corporate governance the higher gender diversity appears to decrease firm value.

While there have been significant increases in recent years in the independence level on boards due to stricter regulations, there have been modest increases in women and minority board memberships. Women directors have accounted for 15% of all directors sitting on S & P 500 firms, unchanged for the last several years. For small-cap firms in the S & P “Super” 1,500 firms, only 9% of board members in 2008 and 2007 are women, a small increase from 8% in 2006. Twelve percent (12%) of the boards of S & P 500 companies are held by minorities in 2008, up from 11% in 2007. However the percentage of S & P 500 companies that have at least one minority on its board increased from 59% 2007 to 69% in 2008. Diversity on boards is likely hindered by the scarcity of women in the executive suites from which companies recruit. Less than 1% is held by female CEOs, and the same holds true for minority CEOs. Because relatively few women hold top executive positions, companies are competing for the same individuals to fill board vacancies (RiskMetrics, 2008).

Historically, different types of businesses tend to attract and employ more women than others. The consumer discretionary sector has a very long history of employing women and therefore has a higher percentage of women in top management positions. On the other hand, the information technology sector, a younger economic sector, has been dominated by male employees and males in top management. With the motivation for an increase in gender diversity on corporate boards, how have businesses reacted? With regulation for higher independence on corporate boards, are women (many times, independent by definition) being chosen as new members? Can any positive effect on firm performances be seen because of recent board structure changes? It is possible that the perspectives offered by a diverse board might influence the decision making process in a direction that it would not otherwise follow. *Does diversity increase firm value?*

## **II. Data and Methodology**

The board composition characteristics and firm performances are examined for firms in two economic sectors: consumer discretionary sector and information technology sector. The

companies identified in these two sectors are classified according to the S & P categories of ten (10) economic sectors. As noted, these two economic sectors represent the lowest and highest composition respectively, of women in their workforce and in the boardroom. Specifically, as noted in Table I, the mean women board member percentages are over 13% and about 8% for the consumer discretionary and information technology sectors, respectively. This study examines 358 firms: 183 from the consumer discretionary sector and 175 from the information technology sector. Board characteristics including board size, board independence levels, and female board member percentages are collected. In addition, return on assets (ROA), industry average ROA's, market-to-book (i.e., price/book), and total assets are collected for each firm. Board composition data for 2008 are identified from the Investor Responsibility Research Center (IRRC) *Board Practices 2009 Edition*, and later confirmed in the firm's 10K report on the SEC Edgar Database. Firm ROA, industry ROA, market-to-book and total assets for 2008 are collected from the *Compustat* tapes.

As used in several studies [Lee (2008), Lee, Carlson (2007), Eisenberg et. al (1998) and Yermack (1996)], an industry-adjusted return on assets (ROA) is used as one of the firm performance measures for the fiscal period ending in 2008. This industry-adjusted ROA [Firm ROA – Industry ROA] is used as a relative firm performance measure. To consider future growth prospects of the sample firms, the market-to-book measure is also used as a proxy for firm performance.

In Table I the entire sample of 358 firms includes firms from two economic sectors that have historically different levels of women in their workforce, upper management, and also in the boardroom. The consumer discretionary sector includes firms such as Darden's Restaurants, Fossil, Mattel, Nordstrom, Polaris Industries, and Wyndham Worldwide Corp. The information technology sector includes firms such as Adobe Systems, Apple, Citrix Systems, Google, Microchip Technology, and Sandisk Corp.

In addition, within each sector, the largest and smallest firms are examined in this study: S & P 500 firms (i.e., relatively large) and small-cap firms in each of the two sectors. Analysis of variance (ANOVA) tests are performed to determine if there are significant differences in the variable means between the two sectors. Two sets of least-squares regressions are estimated using the industry-adjusted ROA as the dependent variable in one set and market-to-book ratio in the other set. These two different measures of firm performance are used to capture the most recent year's performance and the benefits of future growth prospects of a firm through the market to book ratio. The explanatory variables include log of board size, log of total assets, percentage of independence on the board, and the percentage of women board members. If gender diversity enhances firm performance, then a positive relationship would be expected between the industry-adjusted ROA or market-to-book measure and the percentage of women on the board.

### **III. Results**

In the consumer discretionary sector, firms have significantly higher board sizes than firms in the information technology sector. Most new women and minority board members added in the last few years have been considered independent by the definitions outlined by SOX and the exchanges. New women and minority directors tend to be more independent than other

new additions to the boards. Specifically ninety-two (92%) percent of women directors and eighty-eight (88%) percent of minority directors are independents, compared with seventy-eight (78%) percent of all directors. Because of this many times larger board sizes are due to the result of adding more independent members. However, this does not appear to be the case since the level of board independence is actually significantly ( $p=10\%$  level) higher for information technology firms but the level of female board representation is significantly ( $p=5\%$  level) lower. Specifically there is board independence of 75% for the consumer discretionary sector and 77% for the information technology sector, but female representation is 13.4% vs. 7.9%, respectively. It appears that the boards of information technology firms have increased independence levels but not due to adding female board members.

In comparing the mean variables between the two sectors, the most significant difference is between the levels of female representation on boards: over 13% women on consumer discretionary boards but less than 8% representation on boards of information technology boards. There is not a significant difference in firm size, as represented by total assets, between firms of the two economic sectors.

There are significant differences in means between sectors using both firm performance measures. The consumer discretionary firms performed significantly better than information technology firms (when adjusted by industry averages); industry-adjusted ROA's significantly higher at the 5% level and market to book ratios higher at 10% level of significance.

As shown in Table II, the firms are subdivided into large and small-cap firms within each sector in an attempt to examine the differences and possible effects of gender diversity in different size firms in very different working environments (i.e., historically different levels of women in the respective workforce and management). Lee (2008) concludes that the firm performance of small-cap firms is not significantly affected by the level of board independence, unlike the case of S & P 500 firms (Lee, Carlson 2007). The need for more independence and objective outside monitoring may be needed with larger firms but not for smaller firms. In smaller firms, the insider holdings of firm ownership is significantly higher, motivating lower agency costs. Therefore potential positive effects (i.e., agency cost reducing effects) of a more independent board may be small for small-cap firms.

Table II shows that board sizes are significantly higher for both S & P 500 firms and the small-cap firms in the consumer discretionary sector than the respective-size firms in the information technology sector. Is this due to the higher representation of women on the boards of these firms? Perhaps, since for both S & P 500 firms and small-cap firms, the percentage of women board members is significantly higher for consumer discretionary firms over that of the firm technology firms of respective size. In 2008, eighty-seven (87%) percent of S & P 500 boards but only 54% of small-cap firms include at least one woman. [Riskmetrics, 2009]. The firm technology sector firms, both large and small, have board independence levels similar to the average for all economic sectors of their respective firm size. Within each firm size category there are no statistically significant differences in total assets, or board independence levels.

The most significant differences between the variable means are in the women board member percentages in both firm size categories: S & P 500 vs. small-cap firms. For larger S &

P 500 firms, the consumer discretionary sector firms have an average of almost 18% gender diversity on their boards whereas the information technology sector firms have an average of about 12%. For small-cap firms, the consumer discretionary sector firms have an average of about 10% women board representation whereas the information technology sector firms have an average of only half that, 5%. It would seem that, especially given the history of low gender diversity in the information technology sector, it is likely that a new woman board member would qualify as “independent”. So it appears that *the independence on the boards of information technology firms was not brought about by selecting more female members.*

The industry-adjusted return on assets, a firm performance measure, was significantly different between sectors in the small-cap firm sample. Specifically the mean industry-adjusted ROA for the consumer discretionary sector firms was -1.91%, significantly higher than the mean -7.81% for the information technology sector firms. There were significant differences between sectors in the percentage of women board members in the small-cap sample also; 10% for consumer discretionary sector firms vs. 5% for information technology firms. Even though the percentage of women board members was significantly higher in the S & P 500 firm sample also, there was no significant difference in the industry-adjusted ROA (i.e., firm performance). This may suggest that the inclusion of more women on boards, such as in the consumer discretionary firms, has been beneficial to firm performance of relatively smaller firms. It may be due to the nature and history of the sector firms that adding female representation adds more benefit in the consumer discretionary sector than perhaps in a historically male-dominated sector, such as information technology. As more women enter technology fields, this will, most likely, change. In addition it is probably more difficult to find female executives to add to firms' boards in technology fields. The ANOVA results are supported by the results of a non-parametric test, the Mann-Whitney U Test. The null hypothesis of equality among the variables between the firms of the two economic sectors was rejected at the significance level of 5% for three variables: board size, level of female percentage, and the industry-adjusted ROA.

If the level of gender diversity on corporate boards enhances firm value by providing broader, objective views to the decision-making process, then a significant positive relationship would be found between a firm performance variable (such as the industry-adjusted ROA or market-to-book ratio) and the percentage of women on the board.

Several regressions, partitioning the sample by sector and size, were run using a firm performance measure as the dependent variable. Using an industry-adjusted ROA, the only variable that appears to have a significant effect on firm performance is the level of board independence. Specifically, for large firms (S & P 500) in the information technology sector the relationship between firm performance and the level of board independence is negatively significant ( $t = -2.614, p=0.011$ ). This holds true for both large and small cap information technology firms when a market-to-book ratio is used as the firm performance measure ( $t = -2.825, p=0.006$ , and  $t=-2.387, p=0.019$ , respectively). On the other hand, for small cap consumer discretionary firms, the relationship between the level of board independence and the firm performance measure, market-to-book ratio, appears to be a positive relationship ( $t = 3.054, p = 0.003$ ).

These findings suggest that having independent, more objective input from directors may enhance firm performance of small cap firms in the consumer discretionary sector. However, firm performance of information technology firms, irrespective of size, may actually be harmed by more outsiders on the board. Perhaps, given the nature of the technology field, it may be important to have experts familiar with the firm's particular set of products unique to that firm. The benefit of familiarity and knowledge appears to outweigh the benefits of diversity and any reduction in agency costs. These regression results suggest that perhaps there is little, if any, benefit to having a diverse board composition except in the case of small cap firms in the consumer discretionary sector.

#### **IV. Conclusion**

This study extends the discussion and evidence on gender diversity of corporate boards. Specifically, board characteristics and firm performance are examined using firms from two different economic sectors, consumer discretionary and information technology sectors. The consumer discretionary sector includes firms that historically employ larger percentages of women whereas the information technology sector has been male-dominated in their workforce and top management. There are significant differences between the two sectors in board sizes and percentage levels of women on their respective corporate boards. In the small-cap firm sample it appears that there may be benefits to gender diversity on boards. With the presence of significantly higher percentages of women on the board in the consumer discretionary sector, there was a significantly higher mean firm performance, as measured by two different firm performance measures, higher than those firms in the information technology sector. This possible benefit did not appear in the sample of relatively larger firms, the S & P 500 firms. This study provides some interesting points in the examination of the potential positive effects of diverse viewpoints on firm performance. By adding more economic sectors and mid-cap firms to a future study, perhaps more conclusions can be drawn on the board diversity/firm performance question.

**TABLE I**  
**Descriptive Statistics of Entire Sample**  
**Includes ANOVA Results**  
**Divided by Sector: Consumer Discretionary**  
**vs. Information Technology**

Variable Mean (Standard Deviation)	Consumer Discretionary N = 183	Information Technology N = 175
Board Size *	9.08 (2.322)	8.19 (2.084)
Total Assets (\$ millions)	7450.10 (21619.23)	5899.84 (15426.91)
Board Independence % **	75.27 (11.629)	77.42 (10.076)
Women Board Member %*	13.35 (10.075)	7.90 (9.989)
Industry-Adjusted Return On Assets (ROA)*	-0.0877 (13.999)	-4.8442 (16.952)
Market to Book Ratio **	4.4088 (7.70787)	3.4020 (3.45755)

\* Significant difference in Means between the two Sectors at the 5% level of Significance. Similar results are found using the non-parametric test, Mann-Whitney U Test, showing significance between sectors for the same three (3) variables: board size, female board percentage, and industry-adjusted ROA.

\*\* Significant difference in Means between the two Sectors at the 10% level of Significance.

Five (5) variables, board size, board independence percentage, female board member percentage, industry-adjusted ROA, and market-to-book were significantly different between the consumer discretionary sector firms vs. the information technology sector firms.

**TABLE II**  
**Descriptive Statistics and ANOVA Results**  
**Consumer Discretionary and Information Technology Sector**  
**Firms Divided by S & P 500 Firms (N = 144)**  
**vs. Small-Cap Firms (N = 214)**

Variable Means (Standard Deviations)	Consumer Discretionary S & P 500 n=77 Small-Cap n=106	Information Technology S & P 500 n=67 Small-Cap n =108	Total N=358
Board Size			
S & P 500 *	10.67 (1.998)	9.56 (2.156)	10.16 (2.137)
Small-Cap **	7.90 (1.781)	7.37 (1.538)	7.63 (1.678)
Total Assets (\$ millions)			
S & P 500	16438.07 (31044.64)	14538.53 (22677.55)	15561.36 (27424.97)
Small-Cap	795.55 (751.42)	669.08 (832.27)	730.83 (794.49)
Board Independence %			
S & P 500	78.02 (10.312)	79.37 (9.557)	78.64 (9.962)
Small-Cap **	73.23 (12.168)	76.23 (10.239)	74.76 (11.302)
Women Board Member %			
S & P 500 *	17.61 (7.970)	12.41 (9.557)	15.23 (9.083)
Small-Cap **	10.17 (10.335)	5.17 (9.264)	7.63 (10.097)
Industry-Adj ROA			
S & P 500	2.3482 (11.059)	0.614 (13.841)	1.2927 (12.428)
Small-Cap **	-1.9086 (15.651)	-7.8145 (18.002)	-4.9451 (17.118)
Market/Book Ratio			
S & P 500	4.8477 (9.2927)	4.7655 (4.63683)	4.8134 (7.4182)
Small-Cap **	4.8019 (6.8065)	2.4976 (1.9255)	3.2788 (4.2728)

\* For these S & P 500 firms, there were significant differences between means of the two sectors for two (2) variables: board size and female board %.

\*\* For these Small-Cap firms, there were significant differences between means of the two sectors for five (5) variables: board size, board independence %, female board %, industry-adjusted return on assets (ROA), and market-to-book ratio.

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