

**The Influence of Women in Business:  
Is a Higher Percentage of Women on a  
Company's Board of Directors Associated with  
the Absence of Internal Control Weaknesses?**

The Honors Program  
Senior Capstone Project  
Student's Name: Jamie Goyette  
Faculty Sponsor: Charles Cullinan  
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**ABSTRACT**

Research shows that larger, more profitable and more visible companies are less likely to disclose internal control weaknesses. Firms with similar characteristics tend to hire more female board members. This paper examines whether there is an association between companies that have a higher percentage of female board members and the disclosure of internal control weaknesses. Such an association signifies the importance of board diversity because diversification strengthens corporate governance, promoting a more productive and trustworthy company. In this study, a sample of 500 randomly selected companies is examined to determine a possible correlation. The results will determine the validity of the hypothesis that firms with a more diverse board of directors, measured by a larger percentage of female directors, are less likely to disclose an internal control weakness.

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**INTRODUCTION**

Across the United States, corporate executives, investors, and directors generally agree that board diversity should be a consideration to enhance shareholder value, which is improved by various intangibles within a company. One key intangible is diversity, which is also a major factor of good governance. Increasing diversity, beginning with but not limited to gender, allows boards of directors to fulfill their duties and achieve company goals (Brancato and Patterson, 1999, 3). Douglas Branson's *No Seat at the Table* identifies the lack of diversity of boards as a serious issue, which if addressed properly, may improve decision-making by offering a variety of perspectives, reducing negative stereotypes regarding women, and motivating women and minorities to obtain higher corporate positions (Broome, 2008, 666). This paper will discuss internal control reporting, corporate governance, board diversity, and the role of women on boards of directors and in business in general.

Recent research shows that strong governance is directly related to financial reporting quality of companies (Cohen et al., 2007, 166). Corporate governance describes the ways in which boards of directors are permitted to act and fulfill their corporate duties, which involves the processes of nomination, election, and removal of top management (Branson, 2007, 129). "The recent crisis in confidence in large corporations has given renewed attention to corporate social responsibility, corporate governance, and the composition and roles of boards of directors." In these debates, "the inclusion of women and employee-elected members on corporate boards is often suggested" (Huse et al., 2009, 581).

The objective of this paper is to determine whether companies with one or more female board members are less likely to disclose an internal control weakness. To reach a conclusion, data from 500 randomly selected firms is analyzed for a correlation. Research shows that larger, more profitable and visible companies will employ a greater number of female directors because of a stronger focus on diversity in the workplace. The same characteristics are present in companies that typically do not disclose internal control weaknesses; statistical analysis shows that companies disclosing material weaknesses are generally more complex regarding operating segments and the presence of foreign currency translation, smaller, and less profitable than companies that do not report internal control weaknesses (Ge and McVay,

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2005, 138). Although there is some tension in the literature, the general hypothesis is that companies with a larger percentage of female board members are less likely to disclose internal control weaknesses

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**LITERATURE REVIEW**

Internal Control Reporting

Section 404 of the Sarbanes-Oxley (SOX) Act of 2002 requires public company management and auditors to assess and report on the effectiveness of internal control regarding financial reporting. In addition to the annual reporting required by Section 404, the principal executive and financial officers of publicly-traded companies must submit quarterly reports mandated by Section 302 of SOX. According to guidelines of the Securities and Exchange Commission (SEC) and Public Company Accounting Oversight Board (PCAOB), the existence of a material weakness implies that internal controls are ineffective (Schneider et al., 2009). A material weakness, as defined by the PCAOB, is "a deficiency, or combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of the company's annual or interim financial statements will not be prevented or detected on a timely basis" (PCAOB, 2007, par. A7).

The Securities and Exchange Commission defines internal control as "a process, effected by an entity's board of directors, management and other personnel, designed to provide reasonable assurance regarding the reliability of financial reporting" (US SEC, 2004). According to its definition, proper internal control should result in more reliable and accurate financial reporting. Good internal controls attempt to prevent and detect errors that may otherwise produce misstatements of financial information (Doyle et al., 2006a, 1144). Recent literature finds that more effective internal control results in more complete and accurate financial reporting, with an effort to specifically reduce errors due to fraud (Elbannan, 2007, 4).

Statistical analysis shows that companies disclosing material weaknesses are generally more complex regarding operating segments and the presence of foreign currency translation, smaller, riskier, and less profitable with weaker boards and audit committees than companies that do not report internal control weaknesses (Ge and McVay, 2005, 138 and Schneider et al., 2009, 3). In addition, there is an association between the presence of a material weakness and whether a company is audited by one of the Big 6, now Big 4 auditors. Research shows that almost 40 percent of companies reporting material weaknesses also report company-level

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weaknesses, most likely due to a correlation between internal control weaknesses and financial management issues. Company-level weaknesses are related to macro-level issues of the firm, including the overall control environment and the financial reporting process. Material weaknesses at the company-level call into question management's ability to control the company's operations and properly prepare financial statements (Doyle et al., 2006b, 18). It is expected that smaller, riskier, financially pressured companies disclose internal control weaknesses because such companies have fewer financial resources and less human capital to invest in improving internal control (Schneider et al., 2009, 3).

Corporate Governance

Corporate governance relates to the ways in which boards of directors are permitted to act and fulfill their corporate duties. This includes the nomination, election, and removal of top management (Branson, 2007, 129). Research shows that strong governance relating to the mentioned characteristics is directly associated with financial reporting quality (Cohen et al., 2007, 166). The traditional lengthy board service, low turnover, and predominance of male directors changed in the 1980s. The American Law Institute's *Principles of Corporate Governance and Structure* recommends that newly independent boards should hire and monitor senior executives. According to this principle, good governance focuses less on the traditional executive committee and instead suggests the establishment of three principal board committees—the audit committee, nominating committee, and compensation committee (Branson, 2007, 134-6). Research and results from previous studies show that boards of directors are typically homogenous compared to the societies in which they operate. This signifies poor governance and an important missed opportunity for many firms (Luckerath-Rovers, 2009, 3).

Recent focus on the trustworthiness of companies generates more interest in corporate governance and the importance of diversity. According to recent data analysis, women seem to have a significant impact on corporate governance of a board of directors. More gender diverse boards tend to question accountability for poor performance more often than homogenous boards (Adams and Ferreira, 2009, 292). The general consensus is that a

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positive link exists between board diversity and financial performance to create shareholder value (Carter et al., 2003, 35).

Roles of Boards of Directors

Boards of directors often influence strategic decisions and company direction. They represent shareholders and monitor wealth management, hiring, compensation, and actions of top management (Erhardt et al., 2003, 104-5). One major responsibility of a board of directors is to oversee the actions of a firm's management and protect the interests of shareholders. They provide assurance that the appropriate controls and the proper reporting processes are in place. Characteristics of board members and audit committees are associated with good corporate governance, regarding diligence and independence (Bernardi et al., 2006, 235 and Hoitash et al., 2009, 842). Boards of directors provide the opportunities and structure for members to fulfill corporate governance duties and provide firm accountability. Since the implementation of Sarbanes-Oxley in 2002, the United States has imposed additional regulations regarding board committee member selection. Publicly traded companies must maintain director independence regarding the absence of relationships with the company or its auditors (Peterson, 2007, 180). Results of Cohen's study suggest that a stronger focus on monitoring by the board of directors may lead to better quality internal controls within a company (2007, 169).

Board Diversity

Across the United States, corporate executives, investors, and directors generally agree that board diversity should be a consideration to enhance shareholder value, which is improved by various intangibles within a company. One key intangible is diversity, which is also a major factor of good governance. Increasing diversity, beginning with, but not limited to, gender, allows boards of directors to fulfill their duties and achieve company goals (Brancato and Patterson, 1999, 3). Although financial performance cannot be solely attributed to the diversity of a board of directors, significant arguments for diversity exist, particularly to improve shareholder value with better workplace dynamics and customer satisfaction. However, the concept of diversity expands beyond solely gender and race (Brancato and Patterson, 1999, 7). Board composition relating to gender can significantly affect the quality



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of the board's monitoring role and consequently the firm's financial performance. Various factors may alter the effectiveness of boards of directors, such as board member qualifications and experiences, and external contacts with valuable resources. The increasing presence of women as board members may increase shareholder value if women contribute relevant perspectives and experiences to corporate decision-making. However, this can have an adverse effect if women are simply appointed to fill a gender quota and not actually offering more to the company (Campbell and Minguez-vera, 2008, 435).

Diversity is important for value creation. The major push for gender diversity is supported by the assumption that women provide a more positive impact on strategic issues and corporate social responsibility. Women are also assumed to have a more questioning attitude, consequently contributing more to discussions and debates among other board members (Huse et al., 2009, 581-3). Diversity leads to a broader knowledge base, increases creativity and innovation, equating to a competitive advantage for companies. Gender and occupational diversity also leads to greater community involvement and social performance. On the contrary, some literary research suggests that heterogeneous groups produce more conflict and take additional time to reach a consensus (Erhardt et al., 2003, 103).

Regarding board diversity and value creation, findings show that corporate diversity allows for a more in depth understanding of the current market, which is becoming increasingly more diverse. Therefore, matching the diversity of a board of directors for a firm with the diversity of current customers and suppliers increases potential success and profitability. Corporate diversity enhances the efficiency of corporate leaders by offering a broader perspective of experiences and solutions to resolve conflict. A more diverse board of directors will be more active in challenging traditional views of the previously white, dominant male leaders (Carter et al., 2003, 36-7). Research shows that greater board diversity may result in a competitive advantage in relation to firms without diverse boards due to the previously stated understanding of the increasingly diverse market (Campbell and Minguez-vera, 2008, 439).

Douglas Branson's *No Seat at the Table* identifies the lack of diversity of boards of directors as a serious issue, which if addressed properly, may improve decision-making by offering a

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variety of perspectives, reducing negative stereotypes about women, and motivating women and minorities to achieve higher corporate positions (Broome, 2008, 666). As previously mentioned, gender diversity provides the opportunity for new ideas, improved communication, and transformational management styles. Increasing female board members also provides career opportunities for women and increases networking and mentoring across corporations (Terjesen and Singh, 2008, 55, Carter et al., 2003, 36, and Hillman et al., 2007, 944). More female board members allows for women's advocacy groups and the possibility for new relationships to form within the company. Potential benefits of female representation on boards of directors include a greater variety of perspectives, therefore producing alternative solutions to company problems. Gender diversity also reportedly fosters creativity within groups. Although diverse perspectives may result in occasional conflict, the benefits of diversity clearly outweigh possible negative outcomes (Hillman et al., 2007, 943).

The consideration for board diversity spans beyond companies in the United States. Across the world, the focus of governance reform stresses the necessity for gender diversity among boards of directors. In Sweden, companies are required to reserve 25% of board positions for women. In Norway, all publicly-listed companies must reserve 40% of board seats for women or face dissolution. Similarly, Spain recently enforced a law requiring companies to meet a 40% female board member quota by 2015 (Adams and Ferreira, 2009, 291). The results show that other countries recognize the importance of maintaining diversified boards of directors, but this does not necessarily support the need for quota policies in the United States.

The Role of Women in Business

Research shows a significant increase in the number of female board members of Fortune 500 companies from 1977 to 2001. In general, the percentage of women and minorities on boards of directors increases as firm size and board size increase (Carter et al., 2003, 33 and Luckeratch-Rovers, 2009, 7). According to the U.S. Bureau of Labor Statistics (2008), women represented 50.8% of management positions in the workforce, but occupied only 15.2% of board member positions in Fortune 500 companies (Catalyst 2008 & Current Population Survey). Although the percentage of board seats of Fortune 500 companies held

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by women slightly increased over the past ten years, the percentages are relatively low compared to the percentage of women in management positions and in the workforce in general. In Branson's *No Seat at the Table*, he notes that the increasing percentages may be somewhat skewed due to the overall decrease in the number of members on boards of directors during this time period (Broome, 2008, 667).

An analysis of the 1000 United States firms with the largest sales between 1990 and 2003 resulted in the identification of a link between organizational size, industry type, firm diversification and networking and the number of female board members. Although there is literature regarding the increasing number of women in management positions, there is limited research focused on predictors of female representation on company boards of directors (Hillman et al., 2007, 941). The limited data that is available states that larger companies that are more visible to the public are often pressured to increase diversity by offering more leadership positions to women. This also makes the firm's value of diversity appear more legitimate to potential hires and shareholders. Internal organizational factors, such as firm culture, human resource practices, and qualities of those in leadership positions, are likely predictors of increasing numbers of women on boards of directors. Resource dependence theory stresses the relationship between organizations and access to resources in their external environment. Since board members are a primary source of obtaining external resources for a firm, companies may want to have board members with influence or professional connections to such external resources, i.e. women (Hillman et al., 2007, 942). Data analysis shows that more visible companies are indeed more likely to appoint more female board members, which supports the resource dependence theory (Luckerath-Rovers, 2009, 15).

Currently, there is still a huge gap between the number of men and women serving on boards of directors. "The disparity between women and men regarding prevalence in top management positions still prompts debate and study as to the extent of systematic bias against female managers and professionals as they seek positions of increasing authority and responsibility" (Peterson and Philpot, 2007, 177). However, there are numerous arguments in

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favor of more female representation of corporate boards of directors. Data analysis by Adams and Ferreira (2009) shows that women are more likely to have better attendance than men at board meetings. Also, greater percentages of women on a board result in better attendance behavior of men on the board. Attendance behavior is the only measure available for this study to illustrate a behavioral difference between genders. Overall, the presence of women on corporate boards is related to competitive advantage and long-term firm success (Bernardi et al., 2006, 240). Unfortunately, a portion of the first generation female board members are retiring, which generally means retirement from various other boards, according to Catalyst's Donna Manning (2009). This creates a significant shift in boards of directors. With many talented women leaving not only boards but the corporate world to start their own businesses, fewer women are visible candidates for future board positions (Brancato and Patterson, 1999, 13).

## **RESEARCH MODEL**

### Hypothesis

From the review of currently available literature regarding internal control reporting, corporate governance, board of director diversity, and the changing role of women in business, one can hypothesize that there is a significant association between firms with a higher percentage of female board members and firms that do not disclose internal control weaknesses. Companies that are larger and more visible have more of an obligation or responsibility to increase diversity, particularly regarding the board of directors. More profitable and less complex companies have more financial resources and human capital to invest in internal control and hiring practices. Therefore, the hypothesis is that firms with a higher percentage of women on the board of directors are associated with the absence of internal control weaknesses. The purpose of this project is to determine if there is such a correlation and provide information from a unique data analysis. The results may offer important information for the future hiring practices of companies.

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Variable Measurement

To determine whether there is a correlation between the percentage of female board members of a company and the disclosure of internal control weaknesses, a data analysis is conducted. The AuditAnalytics database used for this project contains information regarding variables of 500 randomly selected companies during 2005. To measure whether a company reports an internal control weakness, the INTERNA3 (internal control weakness) variable is coded "0" if there is no internal control weakness and "1" if there is an internal control weakness disclosed. INTERNA4 (internal control - number of weaknesses identified) is used to report the number of weaknesses disclosed by each company. Approximately 12% of the companies reported at least one internal control weakness. To determine the percentage of female board members, DIRECT31 (number of female directors) identifies the number, if any, of female board members. This variable is coded "0" to signify a lack of female directors and "1" or greater to signify the presence of female directors. This number, if greater than or equal to one, is divided by the total number of board members, DIRECT33 (total number of directors), to calculate the percentage of female board members.

Control Variables

Research shows that companies disclosing internal control weaknesses tend to be smaller, less profitable, more complex regarding business segments, and riskier (Doyle et al., 2006a; Ge and McVay, 2005). To control for firm size and visibility, MARKETCAP (company market value) and EMPLOYEES (number of employees) are used. To control for experience, COMPANYA (company age) is used. Ge and McVay (2005) also suggest that companies disclosing internal control weaknesses are more often audited by a larger audit firm. The AUDITOR variable is used to control for any difference regarding disclosures made by companies audited by Big 4 firms versus smaller, regional firms. If the company's auditor is a smaller, regional firm, the variable Big4 is coded as "0." If the auditor is PricewaterhouseCoopers LLP, Ernst & Young LLP, KPMG LLP, or Deloitte & Touche LLP, Big4 is coded as "1." Since research suggests that strong governance is directly related to positive financial performance and Cohen et al. (2007, 166) and Adams (2009, 292) report that women seem to have a significant impact on corporate governance of a board of directors, GOVPOLIC (existence of a governance policy) is used to control for companies

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with an established policy regarding corporate governance. GOVPOLIC is coded as “0” for companies without an established governance policy and “1” if the data indicates govpol = “Yes.” CFOTENUR (CFO tenure) is used to further control the likelihood of internal control weakness disclosure because the general rationale is that a chief financial officer with a longer tenure would have more experience and operate a company that is less likely to report an internal control weakness.

Data Analysis

The first step of the data analysis involves a t-test to compare the means for each variable. The tests will determine the percentage of companies with and without disclosure of an internal control weakness that have at least one woman on the board of directors. They will also show the number and percentage of women on the board of directors for companies with and without disclosure of internal control weaknesses. The t value and significance will also be determined. The second step involves a logistic regression to determine if the probability of a firm having an internal control weakness is higher for firms that have a greater percentage of female board members, after controlling for various firm characteristics that are hypothesized to be associated with internal control weakness. Internal control weakness is a dependent variable that indicates a value of one if a firm reports an internal control weakness and a value of zero if the firm does not report an internal control weakness. To determine the correlation between disclosure of an internal control weakness and the presence of at least one woman on the board, the number of women on the board, and the percentage of women on the board, there are three models:

Model 1: (model icw = woman marketca employee companya govpol cfotenur)  
Internal control weakness is a function of the existence of females on the board of directors, company market value, number of employees, company age, auditor, existence of a governance policy, and CFO tenure.

Model 2: (model icw = direct31 marketca employee companya govpol cfotenur)  
Internal control weakness is a function of the number of women on the board of directors, company market value, number of employees, company age, auditor, existence of a governance policy, and CFO tenure.

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Model 3: (model icw = prwm marketca employee companya govpol cfotenur)  
Internal control weakness is a function of the percentage of female board members, company market value, number of employees, company age, auditor, existence of a governance policy, and CFO tenure.

## **RESULTS**

### Bivariate Results: (t-tests)

The results of the t-tests generally support the hypothesis that companies with women on the board of directors are associated with fewer internal control weaknesses. The data in Appendix B shows that 68.18% of companies without an internal control weakness have at least one woman on the board of directors, which is greater than the 56.67% of companies that disclose an internal control weakness and have at least one female on the board. For companies with and without internal control weaknesses, the average number of women on the board of directors is approximately one. The percentage of female directors for companies without an internal control weakness is slightly greater at 10.31%, compared to the percentage for companies disclosing an internal control weakness at 8.59%. There is little significance regarding the results of testing the number (0.2412) and percentage of women (0.1749) on the board of directors, but there is marginal significance (0.0759) regarding the presence of at least one woman on a board of directors. This proves that although the actual number or percentage of female directors does not have much of an effect on the presence of internal control weaknesses, the presence of at least one woman on a board does have an impact on the likelihood that the company discloses internal control weaknesses.

### Logistic Analysis Results:

Similar to the results of the t-tests, the results of the logistic analysis prove the significance of having at least one woman on the board of directors. Apparent in Appendix C, there is significance (0.0419) regarding at least one woman on the board of directors, tested in Model 1. There is little to no significance with the variables tested in Models 2 and 3, with p values above 0.20. The impact of the number and percentage of women on the board of directors does not appear to have significance. Also, the market value, number of employees, existence of a governance policy, and CFO tenure do not have enough impact on the likelihood of disclosing internal control weaknesses. Consistent with recent literature, the impact of

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company age on the disclosure of internal control weaknesses results in marginal significance. In Model 1, the significance of the impact of company age on the disclosure of internal control weaknesses is 0.0344. Testing Model 2 and Model 3 result in a significance of 0.0559 and 0.0533, respectively. This corresponds to the research suggesting that companies with more years of experience in the industry are less likely to disclose internal control weaknesses.

Limitations

Several limitations are present in this study. The database used does not include variables regarding the educational background or previous work experience of board members, which would offer additional aspects of diversity beyond gender. Although board diversity is typically defined as the percentage of women, African Americans, Asians, and Hispanics on the boards of directors, (Carter et al., 2003, 33) the data gathered by Auditanalytics is limited to the percentage of female board members. The information in the database is from 2005 and significant changes may have occurred since the data was collected. Literature also suggests an opportunity for further research regarding communication between the auditors and the board of directors, which may affect the reporting of internal control weaknesses (Cohen et al., 2007, 176). This is a possible topic for another study that further analyzes the effects of diversity on the presence of internal control weaknesses.

Conclusion

The logistical analysis proves that companies reporting internal control weaknesses are less likely to have women on the board of directors. According to the data in Appendix B, the relationship between companies with at least one woman on the board of directors and those companies disclosing an internal control weakness is marginally significant. Therefore, the presence of at least one woman on a company's board of directors makes a difference. The results of the data analysis are consistent with research; larger, more visible companies that have at least one woman on the board of directors are associated with the absence of internal control weaknesses.



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**APPENDICES**

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Appendix A – Descriptive Data

Percentage of Companies with at Least One Woman on Board of Directors (standard deviation)	66.8% (0.471)
Average Percentage of Females on Board of Directors (standard deviation)	10.1% (0.092)
Average Number of Females on Board of Directors (standard deviation)	1.02 (0.962)

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Appendix B – T-Tests: Internal Control Weakness

<b>Variable</b>	<b>Yes</b>	<b>No</b>	<b>t Value</b>	<b>Pr &gt; t (Significance)</b>
<b>At Least One Woman on Board</b>	56.67%	68.18%	1.78	0.0759
<b>Number of Women on Board</b>	0.88	1.04	1.17	0.2412
<b>Percentage of Women on Board</b>	8.59%	10.31%	1.36	0.1749

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Appendix C – Logistic Analysis

Dependent variable: whether there is a material weakness

	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>
<b>At Least One Woman on Board (p value)</b>	-0.6907 (0.0419)	—	—
<b>Number of Women on Board (p value)</b>	—	-0.1835 (0.3249)	—
<b>Percentage of Women on Board (p value)</b>	—	—	-2.1924 (0.2456)
<b>Market Cap (p value)</b>	0.0000 (0.2930)	0.0000 (0.2619)	0.0000 (0.2835)
<b>Number of Employees (p value)</b>	0.0000 (0.3484)	0.0000 (0.3266)	0.0000 (0.3240)
<b>Company Age (p value)</b>	0.00753 (0.0344)	0.00677 (0.0559)	0.00680 (0.0533)
<b>Existence of Governance Policy (p value)</b>	-0.2433 (0.5342)	-0.3464 (0.3725)	-0.3360 (0.3858)
<b>CFO Tenure (p value)</b>	-0.0325 (0.4122)	-0.0284 (0.4691)	-0.0297 (0.4504)

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