Gender Equality and Women Directors: A Cross-Country Review

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Abstract

I survey research on gender diversity and board of director composition around the world. While significant research has been performed on the determinants of board composition, little research has been performed concerning the impact of gender diversity on international corporate boards. Gender equality differences may offer a clearer way to explain the differences in firm performance and board composition in an international setting. Therefore, this paper also examines gender diversity measures to use in future research to assess board diversity and composition for international firms.

1 Introduction

Many view the board of directors as the cog in the wheel of corporate governance. The directors are responsible for the hiring, firing and monitoring of management and much research has been done on the composition of the board and its effect on firm value. Prior analysis has been conducted on board composition and board gender diversity but no cross-country analyses have been performed examining the impact of gender equality on board composition and firm performance.

Worldwide we see a push to create more gender diverse boards. In its beliefs that diversity of corporate boards is beneficial to firms, we see countries such as Norway mandating a minimum of 40% female board members with compliance by the end of 2008. Following Norway's lead, Spain enacting a law requiring 40% gender quota for females mandating compliance by 2015. Hendrick and Struggles (2009) report Sweden and Finland now have over 20% female directors with an overall increase for countries in their report from 12% to 22% since 2005 (Figure 1). In addition, their statistics show for 2009 indicate that one (1) European company out of three (3) equivalent to 31% had no women board members (Figure 2) which is a significant decrease from 46% in 2005 and 54% in 2003 (Hendrick and Struggles, 2009). In all, there has been a notable move towards female directors worldwide in the recent years.

Without truly understanding the benefits of board gender diversity, mandated gender quotas and the increase in female directors could have the result in reducing firm value not enhancing it. However, studies have yet to fully evaluate the impact of females on boards nor have they looked at the cross-country impacts and determinates of these impacts. Is it possible that agency costs are greater due to gender inequality?

This paper looks at the development of research on boards and directors and forms the basis of analysis on the impact of gender diversity on board composition. It adds to the current literature by expanding to a cross-country review and includes gender diversity as a control parameter to analyze the impact of female directors. As this paper serves primarily as a literature review no analysis is presented; however, the data and methods of future analysis are presented as well as anticipated empirical results.

The remainder of this paper is organized as follows: Section 2 provides a literature review including U.S. board composition, international board composition, board diversity, women in the boardroom and gender equality. Section 3 presents hypotheses for future research. Section 4 contains the proposed data and methodology for research and Section 5 includes expected empirical results.

2 Literature Review

2.1 Board Composition

Board composition has been highly researched beginning with Jensen and Meckling (1976) who established the view that the firm is a nexus of contracts. They pose that conflict between agents and shareholders can reduce firm value and controlling this conflict is key in reducing agency costs and maintaining firm value, a role bestowed upon the firm's board of directors.

Fama and Jensen (1983) pose that the board of directors of a firm are crucial in controlling managers to ensure the separation of decision management and control. They hypothesize that inside board members serve as an effective measure of decision control; however, they can also serve as a barrier to independent decision making. In addition, Fama and Jensen (1983) establish that outside board members have incentives, based on preserving a good reputation, to maintain

high performance and not collude with management thus ensuring effective monitoring of the firm. These outside directors also serve as mediators between inside managers to resolve disagreements resolving major agency conflicts.

Hermalin and Weisbach (1991) build on the board's role as monitors of the firm and question the effectiveness of the board using Tobin's Q as a measure of firm performance to proxy for the market view of the firm's corporate governance. Hypothesizing that the board's ability to monitor is dependent on the board composition the authors find no relation between board composition and firm performance. They note their finding is inconsistent with other corporate governance literature that find outside directors play an important role promoting shareholders interests effectively monitoring firm management (Brickley, Coles, Terry 1991). Research continues to evaluate the impact of board composition on monitoring and firm performance.

In addition to their 2000 publication Hermalin and Weisbach (2003) provide a comprehensive literature review on boards of directors. They summarize their review into four main findings:

1. Board composition is not related to firm performance
2. Board size is negatively related to firm performance
3. Board composition and size are related to the quality of board decisions (CEO replacement, acquisitions, poison pills, executive compensation)
4. Changes in board members is often times related to CEO turnover, poor firm performance and changes in ownership structure

More recent literature on board composition includes Boone, Field, Karpoff and Raheja (BFKR, 2007) who test three hypotheses that group current hypotheses on board composition. These include:

- Scope of operations - board structure is driven by complexity of operations [Fama and Jensen (1983), Coles, Daniel and Naveen (2007) and Lehn, Patro and Zhao (2005)]
- Monitoring - specific business environment drives board composition [Demsetz and Lehn (1985), Gillan, Hartzel and Starks (2004), Raheja (2005) and Harris and Raviv (2007)]
- Negotiation - board composition is dependent on CEO and board negotiations [Hermalin and Weisbach (1998), Baker and Gompers (2003)]

Based on their analysis, BFKR find supporting evidence showing that corporate boards increase in size and member independence as operations increase and become more involved. Looking at the monitoring hypothesis BFKR find inconsistencies with the hypothesis when including R&D but excluding R&D they find support for explaining the cross-sectional variation in board independence. Lastly, they find support that board composition is based on negotiations between the CEO and outside board members. These findings illustrate the various components of an effective board and support no limitations on board size or independence to strengthen firm value.

Moreover, Linck, Netter and Yang (2008) evaluate the corporate board structure and determinants of structure. They find that structure varies across boards sighting differences based on firm size and board independence. Their results show a strong relation between board structure and firm characteristics and support the hypothesis that boards are chosen based on the benefits and costs to each individual firm. These findings support those of BFKR in that limitations on board size and independence are not mutually beneficial to all firms.

2.2 International Corporate Governance

Development of financial research within the United States broadened to a cross-country analysis with the publication of La Porta et al. (1997) that evaluates the size of country capital markets by comparing legal environments including origin of legal system, investor protection and law enforcement. This analysis finds that law is a determining factor in the size and extent of a country's capital markets.

As a follow-up to this article, La Porta et al. (1999) evaluate corporate ownership for countries throughout the world. They find that ownership concentration is a result of poor legal protection of minority shareholders. As a result, equity markets in these countries are smaller and less valuable than those with good legal protection.

Furthering their analysis of worldwide corporate governance La Porta et al. (2000) evaluate corporate governance from a legal perspective. They show that viewing corporate governance from the legal protection of investors enables a comparison of corporate governance organizations across countries.

Building on La Porta et al. (2000) Pinkowitz, et al. (2006) further finds a relation between cash holdings and firm value based on the investor protection provided by the various countries. Those countries with weak investor protection have a weaker relation between cash holdings and firm value while the relation between firm value and dividends is weaker in countries with stronger investor protection. This can be translated to indicate that better investment protection implies better corporate governance.

2.3 International Board Composition

Research on board composition and its impact on firm performance has been expanded to examine the international impacts on corporate governance. International board composition and structure can vary greatly in comparison to U.S. firms. Currently, the European Union's member states' corporate governance codes provide guidance for board size and composition. As these codes are guidance they are not required to be adopted by publicly traded firms. Therefore, board composition can vary greatly even among firms within a single country. While the London Stock Exchange requires firms to disclose if they are following The Combined Code on Corporate Governance (2008) originally established by the Cadbury Report (1992) this does not mean global acceptance by firms on the London Stock Exchange. In 2006 only 33% (PIRC 2007) of firms had adopted the Code requirements.

Denis and McConnell (2003) provide a two-generation survey of worldwide corporate governance research. The first generation research presented by Denis and McConnell (2003) focuses on taking studies performed on U.S. firms and applying them internationally while the second generation of research introduces the impact of law and regulation on corporate governance. Denis and McConnell (2003) cite Kaplan and Minton (1994) as one of the earliest works evaluating the appointment of outside directors. Kaplan and Minton (1994) investigate outside director appointments in Japan and find outside appointments increase with poor stock performance and top executive turnover increases substantially with outside appointments. Overall, Denis and McConnell summarize international research on board composition by finding evidence that consistencies with U.S. firms exist for large boards dismissing top management and board size negatively related to firm performance.

Research has also examined individual country data and board composition. Yeh and Woidtke (2005) evaluate the determinants of board composition specific to Taiwan. Their research examines the relation between controlling shareholders and the determinants of board composition and the resulting firm valuation. They find controlling shareholders do manipulate the board selection process and board structure reveals the quality of governance. Specifically, Yeh and Woidtke (2005) find boards with relations to controlling shareholders are related to strong negative entrenchment effects and these firms are valued less by investors. Evidence to the contrary was also found with independent boards having strong positive incentive effects with higher valuation by investors.

Another example of a country specific analysis on board composition is Dahya and McConnell (2007) who examine board composition in the United Kingdom surrounding the publication of the Cadbury Report (1992) which recommends a minimum of three non-executive directors and that two of the three be independent. Their analysis finds an increase in operating performance and a statistically significant stock price increase for firms that moved to three outside directors.

2.4 Board Diversity

Gender and ethnic diversity has been a growing area of research in board composition. Diversity initiated by large institutional shareholders, such as TIAA-CREF, is causing changes to board composition (Carleton, Nelson, Weisbach 1998). Carleton, Nelson, Weisbach (1998) find that board diversity targeting by large institutional investors is associated with significant negative abnormal returns.

Contrary to the negative association with diversity found by Carleton, Nelson and Weisbach (1998), Carter, Simkins and Simpson (2003) find a positive relation between firm value and the number of ethnic or women board members.

Cox and Blake (1991) expect a competitive advantage for firms that promote diversity in six areas: cost, resource acquisition, marketing, creativity, problem-solving and organizational flexibility. While this study is not specific to boards the potential exists for the same advantages to exist from a diverse board. However, what form the diversity takes is still a matter of research.

2.5 Women in the Boardroom

Research on board diversity has been further refined to focus specifically on the impacts of women in the board room. Relating to gender diversity Billimoria and Piderit (1994) examine board committee membership. The authors examine sex-based bias versus experience based deficiencies associated with the gender composition of board committees in *Fortune* 300 firms for the period 1984. After controlling for experience deficiencies they found sex-based bias for board committees. The analysis evaluated audit, compensation, executive, finance, nominating and public affairs committees and found:

- male directors have a higher likelihood of being on compensation committees;
- women have a lower likelihood of serving on nominating committees;
- male directors are favored over outside females for serving on audit committees and female directors with nonbusiness connections are favored on audit committees over similar males;

- female directors are disadvantaged for membership on the finance committee but with a business occupation they are favored over similar males; and,
- females are favored for public affairs committees

Billimoria and Piderit (1994) also find that female directors could be considered more qualified than the male directors (note that the sample analyzed was comprised of 3,924 male and 175 female directors from 270 companies).

Continuing the analysis of the impact of gender composition on boards, Farrell and Hersch (2005) use data from 10 years of Fortune 500 firms starting from 1990 to find if board selection is gender biased. Their sample statistics show an increase in females on boards over the 10 years of concern from 5.6% to 12.26%. In addition, the number of boards with at least one female increased from 53% to 87% of the sample over the 10 years. Finding gender bias and tokenism in their results the key findings show that if a female director departs a board she is likely replaced by a female and the likelihood of a women being added to specific corporate boards was negatively and significantly related to the percentage of women sitting on the board for the prior year. Relating to firm performance their analysis finds women tend to sit on boards of better performing firms as measured by cumulative abnormal returns but could find no relation that adding women to an all male board improved firm performance.

Addressing the impact of women as board members, Adams and Ferreira (2008) examine the impact of female directors for the period 1996 - 2003. Evaluating firm characteristics they find female directors are related to larger firms, lower Tobin's Q, higher ROA, lower volatility and larger board sizes than firms comprised solely of males. Findings show that female directors have better attendance than males and that male attendance is better when there are female members of the board.

Like Billimoria and Piderit (1994) Adams and Ferreira (2008) also evaluate gender assignments in committee memberships. They limit their review to the audit, nominating, corporate governance and compensation committees and find women are more likely to sit on nomination, audit and corporate governance committees and men are more likely to sit on compensation committees. These results differ from those found by Billimoria and Piderit (1994) who find males were more likely to sit on the audit and nominating committees. An important event to note in reviewing these differences is the passing of the Sarbanes-Oxley Act (SOX) in 2002. The data statistics from Adams and Ferriera (2008) find that women constituted 8.11% of the total sample directors and of these 84.07% were independent directors. SOX requires that the audit committee be comprised solely of independent directors. Since the majority of female directors are independent it expected that approaching the passing of SOX and for all data after 2002 the composition further research needs to be conducted to determine if SOX could bias the audit committee composition.

It is important to note that both Billimoria and Piderit (1994) and Adams and Ferreira (2008) both find males more likely to sit on the compensation committee. This result supports the "good old boys" barrier that is discussed by Billimoria and Piderit.

Evaluating firm performance using Tobin's Q and ROA, Adams and Ferreira (2008) find that gender-diverse boards appear to be better monitors; however they find this does not improve firm value. This result differs from Carter, Simpkins and Simpson (2003) who find a positive significant relation between diverse boards and firm value as measured by Tobin's Q. These differences imply that more research needs to be performed to truly identify the parameters that impact firm performance when combined with gender diversity, an issue that will be evaluated in my future research.

Research has also been performed on gender diversity for boards in specific countries. Ruigrok, Peck and Tacheva (2007) evaluate 210 Swiss publicly listed firms examining nationality and gender diversity. They find female directors are more likely to be classified as grey or insiders contrary to what is typically found for U.S. firms (Adams and Ferreira, 2008). Their results also differ from published research on U.S. firms (Hillman 2002) by finding females are more likely to have lower education levels.

As is evident from past research there continues to be differing results in the impact of gender diversity on board composition. Across the globe regulators are pushing for gender diversity in the board room and by expanding board composition research internationally the impact of board diversity may be better understood.

2.6 Gender Equality

Measurement of gender equality continues to be a topic researched and discussed by social scientists worldwide. Various measures exist with strengths and weaknesses in true evaluation of gender equality. Two highly referenced measures are the United Nations' Gender Related Development Index (GDI) and Gender Empowerment Measurement (GEM). GDI measures a country's human development based on long life and health, education and standard of living which is then adjusted for gender inequality. GEM measures opportunities afforded to women in a country by evaluating political involvement, economic involvement and economic resource control.

However, the GDI and GEM are not true gender equality measures (Dana, Schuler 2006). GDI measures the development levels of a country which are the corrected for by gender inequalities while GEM measures the power of women. These two measures have been under

some attack by the social scientists and as a result significant research has been performed to develop alternative measures that truly reflect gender equally. As such, I evaluate these additional measures of gender diversity below noting advantages and disadvantages. Due to the differences in these measures they will be used independently in my future research to evaluate firm performance and provide a means to compare performance with various gender equality measures. The following text discusses these alternative measures with Table 1 providing a comparison of the measures for a selection of countries represented by the exchanges in Table 2.

One of these measures of gender equality is the Relative Status of Women (RSW) developed by Dijkstra and Hanmer (2000). Using the components of the GDI the authors omit a relation with absolute levels of achievement and compute the average of the ration of the male/female index for education, life expectancy and the relative male and female returns to labor. The purpose of the index is to measure the position of women in comparison to men (Dijkstra and Hamner 2000). A RSW value less than one (1) indicates discrimination against females and a value greater than one (1) suggests men are discriminated against. The strength in this method is it measures gender gaps without incorporating overall development levels (Ugartemendia, 2007). This measure also has weaknesses in that it does not measure overall welfare and the gender differences in income dominate (Dijkstra 2006). Ugartemendia also provides examples of where the RSW is biased due to symmetric or heavily unbalanced distributions stemming from the differences in the measurement of the gender equality components.

Dijkstra (2002) further proposed the Standardized Index of Gender Equality (SIGE). The SIGE assesses female power and relative female access to assets by comparing the relative position of women with the average relative position of women in other countries. Using the

Women's Statistical Database developed by the United Nations, Dijkstra (2002) composites five indicators of gender equality into one index. This composite includes:

- Education
- Health
- Labor market participation
- Share in higher labor market occupation positions
- Share in parliament

Dijkstra (2002) argues the advantage of SIGE is that none of the dimensions vary in degree of importance and therefore do not overweight the index. However, Ugartemendia (2007) notes that there are some weaknesses with the SIGE index for comparison of values over time and in the way gender inequalities are averaged over dimensions. Dijkstra (2002) admits more international comparable data is necessary to truly measure gender equality but poses SIGE is a first approximation.

Social Watch is a non-government organization that monitors over 70 countries for gender equality and poverty levels. They maintain an index called the Gender Equality Index or GEI (2005) that allows inter-country comparison of gender equality on an ordinal basis. This index is compiled based on three dimensions: education, participation in the economy and empowerment. The education dimension is based on the gaps in literacy, primary school enrollment, secondary school enrolment and tertiary education between males and females. Participation in the economy looks at the income gap and activity rate gap between males and females. Empowerment includes the percentage of women in technical, management and government positions along with the percentage in parliament positions. Using these three dimensions the index is calculated as an average of these three values.

For a comparison of these values, Table 1 lists the index values for those countries with exchanges listed in Table 2. The most recently available index values were used for GDI, GEM and GEI. Values for SIGE and RSW were taken from the published versions of the papers that derived them. While progress over time prohibits use of published values of SIGE and RSW to compare to currently calculated values of GDI, GEM and GEI they are presented in Table 3 strictly for a general comparison of the variances between the index results. SIGE and RSW will require recalculation using current social economic data for true comparison.

As is evident, there are various ways to attempt to measure gender equality all with strengths and weaknesses whilst being dependent on data availability. While no index ideally captures the gender inequalities across the world, those discussed above provide a basis to compare the impacts of female directors.

3 Cross-County Gender Impacts

My future research will evaluate the impact of gender diversity on board composition and firm performance for a cross-country analysis. Specifically, this research will test the following hypotheses:

- Hypothesis 1: There is a positive relation between gender diversity and firm performance in countries with high gender equality.
- Hypothesis 2: Females more likely to sit on compensation committees in countries with high gender equality relative to low gender equality countries.
- Hypothesis 3: Female board members are less likely to be independent in countries with more gender equality.

- Hypothesis 4: Female directors are less likely to hold advanced educational degrees in countries with more gender equality

4 Data and Methodology

4.1 Firm and Director Data

To populate my dataset I will use the various worldwide exchanges to pull a list of publicly traded firms. Specific exchange information is publicly available via the exchange websites. I used the World Federation of Exchanges listing to collect 51 publicly regulated exchanges across the globe. (Of interesting note, the board of directors of the WFE was all men in mid-2009). Table 2 contains a list of these exchanges.

To verify data availability I performed a search on a random sampling of exchange websites to determine if an inventory of listed firms was available and what firm and board data could be culled directly through the exchange. All exchanges searched provided a listing directory of companies on the exchange. Specifically, exchanges in English speaking countries provide a listed directory and also provide company data on their websites that includes board members, industry group, listing date and links to company announcements such as annual and quarterly reports. From the annual reports, director biographies (including photographs), meeting attendance and committee membership can readily be obtained. Some European exchanges provide links to company reports through the exchange; however, these reports are not always in English.

For those companies without board data available publicly I will use Bloomberg to obtain a listing of directors for a specific company, information related to other directorships they hold and a list of what committees they serve on. While historical data is not available from

Bloomberg, a snapshot of information relating to firm boards and composition of women on those boards can be obtained. In cases where gender is not readily identifiable by name, annual reports or other firm publications can be searched. Most annual reports provide a photograph or biography of the director to ascertain gender.

Firm-level data will be obtained from the Thomson Reuters Worldscope database. It must be noted that the data across countries are composed from various accounting conventions; however, there is no process to generate more comparable data. Table 3 provides a listing of variables desired for the firms in the sample.

4.2 Gender Equality Values

Gender equality measures will be obtained as follows:

- GDI - Values for GDI will be obtained from the most recent publication from the United Nations database.
- GEM - Values for GEM will be obtained from the most recent publication from the United Nations database.
- RSW - This will be calculated following Dijkstra and Hanmer (2000) using data from the United Nations. The United Nations data will be from the same year as used in the calculations of GDI and GEM.
- SIGE - This will be calculated following Dijkstra (2002) using data from the United Nation's Women Statistical database. The United Nations data will be from the same year as used in the calculations of GDI and GEM.
- GEI - Values for GEI will be obtained from Social Watch that corresponds to the timeframe used in the United Nation's calculations of GDI and GEM.

4.3 Methodology

To test Hypothesis 1 for the effect of gender diversity on firm performance Tobin's Q will be used to proxy for firm performance. In addition, ROA will be used as an alternate measure of performance. Because replacement costs of assets may not be available for all countries Tobin's Q will be calculated as the sum of the market value of equity and the book value of debt divided by the book value of assets (La Porta et al. 2002). ROA will be measured as after tax earnings before interest divided by total assets. In addition, industry-adjusted Tobin's Q will also be used as a dependent variable to control for industry-specific effects.

Hypothesis 2 which evaluates women directors' role on compensation committees will be tested using a logit analysis where the binary response variable 1 if the committee member is female and 0 if the committee member is male. Independent variables will include age, insider status, director age, tenure, other directorships, and gender equality index. It will be important to control for independent director status in this evaluation as compensation committee membership may be driven by independence and not gender.

For evaluation of the percent of women insiders for Hypothesis 3 I classify a director as dependent according to prior studies (Brickley, Coles, Terry, 1994 and Shivdasani, Yermack, 1999) if they are a current employee or retired employee of the firm. Immediate family of employees who work for the firm are also considered insiders. Outside directors can be either independent or grey depending on whether they have any conflicts of interests including business relations or personal relations with the firm or executives or if they are former employees. Grey directors include persons who have business dealings with the firm or who are former employees of the firm. Independent directors include executives of other firms as long as they do not rely

on business with the firm. In essence, an independent director is one who has no ties that could influence their decisions on the board.

Consistent with Ruigok et al. (2007) Hypothesis 4 will be tested by classifying education into four levels: less than a Bachelor's degree, less than a Master's degree, less than a Doctorate degree and Doctorate, PhD or comparable degree. Using a probit regression I can evaluate the likelihood of education being associated with female board members.

5 Empirical Results

While this paper serves as a literature review of the impact of women on corporate boards this section serves to provide insight into the empirical results that may be found after analysis of the data discussed in Section 4.

In support of hypothesis 1 it is anticipated that those firms with more gender diversity will have a positive effect on firm performance. Therefore, it is expected that firms in countries with higher gender equality will have positive relations with performance as measured by Tobin's Q and ROA.

Currently, as documented in Bililmoria and Piderit (1994) and Adams and Ferreira (2008) women are less likely to sit on compensation committees. It is expected that the more equal men and women are in a country the less likely men will dominate compensation committees. If the lack of female directors on U.S. boards is truly an "old boys club" effect firms in countries with gender equality will not be plagued by such an effect. Therefore, it is expected that the higher the gender equality the more women will be present on compensation committees.

If gender equality measures are truly representative then you would expect to find more female insiders. In this case, there would be adequate quantities of females qualified for

executive positions resulting in more female directors as insiders. These results may still be difficult to prove if true gender equality does not exist or has not existed long enough for females to reach the education and experience of males within a country.

Because females will have to work harder and be more qualified than their male colleagues in countries with low gender equality it is anticipated that female qualifications will exceed male qualifications in these countries. One factor that could bias this result would be the mandatory gender assignments of directors. For example, when Norway required 40% directors be females there could have been firms who placed directors strictly due to gender because they faced shutdown for not having complied by the enforcement due date. In this case, female qualifications have the chance of being less than their male colleges. However, it is expected that women will have higher education levels in countries with less gender equality in comparison to the education held by women in countries exhibiting more gender equality.

6 Conclusion

The findings of this analysis have potential to impact governance regulations mandating gender diverse boards. If the results find an association of firm performance and female directors based on gender equality this would imply that, as the world continues to develop and gender approaches equality worldwide, the inclusion of women on the board of directors will improve performance globally. However, if no association between gender equality is found, the reasons behind female directors and the negative impact on performance will continue to be a topic for further research. With the continued push internationally to populate boards with up to 40% female this issue will remain in the forefront of financial analysis until a clear determination of female directors' impact on governance and firm performance is developed.

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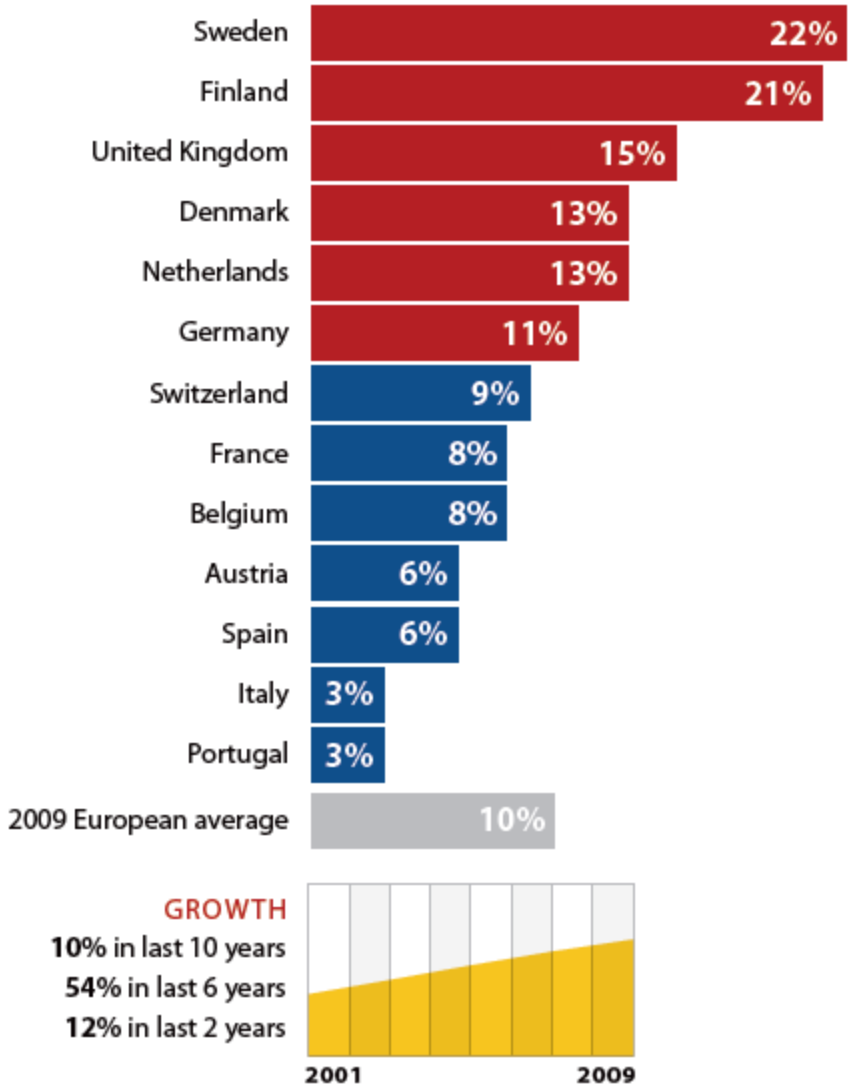

Figure 1: Proportion of Women on European Boards

(Source: Hendrick and Struggles 2009)

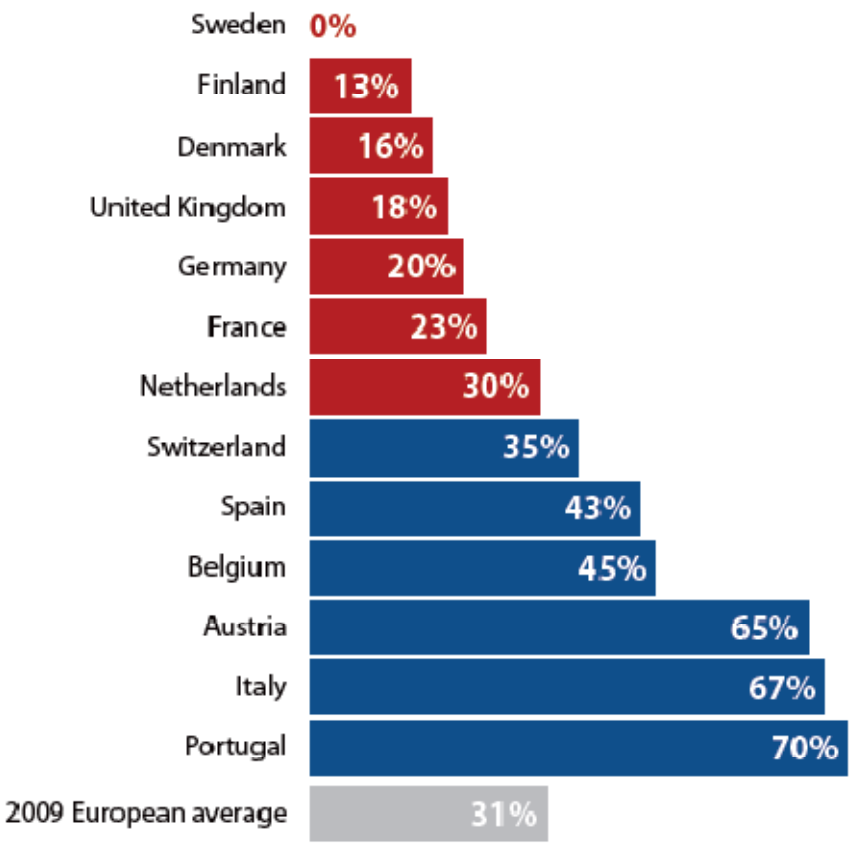

Figure 2: Proportion of European Countries with No Women on the Board

(Source: Hendrick and Struggles 2009)

Table 1
Comparison of Gender Equality Indices

Exchange	Country	GDI Value (2005)	GDI Rank (2005)	GEM Value	GEM Rank	GEI Value (2008)	GEI Rank (2008)	SIGE (1994)	SIGE Rank (1994)	RSW (2000)	RSW Rank (2000)
Bolsa de Comercio de Buenos Aires	Argentina	0.865	36	0.728	17	72	35	0.41	36	0.815	52
Australian Securities Exchange	Australia	0.96	2	0.847	8	76	14	0.5	28	0.906	16
Wiener Börse AG	Austria	0.934	19	0.788	13	73	30	0.81	10	0.877	21
BM&F BOVESPA S.A.	Brazil	0.798	59	0.49	70	69	54	-0.31	79	0.807	60
Bourse de Montréal	Canada	0.956	4	0.82	10	76	14	0.83	9	0.86	26
TMX Group Inc.	Canada	0.956	4	0.82	10	76	14	0.83	9	0.86	26
Bolsa de Comercio de Santiago	Chile	0.859	40	0.519	60	62	79	0.36	40	0.801	67
Shanghai Stock Exchange	China	0.776	72	0.534	57	69	54	0.28	42	0.805	64
Shenzhen Stock Exchange	China	0.776	72	0.534	57	69	54	0.28	42	0.805	64
Bolsa de Valores de Colombia	Colombia	0.789	65	0.496	69	75	19	0.12	52	0.805	64
Cyprus Stock Exchange	Cyprus	0.899	27	0.58	48	69	54	0.01	57	..	..
NASDAQ OMX - Copenhagen	Denmark	0.944	11	0.875	4	80	4	1.33	3	0.927	12
The Egyptian Exchange	Egypt	..	..	0.263	91	40	155	-1.09	109	0.588	132
NASDAQ OMX - Tallinn	Estonia	0.858	41	0.637	31	74	24	..	..	0.978	1
NASDAQ OMX - Helsinki	Finland	0.947	8	0.887	3	85	2	1.7	1	0.949	6
NYSE Euronext - Paris	France	0.95	7	0.718	18	73	30	0.67	16	0.913	15
Deutsche Börse AG	Germany	0.931	20	0.831	9	80	4	0.74	14	0.823	48
NYSE Euronext - Brussels	Germany	0.931	20	0.831	9	80	4	0.74	14	0.823	48
Athens Exchange	Greece	0.922	24	0.622	37	66	65	-0.11	65	0.786	74
Hong Kong Exchanges and Clearing	Hong Kong	0.926	22	..	..	72	35	..	..	0.845	35
Budapest Stock Exchange Ltd.	Hungary	0.872	34	0.569	50	71	39	1.05	6	0.945	8
NASDAQ OMX - Iceland	Iceland	0.962	1	0.862	5	78	8	..	..	0.821	49
Bombay Stock Exchange Ltd.	India	0.6	112	..	..	40	155	-1.13	111	0.623	124
National Stock Exchange of India Limited	India	0.6	112	..	..	40	155	-1.13	111	0.623	124

Exchange	Country	GDI Value (2005)	GDI Rank (2005)	GEM Value	GEM Rank	GEI Value (2008)	GEI Rank (2008)	SIGE (1994)	SIGE Rank (1994)	RSW (2000)	RSW Rank (2000)
Indonesia Stock Exchange	Indonesia	0.721	93	..	..	52	110	0.02	55	0.773	78
Stock Exchange of Tehran	Iran	0.75	83	0.347	87	54	105	-1.05	108	0.659	118
Irish Stock Exchange	Ireland	0.94	15	0.699	19	70	48	0.42	35	0.811	56
Tel-Aviv Stock Exchange	Isreal	0.927	21	0.66	28	73	30	0.23	42	..	..
Borsa Italiana SpA	Italy	0.936	17	0.693	21	65	71	0.37	39	0.848	33
Jasdaq Securities Exchange, Inc.	Japan	0.942	13	0.557	54	61	83	0.25	42	0.882	19
Osaka Securities Exchange	Japan	0.942	13	0.557	54	61	83	0.25	42	0.882	19
Tokyo Stock Exchange Group, Inc.	Japan	0.942	13	0.557	54	61	83	0.25	42	0.882	19
Amman Stock Exchange	Jordan	0.76	79	..	..	47	134	-0.8	97	..	..
Korea Exchange	Republic of Korea	0.91	26	0.51	64	54	105	-0.07	62	0.809	59
NASDAQ OMX - Riga	Latvia	0.853	44	0.619	38	76	14	..	..	0.968	2
NASDAQ OMX - Vilnius	Lithuania	0.861	38	0.669	25	77	11	..	..	0.956	4
Bourse de Luxembourg	Luxembourg	0.924	23	..	..	61	83	0.54	22	..	..
Bursa Malaysia	Malaysia	0.802	57	0.504	65	58	94	-0.35	80	0.818	50
Stock Exchange of Mauritius	Mauritius	0.796	62	0.562	51	60	89	0.02	55	0.814	54
Bolsa Mexicana de Valores	Mexico	0.82	51	0.589	46	60	89	0.2	48	0.800	69
NYSE Euronext - Amsterdam	Netherlands	0.951	6	0.859	6	78	8	0.67	16	0.825	46
New Zealand Exchange Ltd.	New Zealand	0.935	18	0.811	11	78	8	0.64	19	0.872	22
Oslo Børs	Norway	0.957	3	0.91	1	84	3	1.22	5	0.92	14
Bolsa de Valores de Lima	Peru	0.769	75	0.636	32	69	54	-0.27	74	0.737	91
Philippine Stock Exchange	Philippines	0.768	76	0.59	45	76	14	0.54	22	0.792	72
Warsaw Stock Exchange	Poland	0.867	35	0.614	39	71	39	1.25	4	0.946	7
NYSE Euronext - Lisbon	Portugal	0.895	28	0.692	22	72	35	0.46	32	0.852	29
Malta Stock Exchange	Republic of Malta	0.873	33	0.514	63	59	92	-0.3	76	..	..
Singapore Exchange	Singapore	..	..	0.761	16	66	65	-0.19	70	0.824	47
Ljubljana Stock Exchange	Slovenia	0.914	25	0.611	41	71	39	..	..	..	..

Exchange	Country	GDI Value (2005)	GDI Rank (2005)	GEM Value	GEM Rank	GEI Value (2008)	GEI Rank (2008)	SIGE (1994)	SIGE Rank (1994)	RSW (2000)	RSW Rank (2000)
JSE Limited	South Africa	0.667	106	..	..	70	48	..	..	0.835	43
BME Spanish Exchanges	Spain	0.944	12	0.794	12	77	11	0.36	40	0.794	71
Colombo Stock Exchange	Sri Lanka	0.735	88	0.369	85	53	107	-0.01	59	0.807	60
NASDAQ OMX - Stockholm	Sweden	0.955	5	0.906	2	89	1	1.44	2	0.939	9
SIX Swiss Exchange	Switzerland	0.946	9	0.66	27	63	77	0.5	28	0.837	41
Taiwan Stock Exchange	Taiwan	..	..	..	..	..	..	..	..	..	..
Stock Exchange of Thailand	Thailand	0.779	70	0.472	73	70	48	0.48	30	0.88	20
Istanbul Stock Exchange	Turkey	0.763	78	0.298	90	46	139	-0.46	85	0.786	74
London Stock Exchange	United Kingdom	0.944	10	0.783	14	75	19	0.31	42	0.861	25
Chicago Board Options Exchange	United States	0.937	16	0.762	15	75	19	0.76	13	0.9	18
CME Group	United States	0.937	16	0.762	15	75	19	0.76	13	0.9	18
Intercontinental Exchange	United States	0.937	16	0.762	15	75	19	0.76	13	0.9	18
International Securities Exchange	United States	0.937	16	0.762	15	75	19	0.76	13	0.9	18
NASDAQ OMX	United States	0.937	16	0.762	15	75	19	0.76	13	0.9	18
NYSE Euronext - New York	United States	0.937	16	0.762	15	75	19	0.76	13	0.9	18

Table 2
Stock Exchanges

This table provides a listing of worldwide exchanges obtained from the World Federation of Exchanges.

Amman Stock Exchange	London Stock Exchange
Athens Exchange	Malta Stock Exchange
Australian Securities Exchange	NASDAQ OMX
Bermuda Stock Exchange	NASDAQ OMX - Copenhagen
BM&FBOVESPA S.A.	NASDAQ OMX - Helsinki
BME Spanish Exchanges	NASDAQ OMX - Iceland
Bolsa de Comercio de Buenos Aires	NASDAQ OMX - Riga
Bolsa de Comercio de Santiago	NASDAQ OMX - Stockholm
Bolsa de Valores de Colombia	NASDAQ OMX - Tallinn
Bolsa de Valores de Lima	NASDAQ OMX - Vilnius
Bolsa Mexicana de Valores	National Stock Exchange of India Limited
Bombay Stock Exchange Ltd.	New Zealand Exchange Ltd.
Borsa Italiana SpA (London Stock Exchange Group)	NYSE Euronext - Amsterdam
Bourse de Luxembourg	NYSE Euronext - Brussels
Bourse de Montréal (TMX Group Inc.)	NYSE Euronext - Lisbon
Budapest Stock Exchange Ltd. (Wiener Börse AG)	NYSE Euronext - New York
Bursa Malaysia	NYSE Euronext - Paris
Chicago Board Options Exchange	Osaka Securities Exchange
CME Group	Oslo Børs
Colombo Stock Exchange	Philippine Stock Exchange
Cyprus Stock Exchange	Shanghai Stock Exchange
Deutsche Börse AG	Shenzhen Stock Exchange
The Egyptian Exchange	Singapore Exchange
Hong Kong Exchanges and Clearing	SIX Swiss Exchange
Indonesia Stock Exchange	Stock Exchange of Mauritius
IntercontinentalExchange	Stock Exchange of Tehran
International Securities Exchange	Stock Exchange of Thailand
Irish Stock Exchange	Taiwan Stock Exchange
Istanbul Stock Exchange	Tel-Aviv Stock Exchange
Jasdaq Securities Exchange, Inc. (Osaka Securities Exchange)	TMX Group Inc.
JSE Limited	Tokyo Stock Exchange Group, Inc.
Korea Exchange	Warsaw Stock Exchange
Ljubljana Stock Exchange	Wiener Börse AG

Table 3
Variables

This table describes the desired variables to be collected for the firms included in the analysis. The first column gives the name of the variable and the second column describes the variable and provides the reference source for the data.

Variable	Description	Source
No_dir	The total number of directors	Bloomberg
No_female	The number of female directors	Bloomberg Annual Report
No_other	The number of other directorships held	Bloomberg Annual Report
Total assets	Book value of total assets (million)	Worldscope
Firm_age	The age of the firm (2009 less date firm was founded)	Annual Report
Dir_age	The age of the director	Annual Report
Leverage	Total debt divided by total assets	Worldscope
Tobin's Q	Market value of equity plus book value of dept with the sum divided by total assets	Worldscope
ROA	Net income plus interest expense times (1 - tax rate) all divided by total assets	Worldscope
SIC	1-digit standard industrial classification code	Annual Report Exchange
Adj_Q	Tobin's Q less the average industry Tobin's Q	Worldscope
Adj_ROA	ROA less the average industry ROA	Worldscope
Tenure	The length of time the director has served on the board	Annual Report
Inside_dummy	Dummy variable for inside director status. 0 if classified as an independent director, 1 if inside or grey.	Annual Report
Token_dummy	Dummy variable to identify if the firm has more than one female on the board. 0 for only 1 female, 1 for more than one female.	Annual Report
Female_dummy	Dummy variable for gender. 0 if male, 1 if female.	Annual Report
CEO_female	Dummy variable to identify if CEO is female. 0 if male, 1 if female.	Annual Report
Aud_dummy	Dummy variable for audit committee memberships. 0 if not a member of the audit committee, 1 if a member.	Bloomberg Annual Report
Comp_dummy	Dummy variable for compensation committee memberships. 0 if not a member of the compensation committee, 1 if a member.	Bloomberg Annual Report
Ex_dummy	Dummy variable for executive committee memberships. 0 if not a member of the executive committee, 1 if a member.	Bloomberg Annual Report
Fin_committee	Dummy variable for finance committee memberships. 0 if not a member of the finance committee, 1 if a member.	Bloomberg Annual Report
Nom_committee	Dummy variable for nominating committee memberships. 0 if not a member of the nominating committee, 1 if a	Bloomberg

	member.	Annual Report
PA_committee	Dummy variable for public affairs committee memberships. 0 if not a member of the public affairs, 1 if a member.	Bloomberg Annual Report
Founding	Dummy variable to identify if a member of founding family. 0 if not a member, 1 if a member of the founding family.	Annual Report
GDI	Country Gender Development Index value	United Nations
GEM	Country Gender Empowerment Measure value	United Nations
RSW	Country Relative Status of Women value	Calculate from United Nations data
SIGE	Country Standard Index of Gender Equality value	Calculate from UN Women Statistical database
GEI	Country Gender Equality Index value	Social Watch