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Published on: 01 Jan 2006 - Corporate Governance (Emerald Group Publishing Limited)

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Dimovski, William and Brooks, Robert 2006, The gender composition of boards after an IPO, *Corporate governance*, vol. 6, no. 1, pp. 11-17.

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The gender composition of boards after an IPO

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Acknowledgements

The authors wish to thank an anonymous referee for their helpful comments on a previous version of this paper.

Abstract

Purpose – *The purpose of this paper is to empirically analyse the change in the gender composition of the boards of large Australian companies, after listing.*

Design/methodology/approach – *This study investigates the gender composition of the boards of large Australian companies at the time of the initial public offering (IPO) and subsequently as these companies mature into established public companies. It also investigates industry influences and organizational size influences on the board composition at the time of the IPO and subsequently.*

Findings – *No significant change is found in the proportion of male and female directors holding directorships at the time of the IPO and some five to eight years later when the company is recorded as a top 500 company (by market capitalization) on the Australian lists. This implies that the capital market is generally satisfied by the gender composition of boards from the time of the IPO.*

Originality/value – *This paper follows extends on previous work which provides evidence of a relatively low proportion of female directors on the boards of Australian initial public offerings.*

1. Introduction

Over the last 20 years there has been a great deal of discussion in the management literature suggesting that companies would benefit by recognising a variety of stakeholders in addition to the shareholder stakeholder, such as employees, suppliers, public representatives and customers. More recent literature in this area has suggested that the accountability needs of all stakeholders may be best met by direct stakeholder board representation. See, for example, Luoma and Goodstein (1999), Agle *et al.* (1999) and Evan and Freeman (1993). Other recent management literature has discussed the gender composition of boards of directors. Not unlike the stakeholder literature, the gender composition literature contends that companies would benefit by utilizing women directors (Burke, 1997). Bilimoria (2000) supports this by arguing that having women on boards

improves the reputation on the firm, improves strategic direction by better understanding women's issues that may impact on such direction and contributes positively to the company's female employees.

While employing women directors on company boards may be a desirable objective, Dimovski and Brooks (2004) provide evidence of a relatively low proportion of female directors on the boards of Australian IPOs. This study extends our previous work. It examines the gender composition of the IPO boards and any changes to that board composition of these Australian companies as they mature after listing. While the existing owners of the IPO would according to Mak and Roush (2000) have employed an "appropriate board", so as to maximize their capital raising chances, this study investigates whether the new owners of the company engage more women directors so as to maximize the value of the firm. This further empirically tests Burke's (1997) hypothesis that companies would benefit by employing women directors. Our investigation is of the board composition of 54 of the 270 IPOs during 1994 to 1997 that hold a position in the top 500 companies listed on the Australian Stock Exchange in 2002. Regrettably, board composition data on those companies that did not make it to the top 500 was not able to be collected readily. For the purpose of focusing on the change in board composition however, the sample size is sufficient to make useful comment on any changes that manifest themselves in the top 500 companies.

The plan of this paper is as follows. Section 2 briefly summarises some board gender composition literature and our testable hypotheses. In section 3 we report our findings. Section 4 contains some concluding comments.

2. Gender composition literature and hypotheses

While Burke (1994) and expanded in Burke (1997) contend that organizations that engage women on boards of directors may enjoy a competitive advantage, the empirical literature internationally generally finds relatively few women on the boards of publicly listed companies. Studies such as Sheridan (2002), report that women represent only around 3 percent of board members of all Australian listed companies. She suggests that this low proportional representation may be due to women not having sufficient influential contact with chairmen or other existing board members rather than women not having sufficient academic credentials or experience. (In an earlier survey study of women directors, Sheridan (2001) suggests that the women directors were possibly "successful" in getting these directorships because of having valuable business contacts.)

In the UK, Singh and Vinnicombe (2003) find that 61 percent of the top 100 listed UK companies have women directors, however, that women represent only 7.6 percent of all directors. In addition, only 3 percent of these are executive directors. Bilimoria (1995) reports that in the USA in 1993, of over 4,000 of the highest paid officers and directors of Fortune 500 companies, only 19 were women. More recent US data by Catalyst (2003) reports 13.6 percent of board seats in the *Fortune* 500 are held by women (compared to 12.4 percent in 2001 and 9.6 percent in 1995).

Hyland and Marcellino (2002) report some empirical findings on female directors in the top 100 public companies in Long Island, New York. While the study is a regional study of that area only, their findings are interesting. They find a positive and significant relationship

between the number of women on the board and the company's size as measured by revenues and a positive but mildly significant relationship between the number of women on the board and the two industry groupings of finance/insurance/real estate and transportation/communication/utilities.

This study investigates the gender composition of the boards of large Australian companies at the time of the initial public offering (IPO) and subsequently as these companies mature into established public companies. It also investigates industry influences and organizational size influences on the board composition at the time of the IPO and subsequently. Three hypotheses are formally advanced and tested with regard the proportions of male directors and female directors at IPO time and at 2002.

The pre-IPO owners of the firm must select and appoint the board of directors of the IPO firm at the time of preparing the prospectus. Burke (2003) and Bilimoria (2000) would argue an appropriate board should theoretically include qualified women directors. Mak and Roush (2000) argue that it is in the interests of the pre-IPO owners to select a appropriate board with appropriate attributes so that potential new investors do not "price protect" themselves by either looking for higher underpricing or perhaps even refusing to buy the IPO shares. Underpricing refers to the practice of an IPOs shares being able to be sold at a higher price on the first day of trading than the price at which they were subscribed (bought) at. (For a review of international studies into underpricing, see Loughran *et al.* (1994).) Clearly the board composition, which includes the gender composition, is an important ingredient in maximizing the firm's capital raising chances.

As the IPO company matures post listing into an established public company and is subject to greater external monitoring by the capital markets over the years, we might expect, following Burke (1997) and Burke (2003), that the proportion of female directors could increase. Perhaps public scrutiny, media scrutiny and investor scrutiny might all suggest greater female board representation. Because directors are normally elected for a three-year term, this study investigates board composition five to eight years after the IPO which allows for at least one change in the composition of the board. This leads to the following hypothesis:*H1*. The proportion of women directors on a company's board increases as the company matures from IPO to an older, more established, top 500 Australian public company. Hyland and Marcellino (2002) argue that the industry in which firms operate may affect opportunities for women to advance to the top level. They argue that industries such as construction and manufacturing have been dominated by men and are unlikely to utilize women directors. Singh *et al.* (2001) report that women directors in the UK are particularly found in retailing and banking (where a substantial percentage of the employees are women) and also in health, media/publishing and utilities. Rather than introduce too many industry classifications, for statistical power given our sample size, only two classifications are recorded – mining (representing three gold mining, three other metals mining, and four energy (oil) resource companies) and industrials (representing two infrastructure and utilities, two developers and contractors, two building materials, one alcohol, two engineering, two paper and packaging, four retail, two transport, one media, two banking and finance, one telecommunications, four investment and financial services, seven healthcare and financial services, ten miscellaneous industrials and two tourism and leisure companies). Dimovski and Brooks (2004) found fewer women directors in mining IPOs. Therefore the following hypothesis is tested:*H2*. The proportion of women directors on a company's board is greater in industrial companies. Hyland and Marcellino (2002) found

that larger organizations employ more women directors. They suggest that larger organizations may offer greater opportunities to female managers. This relationship between the number of women directors and company size (measured usually by market capitalization but sometimes also number of employees and/or turnover) has also been reported by Catalyst (2003) in the USA and Singh *et al.* (2001) in the UK. Singh and Vinnicombe (2003) advise that they have monitored this relationship on an annual basis using UK data, since 1999. In this study, an ordinary least squares model is employed to test various relationships. Because the relationship between the number of women directors and company size is known, it needs to be included in our model so as not to possibly cause what is called omitted variables bias. Luoma and Goodstein (1999) also argue that larger organizations, because of their size are subject to greater attention from the public and the media. It may be suggested that larger firms need to promote a higher proportion of women to directorships. This leads to the following hypothesis:

H3. The proportion of women directors on a company's board is greater in larger (measured by market capitalization) companies.

3. Empirical findings

Australian Stock Exchange Float Reports were used to identify new listings on the Australian Stock Exchange over the period 1994 to 1997. A total of 270 companies raised equity capital from the public by way of an IPO. Of these, 54 were listed as a top 500 company in the 2002 year (excluding ten property and equity trust IPOs that have a management company managing the affairs of the trust). Gender data was located in each of the prospectuses of the IPO companies and in the 2002 Annual Reports. Alternate directors were not included. The prospectuses and annual reports were sourced from the respective *Connect 4* databases.

Table I reports details of board composition by gender for our sample group of IPOs compared to the gender of the directors (for the same group) as reported at annual report time 2002. The number of female directors was only about 5 percent of our sample group population which appears in line with the Sheridan (2002) findings. However, we found no female directors among the mining companies in either time period.

Table II reports some descriptive statistics for our data. While the mean size of the board at IPO time was 5.91, the median IPO board size was 5. As a top 500 company in 2002, these entities had mean and median board sizes of 6.44 and 6 respectively. The proportions of women and men directors are also reported. While the mean proportion of women directors has reduced slightly from the IPO occasion, this is not a statistically significant reduction.

Ordinary least squares (OLS) models were developed to examine the relationship between the proportion of male and female directors (as the dependent variables) and various explanatory variables.

The explanatory variables examined are defined as follows: POSTIPO A (0 or 1) variable with a value of 0 if the data on directors is taken at the time of the IPO or 1 if the director data is taken in 2002. INDUST A (0 or 1) variable with a value of 0 if the firm is a mining or resource company and a value of 1 if the firm is an industrial (adapted from Hyland and Marcellino

(2002)). LNMKTCAP records the natural log of the market capitalization of the company in the year of the IPO and at November 2002 (adapted from Mak and Roush (2000) and Hyland and Marcellino (2002)). Two regression models were run with the proportion of male directors (PNMALE), the proportion of female directors (PNFEMALE) as the dependent variables. These models used the number of male directors and female directors respectively in the numerator and board size in the denominator: Equation 1 where all the variables are as defined previously, the β s are unknown parameters to be estimated and ϵ is assumed $\sim N(0, \sigma^2)$.

The models test whether the proportions of female director and male director change after the initial public offering and whether they are explained by the industry in which the firm operates and by the firm's size (value) in terms of market capitalization. Table III reports the results of the OLS regressions with the proportion of male directors and proportion of female directors as the dependent variables. The adjusted *R*-squared result of 0.074 or 7.4 percent indicates that the independent variables explain only a small percentage of the variation in the proportion of female and male directors. This finding is reasonable in that one would expect many factors other than industry and size to play a role in explaining these proportions. In so far as the coefficients (Coef.) and probabilities (Pr.), the variables INDUST and LNMKTCAP are interesting. If we compare either pre or post IPO firms of similar size, industrial companies tend to engage 0.042 or 4.2 percent more women directors than mining companies. If we consider firms that vary in size (LNMKTCAP), but are comparable in terms of them being a pre or post IPO firm and being an industrial or mining firm, larger firms tend to employ proportionally more women directors. The POSTIPO variable is also most useful. Its high probability value suggests that there are no statistically significant changes in board composition by gender from the time of the IPO till later, as the firm matures as a top 500 publicly listed entity, in firms that are comparable in other respects (type and size of company). A range of standard regression diagnostics were calculated for the models applied to the data. In testing for non-normal errors, a Jarque-Bera (J-B) statistic is applied to the data. In testing for heteroscedasticity, a White test is applied and White (1980) heteroscedasticity-consistent coefficients and *p*-values are reported. In testing for omitted variables or model misspecification, a Ramsey Reset test is applied and reported. The results of these diagnostic tests help confirm that our broad findings are valid.

Table IV presents a correlation matrix of the three explanatory variables. The explanatory variables are not highly correlated among themselves and multi-collinearity is not a problem in our analysis. Multi-collinearity refers to a problem with the probability values if some of the explanatory variables are highly correlated with each other.

4. Conclusion

We do not find any significant change in the numbers or proportions of male or female directors from the IPO occasion. This study suggests that the capital market is generally satisfied by the gender composition of boards from the time of the IPO. Whatever good corporate governance could come from gender composition at the time of the IPO appears to have been accepted by the capital market many years later. This supports the Mak and Roush (2000) idea that the owners of companies seeking to float appear to have selected an appropriate board, at least by gender, that has not needed to change significantly.

The results also suggest that the mining industry may offer fewer opportunities for women to advance to directorships compared to the industrials. Given Burke's (2003) and Bilimoria's (2000) advocacy for qualified women directors on corporate boards, the implications for good corporate governance are interesting. Either there are relatively few qualified women in this industry or the industry is missing out by not promoting women to these posts. This issue needs further research. Like Hyland and Marcellino (2002) and Singh *et al.* (2001), however, this study also finds that larger companies are likely to employ a higher proportion of women directors.

$$\text{PNMALE or PNFEMALE} = \beta_0 + \beta_1\text{POSTIPO} + \beta_2\text{INDUST} + \beta_3\text{LNMKTCAP} + \varepsilon \quad (1)$$

Equation 1

Table I Board composition by gender												
	Number of directors		1994 – 7 IPOs				Number of directors		2002 top companies			
	Number of directors	Percent	Mining company directors	Percent	Industrial company directors	Percent	Number of directors	Percent	Mining company directors	Percent	Industrial company directors	Percent
Female directors	16	5.0	0	0.0	16	6.0	16	4.6	0	0.0	16	4.5
Male directors	303	95.0	51	100.0	252	94.0	332	95.4	54	100.0	278	95.5
Total directors	319	100.0	51	100.0	268	100.0	348	100.0	54	100.0	291	100.0

Note: Sample size = 54 companies

Table I Board composition by gender

Table II Board size and proportions of women and men directors							
	Mean	1994 – 7 IPOs			Mean	2002 top companies	
		Median	Standard deviation	Median		Standard deviation	
Board size (members)	5.91	5	2.03	6.44	6	1.83	
Proportion of women directors	0.046	0	0.089	0.039	0	0.076	
Proportion of men directors	0.954	1	0.089	0.961	1	0.076	

Note: Sample size = 54 Companies

Table II Board size and proportions of women and men directors

Table III OLS of proportion of men and women directors and explanatory variables				
Variable	PNMALE		PNFEMALE	
	Coefficient	Pr.	Coefficient.	Pr.
C	1.041	0.000	-0.041	0.037
POSTIPO	0.001	0.937	-0.001	0.937
INDUST	-0.042	0.000	0.042	0.000
LNMKTCAP	-0.010	0.039	0.010	0.039
J-B	62.557	0.000	62.557	0.000
White test	8.667	0.070	8.667	0.070
Reset	-8.535	0.068	-8.535	0.068
Adj. R-squared	0.074		0.074	

Note: White (1980) heteroscedasticity-consistent coefficients and *p*-values are reported

Table III OLS of proportion of men and women directors and explanatory variables

Table IV Correlation matrix between explanatory variables			
<i>Variable</i>	<i>POSTIPO</i>	<i>INDUST</i>	<i>LNMKTCAP</i>
POSTIPO	1.000		
INDUST	0.000	1.000	
LNMKTCAP	0.249	0.218	1.000

Table IV Correlation matrix between explanatory variables

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