

**The Relationship between Female Directorship and Organizational  
Performance: Evidence from China**

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## **Attestation of Authorship**

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

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## **Abstract**

The influence of female board members on organizational performance has been an area of significant research, with some researchers finding a positive correlation between the two variables, some finding no correlation and others finding a negative correlation. This study used publically available information on companies in China from the period of 2002 to 2012, to examine the relationship between female board representation and company performance. The performance of the organization was measured using Return on Equity (ROE) and Tobin's Q, which are reliable measures of company performance. Regression analysis was used to examine which factors had a significant influence on the performance of the organization. The study found that despite a significant relationship between female board representation and the proportion of independent directorship, neither female board representation nor the proportion of independent directorship had any significant influence on the performance of the organization. This outcome may be the result of Chinese cultural factors, suggesting that females play only a token role on boards, rather than having the ability to influence the behavior or performance of the board. This research suggests that it is important for studies looking at the influence of female board members to carefully consider differences across organizations and the influence of culture on how well females are accepted within organizations.

## **Chapter 1: Introduction**

### **1.1 Significance of the Topic**

The board of any organization plays a critical role in monitoring and controlling management throughout the organization, and ensuring that the company continues to meet the needs of its stakeholders. Understanding the composition of boards in corporate governance is critical in determining the factors that influence the success of the organization (Rose, 2007). There is a strong relationship between boards and businesses performance, as boards play an important role in strategic management and monitoring (Finkelstein & Hambrick, 1996). A board's importance within an organization makes it crucial to understanding the influence that different board compositions may have on the overall performance of the organization, as decisions must be made regarding who sits on a board to ensure the best outcome for the company.

The proportion of females within managerial roles has traditionally been limited, with the proportion in directorship positions even more so. In the United Kingdom, one review indicates that females make up around 30% of all managers within the corporate sector, but only 6% of director positions that are non-executive (Adams & Ferreira, 2004). Despite significant growth in the number of women engaged in directorship roles, females continue to occupy only a small proportion of all board roles. The limited representation of females within these roles means that many organizations find themselves subject to strong internal and external pressure to improve diversity within their organizations, and promote the presence of females in directorship roles. In addition, many organizations feel that increasing female representation in the upper levels of management may significantly increase the performance of the organization overall (Catalyst, 2004).

The issue of female directorship within for-profit organizations has been an area of considerable debate and research year after year, with some groups arguing that the presence of females on the boards of businesses has the potential to improve board functionality and the performance of the organization as a whole. Studies into female representation and organizational success have used organizational performance measures such as Tobin's Q (Rose, 2007), Total Return to Shareholders (TRS) and Return on Equity (ROE) (Catalyst, 2004). These studies have primarily focused on developed markets, including those in the United States, Europe and Singapore. However, some studies have also considered less developed countries, such as the Republic of South Africa (Mkhize & Mswell, 2011).

A large number of the studies conducted, particularly those from developed countries, have observed a positive relationship between female participation on boards and the performance of the organization. This relationship could be caused by factors such as the improved decision making ability of diverse teams as compared to less diverse teams (Farrell & Hersch, 2005), or increases in the value of stock due to the organizational employing a more diverse management staff (Dobbin & Jung, 2010). However, some studies have also observed no relationship between female board representation and organization performance, or have even observed a negative relationship (Adams & Ferreira, 2009). Many studies considering the impact of gender diversity in boards have been unable to account for other factors that could be driving the women's involvement. Whether organizations with high profits are more likely to hire female board members, or females are choosing to work at organizations with higher levels of profit (Farrell & Hersch, 2005; Dobbin & Jung, 2010).

Despite the prevalence of research into the impact of female directorship on organizational performance, current research is limited by several factors. First, studies focus on determining whether a relationship is present, but do not take into account other factors present that could produce a similar result. However, controlling for these aspects can be challenging, and is often outside the scope of such studies. A second limitation in current studies is that they primarily focus on developed economies. It is likely that the impact of a female presence in boardrooms would differ considerably between cultures, as the perceptions of women differ across cultures, and the extent of female involvement in the labor force also differs considerably.

## **1.2 Purpose of the Study**

This study aims to consider the influence that female directorship has on the performance of organizations in China. As such, the study aims to answer the primary research question of whether the appointment of female directors to company boards significantly improves the performance of publically listed companies in China beyond that of similar companies with no female directors. China was chosen as the location for this study as the majority of research in this area considers developed markets (e.g. Shrader, Blackburn & Iles, 1997; Kang, Ding & Charoenwong, 2009), with few studies examining emerging markets. Furthermore, the emerging markets that are considered, such as Taiwan (Lai, 2010), make use of relatively few sample companies (fewer than 200) and a relatively short sample period (less than three years). To get past some of these limitations, this study focuses on China, using a research period from 2004 to 2012. This approach allows the study to consider an emerging market with considerable depth and detail.

To achieve this objective, performance will be compared between similar companies, with the proportion of female directors considered as an indicator of gender diversity in the board. To examine the performance of the organizations two measures will be used. The first of these is ROE, which measures performance from the perspective of accounting, and the second is Tobin's Q, which is employed to measure performance from the stock market's perspective. Tobin's Q is defined as the ratio of the firm's market value to the cost of replacement of its assets (Chung & Pruitt, 1994). Both of these are important measures and are commonly used methods for determining the performance of an organization. By using a multiple regression model, this study aims to determine which factors influence the performance of the organization, with a particular focus on whether female directors play a role in the organization's performance.

## **Chapter 2: Literature Review**

### **2.1 Importance of Directorship**

Within American companies and other organizations throughout the world, boards of directors are important for the functioning of the organization, making key strategic and monitoring decisions for the organization as a whole (Finkelstein & Hambrick, 1996). Furthermore, the board is responsible for making key decisions regarding CEO appointment, responding to a takeover bid and acquiring other companies (Bhagat & Black, 1999). As such, the functioning of the board is strongly related to the performance of the organization overall (Callen, Klein & Tinkelman, 2003). Within boards, there are two key types of directors, both having different behaviors and ways of thinking. One type comes from within the organization, and are often referred to as internal or inside directors. The second type comes from outside the company, many being entirely independent of the company. In the 1960s, American businesses tended to have mainly inside directors, however, this approach has changed, and today most companies have few inside directors, with one study finding that the average organization had less than 20% internal directors. This trend towards greater independence of the board is generally applauded as a positive move, having the potential to increase the performance of the organization (Bhagat & Black, 1999). This suggests that the composition of boards, both in terms of internal and external board members, and differences between board members, has the potential to have considerable impact on the performance of the organization.

### **2.2 Factors Influencing Female Directorship**

The limited number of females occupying positions on the boards of for-profit organizations suggests the presence of multiple factors influencing supply and demand for

male and female board members. One such factor that can influence the election of women onto boards is pressure for diversity. Throughout society, there has been a movement towards increased diversity within organizations and leadership positions. While ethical considerations are often the key focus of this emphasis on diversity, gender diversity is also an area that is frequently considered. As a consequence of internal or external pressure to be more diverse, some organizations have a strong focus on diversity within their staff. This emphasis extends throughout the organization, resulting in diversity being an area that is strongly considered for recruitment onto boards. In organizations that have a strong focus on diversity, females are more likely to be elected onto a board when a female board member leaves, or when a board position opens and the organization has few females on the board (Farrell & Hersch, 2005). Large, well-performing organizations are likely to experience higher levels of pressure to make their boards diverse, suggesting that these organizations will be more likely to hire female board members than smaller, less successful organizations (Dobbin & Jung, 2010). Research suggests that this is often a form of tokenism, where organizations are attempting to satisfy external or internal pressures, rather than believing the approach will improve the performance of the organization (Farrell & Hersch, 2005).

A second factor that can influence the election of women onto boards is supply and demand. In recent years, with the growing interest in diversity within organizations, significant pressure for organizations to have women represented at all levels of the organization, including the boards has arisen. Despite this growing demand, the number of adequately qualified female candidates for board positions is often limited. This review is supported by the over-representation of women who hold multiple directorship positions,

indicating that the demand for qualified female board members may be higher than supply in some cases. This suggests that many organizations that seek female board members are unable to secure them, particularly as high demand is likely to lead to females carefully selecting which organizations they will work for (Farrell & Hersch, 2005). It is also possible that the presence of bias against women results in the qualifications of women being more strictly scrutinized, resulting in women needing higher qualifications than men to obtain the same positions. If this were the case, it would further decrease the pool of qualified female candidates for board positions.

The factors that influence the inclusion of women on boards are important, as they provide evidence that selection of board members is frequently not a gender neutral process, and that the gender of the applicant may influence the likelihood of a women being elected onto the board of an organization. This may act to increase or decrease the chance of a women being elected, depending on the organization, any internal biases, and the pressures in place. These factors also suggest that the observed increase in the amount of female directorship is not solely the result of increases in the prevalence of qualified female applicants, but also the result of pressures within and outside of organizations. These pressures increase the likelihood that organizations will try to increase gender diversity within their teams (Farrell & Hersch, 2005). As interest in gender equity increases throughout the United States and other countries, it is likely that the level of pressure for the inclusion of women on company boards will also increase.

## **2.3 Female Directorship and Performance**

### **2.3.1 Theory**

Diversity within the workplace is an area that has received considerable academic and political attention. There is no universal definition of what board diversity means, although most studies agree that it relates to the composition of the board, and the variation in factors that can influence board decision making, including characteristics, expertise and attributes (Rose, 2007). Frequently this term is used to examine the impact of ethnic and cultural diversity on organizations, however, the issue of female representation within company boards is highly important. Even though the prevalence of women within management roles and boards has been increasing, the representation of women remains much smaller than men, suggesting that this area must continue to be a focus for research (Farrell & Hersch, 2005). The term gender diversity is frequently used in research to focus on differences in board composition from boards that contain only men and those that contain women. Under this focus, it is not the number of women on a board that is relevant, but the number of women compared to the number of men. One of the key arguments for female directorship within an organization is the role of gender diversity within boards for improving organizational performance. Increased diversity in boards has multiple potential benefits for the organization, including improved relations with employees, customers and suppliers (Adams & Ferreira, 2004).

Although there are many potential advantages to having increased diversity within teams, regardless of whether this is gender diversity or diversity in general, diversity also has the potential to have some negative impacts. As such, the presence of increased diversity within management teams does not necessarily mean improved functioning. Diverse teams tend to have more differences between members, resulting in an increased amount of disagreement. In contrast, similarities within teams tend to generate trust among team

members, resulting in a greater amount of collaboration. This suggests that diverse teams need extra mechanisms to be in place to reduce the amount of conflict within the team and ensure that the team operates effectively. This behavior is particularly prevalent when the organization is experiencing high levels of uncertainty, meaning that a higher proportion of male members will be elected to a board when there is significant uncertainty (Adams & Ferreira, 2004).

If the presence of females on boards has a significant impact on the performance of the organization, it is likely most to occur through influence on the group's processes. As such, it is not so much the presence or absence of women that is having a significant impact, but rather the amount of diversity that is present within the board. This is a theory that is often applied to racial diversity within teams and organizations and results in debate about whether diversity actually improves or reduces organizational performance. One side of this debate states that the presence of diversity results in increased levels of conflict, making it more difficult for the group to make decisions. The other side of the debate suggests that diversity can provide multiple viewpoints, proving the group with the ability to reach decisions more quickly and to make better decisions (Dobbin & Jung, 2010). An interest in diversity has led many organizations to focus on improving the amount of gender and cultural diversity present within the organization, with the belief that this will positively impact the bottom line of the organization (Catalyst, 2004).

Another possible mechanism that may result in female directorship having an impact on firm performance is the equities market. Even if the impact of gender diversity within the boardroom is neutral or negative, the stock market may react to the appointment of board

members and the diversity that is represented within the board. Dobbin and Jung (2010) discuss this possibility, arguing that the appointment of CEOs has a considerable impact on the market, with organizations spending time considering how a CEO's appointment will signal the market. Even though boards are not as significant to the organization as the CEO, it is likely that some response would be felt in the market. In their study, Dobbin and Jung considered data from 400 large businesses in the United States between 1997 and 2006, and examined a range of factors including stock price, investor holdings and board diversity. The authors found that investors favor diversity generally within boards, although diversity itself did not have a significant impact on board performance. Despite this, increased gender diversity within boards was associated with a decrease in stock price, suggesting that there was a bias against the presence of women within boards. Likewise, the authors found that investors decreased their investment in businesses that increased gender diversity within their boards, reinforcing the bias theory (Dobbin & Jung, 2010).

### **2.3.2 Outcomes of Research**

While many studies have found a positive relationship between female representation on boards (or gender diversity), this has not been the conclusion of all studies. Consequently, there has been substantial debate within the literature about effectively determining the relationship between female directorship and board performance (Dobbin & Jung, 2010). The variation in perspectives and study outcomes suggests that this is a complex area of study and that it is difficult to determine when effects are present and when they are not. One study that observed a positive outcome was a study on companies within the Fortune 1000 and Fortune 500 groups in the United States show a strong correlation between female boardroom participation and the performance of the organization. In this study, the authors

examined the period from 1996 to 2000 because of the significant economic growth that occurred in these years, and compared two measures of financial performance, which were TRS (Total Shareholder Return) and ROE (Return on Equity). The study divided companies into quartiles based on gender diversity, and found that companies within the top quartile for gender diversity had an average ROE of 17.7% and an average TRS of 127.7%. In contrast, companies in the bottom quartile had averages of 13.1% and 95.3% respectively. This indicates a significant difference in the performance of firms with high gender diversity and low gender diversity. A similar result was observed when industries were considered individually. However, like many similar studies, this study was unable to consider whether the observed differences in performance were the result of females within boards, or whether there were other factors influencing the outcome (Catalyst, 2004).

Studies supporting the association between gender diversity in boards and organizational performance have been prevalent throughout the world. One example is a study in Netherlands, which found a positive association between the percentage of females on the supervisory board and the ROE. However, significant relationships between diversity and performance at higher levels of management were not found. The authors argued that this lack of significance in the latter two boards could be the result of limited sample size and very low numbers of women at the board of directors level (Verboom & Ranzijn, 2004). A study in the United States also found that female directors had a significant influence on firm outcomes as a result of behavior difference. This study found that female directors tend to have better attendance than males, and the presence of women diversity on the board also improved the attendance of male board members. Female board members were more likely to be part of monitoring committees than males. This suggests that gender

diverse boards may have a greater focus on monitoring than boards that are not gender diverse (Adams & Ferreira, 2009).

A large-scale study on 2,500 Danish firms took additional precautions in its research and analysis, considering not only the impacts of female board representation on organizational performance, but also examining whether this effect existed when the characteristics of the firm were controlled for and the direction of causality was considered. As well as examining a large number of organizations, this study also considered data from 1993 to 2001. The size of this study in terms of organizations considered and length of time examined makes the study much more likely to determine if a significant trend exists. The authors of the study found that even when characteristics of the firm were controlled for, there was a significant relationship between firm performance and female board representation. This suggests that within many Danish companies, and potentially companies in other parts of the world, the presence of women on boards may have a significant impact on organizational performance. However, this was not the case for all female board members, and the authors of the study noted that the positive impact was associated with female board members who were elected by employees, but not female members who entered the board in other ways. Additionally, the authors noted that the outcome of the study depended how the proportion of females was measured and on the measurement of performance (Smith, Smith & Verner, 2005). This may explain why studies on the impact of female directorship have offered up varying results.

A study by Francoeur, Labelle and Sinclair-Desgagné (2008) made use of a different measure of performance to other studies to examine whether female board participation had

an influence on organizational performance. In this study, the authors used a valuation framework that took the level of risk into account when considering the performance of the organization. The model used examined the performance of the organization based on a number of factors, including the size of the organization and the ratio of book-to-market. If the performance of the organization was explained by these variables then the firm was considered to have a normal level of return, while the level of return was considered abnormal if the variables did not explain the organization's performance. The authors found that in complex environments, organizations with a higher proportion of female participation in governance and management systems were able to keep up with normal stock market returns and frequently experienced higher abnormal returns.

Although studies finding a positive association between female directorship and organization performance are common, not all studies have reached this conclusion. In other studies have found that the composition of boards has no significant effect on the performance of the organization. One such study was conducted among Danish firms from 1998 to 2001, making use of a cross sectional analysis of companies that were publically listed. The study did not find any significant relationship between female directorship and organizational performance (Rose, 2007). Likewise, a study of 80 publically listed companies in South Africa found that female directorship did not play a significant role in determining the performance of the corporation (Ke, 2010). The outcomes of these studies suggest that the significant relationship between female board representation and organizational performance that many studies have found, many not be a universal trend. For example, some cultures have a more negative view of females in the labor force than others, meaning that female directorship may not have been significant in South Africa and

possibly the Japanese study for this reason. However, this is unlikely to be a complete explanation for the lack of relationship that some studies observe, because a similar study in the United States, considering both gender and ethnic diversity on boards found no significant relationship between either form of diversity and organization performance (Carter, Simkins & Simpson, 2003). Furthermore, a study in Sweden, considering more than 20,000 companies from 1997 to 2005 found that gender diversity on the board had a negative impact on the company's returns (Daunfeldt & Rudholm, 2012).

#### **2.4 Correlation versus Causation**

While some studies have revealed a link between female boardroom participation and corporate performance, there are multiple possible explanations for this relationship. The first explanation is the one that is being discussed in detail in this study, which is the theory that increased female participation and gender diversity within boards itself leads to improved outcomes for the organization. A second explanation for this relationship is that the growing pressure for gender diversity on boards, and the relatively low number of qualified women, means that women tend to select which organizations they work for. This perspective is supported by the over-representation of females with multiple directorships, indicating that the demand for female board members may be higher than supply in some cases. This suggests that females can choose organizations that are performing well. This would produce the same trend in data that is observed under the first explanation, but would suggest that adding a female to the board of an organization does not in itself result in the creation of any additional value (Farrell & Hersch, 2005). Likewise, large and profitable organizations may be more susceptible to external and internal pressure, making them more likely to appoint women board members than less successful companies (Dobbin & Jung,

2010). These factors make it difficult to effectively determine what role the presence of females on boards in for-profit organizations has on the performance of the organization.

## Chapter 3: Data Sources and Methodology

### 3.1 Sample Selection and Sources of Data

As the focus of this study is to examine the relationship between performance improvement in publically listed firms and female directorship in China, the sample consisted of Chinese A-share stock. These are shares in companies based in mainland China that trade on Chinese stock exchanges, which include the Shanghai Stock Exchange and the Shenzhen Stock Exchange. A-shares are quoted in Chinese Renminbi and available for purchase by mainland citizens only. While foreign investment is allowed, this is only through a tightly regulated structure known as the Qualified Foreign Institutional Investor (QFII) system. To allow for increased reliability in the determination of the performance of companies, foreign currency quoted Chinese B-shares are excluded from this study.

In order to decrease the potential influence that could arise from the change in policies regarding independent directors, a sample period from the beginning of 2004 to the end of 2012 was chosen. The reason for this decision was the history of directorship within China. On 16 August 2001, the China Securities Regulatory Commission issued a regulation named *Establishment of Independent Director Systems by Listed Companies Guiding Opinion*. This regulation required listed companies to include at least two independent directors to their boards by 30 June 2002, and specified that at least one-third of the members of the board of directors should be independent directors. Thus, the number of independent directors within Chinese companies increased rapidly during 2001-2003, and the members of the board of directors increased in number accordingly. Since 2004, the percentage of independent directors on the board of directors has tended

to be stable. Thus, 2004 represents a good starting point for the sample period of this study.

Data regarding the characteristics of the board of directors were sourced from the Chinese Stock Market and Accounting Research (CSMAR) database, while the companies' accounting data was downloaded from the Bloomberg database. Within China, there are two stock exchanges. These are the Shanghai Stock Exchange (SSE) and ShenZhen Stock Exchange (SZSE). As of 24 Mar 2013, both exchanges include 2,482 A-share stocks across 18 industries. Some firms did not disclose their female director information in their annual reports, and were excluded from the sample, thus the total number of companies that were included in the sample for the study was 2,470.

## **3.2 Empirical Methodology and Hypotheses**

### **3.2.1 Measurement of Firm Value**

In this study, comparison of means and regression analysis were used to examine the impact of female directorship on firm value. The change in firm value is measured from two perspectives. The first of these is the accounting perspective, which takes into account value increases for firms, such as ROE, Return on Assets (ROA) and other similar measures (Shrader et al., 1997). The second perspective is the market perspective, which is related to improvement in profits for investors (Bhagat & Black, 1999; Carter et al., 2003). Measures of the market perspective can include Tobin's Q, the Price to Earnings (P/E) ratio and other measures. ROE is the amount of net income returned as a percentage of shareholders' equity. It measures a corporation's profitability by revealing how much profit a company generates with the money that shareholders have invested. Net income is the

income for the full fiscal year, before dividends are paid to common stock holders, but after dividends are paid to preferred stock holders. Shareholder's equity does not include preferred shares, and is expressed as a percentage, as follows:

$$\text{ROE} = \text{Net Income}/\text{Shareholder's Equity} \quad (1)$$

Tobin's Q plays an important role in a firm's financial activities. It is defined as the ratio of the market value of a firm to the replacement cost of assets (Chung & Pruitt, 1994). Chung and Pruitt's (1994) method of calculating of Tobin's Q is used in this study. It is expressed as follows:

$$Q = (\text{MVE} + \text{PS} + \text{DEBT})/\text{TA} \quad (2)$$

In this equation, MVE is the product of a firm's share price and the number of common stock shares outstanding and PS is the liquidating value of a firm's outstanding preferred stock. DEBT is the value of the firm's short-term liabilities net of its short-term assets, plus the book value of the firm's long-term debt, and TA is the book value of the total assets of the firm. These four variables are available in a firm's annual financial report, which can be downloaded from CSMAR database. For this study, any missing data was obtained by referring to the SSE and SZSE websites.

### **3.2.2 Regression Analysis**

Based on the studies of Shrader, Blackburn and Iles (1997) and Carter, Simkins and Simpson (2003), this study made use of regression analyses to determine the relationship between firm performance and female directorship.

$$\text{ROE} = \alpha_1 + \beta_1 \text{PWD} + \beta_2 \text{PIND} + \beta_3 \log(\text{SIZE}) + \beta_4 \text{SOE} + \beta_5 \text{YEAR} + \beta_6 \text{CSRC} \quad (3)$$

$$+ \varepsilon_1$$

$$Q = \alpha_2 + \beta_1 \text{PWD} + \beta_2 \text{PIND} + \beta_3 \log(\text{SIZE}) + \beta_4 \text{SOE} + \beta_5 \text{YEAR} + \beta_6 \text{CSRC} + \varepsilon_2 \quad (4)$$

The above two equations make use of dependent variables that are measures of organizational firm performance. Organizational performance is evaluated from the accounting perspective by using the ROE in Equation (1) and Equation (3), and from the stock market perspective through Tobin's Q in Equation (2) and Equation (4). Following the recommendations of Shrader, Blackburn and Iles (1997) and Carter, Simkins and Simpson (2003), if sufficient information is available from fiscal year 2012 reports, the independent variables listed below will be used in the analysis. If this information is not available, then the year from which data is available will be used as the base.

1. Proportion of Women Directors (PWD): Number of female directors divided by the total number of directors.
2. Proportion of Independent Directors (PIND): The number of independent directors divided by the total number of directors. According to the regulations of the *Establishment of Independent Director Systems by Listed Companies Guiding Opinion*, an independent director is defined as a director who does not hold any position in the company other than director, and who has no relationship with the listed company engaging him or its principal shareholders that could hinder his making independent and objective judgments.
3. Firm Size (Log(SIZE)): The logarithm of the organization's total assets.

4. State-Owned Enterprises (SOE): This is a dummy variable and indicates whether the organization is state owned or not. If the organization is not owned by the state, the variable is scored as 0, if it is owned by the state, then the variable is scored as 1.
5. Year dummy variable (YEAR): If there was data available in the year reports, this variable was scored as a 1, otherwise it was scored as a 0.
6. Industry dummy variable (CSRC): The CSRC industry code is used to differentiate the industries.

Both the industry dummy variable and year dummy variable are used to control for the effect of industry (Mulherin, 2005) and board structure trends (Guest, 2008). The purpose of these equations is to estimate whether female directorship is related to the value of the firm. As such, the null hypothesis for the study is that women directorship has no relation to firm value ( $\beta_1 = 0$ ). Rejection of the null hypothesis would indicate the presence of a correlation between female directorship and firm value. When  $\beta_1 > 0$ , female directorship is associated with an increase in firm value, while when  $\beta_2 < 0$  female directorship is associated with a decrease in firm value. Additionally, the outcomes of the regression analyses will indicate which variables have a significant impact on the value of the firm.

### **3.2.3 Solving the Endogeneity Problem**

Understanding the effect of female directorship on the firm value is an important step in understanding boards and their role in corporate governance. A popular method to examine the relationship between the appointment of women directors and firm value change is to look cross-sectionally at firm-level factors. However, during the cross-sectional analysis of

boards the endogeneity problem appears (Hermalin & Weisbach, 2003). This problem means that although board composition can impact firm value, firm value also has the potential to influence board composition. For example, organizations that have poor firm performance are more likely to have external directors join and internal directors leave (Hermalin & Weisbach, 1988). Also, several empirical studies show that board composition and firm performance jointly impact each, such as in Singapore (Mak & Li, 2001), New Zealand (Prevost, Rao, & Hossain, 2002) and the United Kingdom (Guest, 2008). As such, the estimation of Equation (3) and Equation (4) using OLS could lead to biased coefficient estimates. In order to control the possibility of endogeneity, Equation (5) and Equation (6) are introduced.

$$PWD = \alpha_1 + \beta_1 ROE + \beta_2 PIND + \beta_3 \log(SIZE) + \beta_4 SOE + \beta_5 YEAR + \beta_6 CSRC \quad (5)$$

$$+ \varepsilon_1$$

$$PWD = \alpha_2 + \beta_1 Q + \beta_2 PIND + \beta_3 \log(SIZE) + \beta_4 SOE + \beta_5 YEAR + \beta_6 CSRC + \varepsilon_2 \quad (6)$$

## Chapter 4: Results

### 4.1 Basic Characteristics of Firms and Boards

The number of firms listed increased dramatically in the years included in the sample, from 830 in 2004 to 2470 firms in 2012. Increases in the number of firms listed occurred every year except from 2004 to 2005, which saw a slight decrease in firms from 830 to 817. The overall increases in firms means that the number of firms more than tripled from 2005 (the year with the lowest number of firms) to 2012, a seven-year period. The proportion of female directors ranged from 12.89% to 18.71%, with the highest value being from 2011 while the lowest value was from 2012. From 2006 to 2011 the proportion of female directors saw gradual increases. For all years, the proportion of independent directors in organizations was 34.33% or higher (Table 1), and satisfies the requirement of the China Securities Regulatory Commission, which required organizations to have at least a third of their directors being independent.

Table 1

#### Mean value of key variables of sample firms during 2004-12

Year	Number of firms	Proportion of female directors	Proportion of independent directors	Total assets (RMB in billions)
2004	830	16.67%	34.33%	4.08
2005	817	16.32%	34.80%	4.72
2006	887	16.54%	35.13%	20.21
2007	950	16.84%	35.80%	35.74
2008	994	17.39%	35.95%	38.59
2009	1118	17.82%	36.17%	44.74
2010	1380	17.94%	36.44%	54.84
2011	1567	18.71%	36.81%	50.35
2012	2470	12.89%	37.03%	48.27

Table 2 shows the distribution of female directors in boards across 18 industries in 2012. Close to one third of the organizations sampled did not have any female directors at all, while just over a third of firms had between 11% and 20% female representation on boards.

Table 2

**Women on boards of directors for sample firms by industry in 2012**

CSRC industry code	Industry description	Proportion of women on board							Total Firms
		0	1-10%	11%-20%	21%-30%	31%-40%	41%-50%	>50%	
A	Agriculture	12 30.77%	1 2.56%	11 28.21%	10 25.64%	3 7.69%	1 2.56%	1 2.56%	39
B	Mining	34 52.31%	7 10.77%	23 35.38%	1 1.54%	0 0.00%	0 0.00%	0 0.00%	65
C	Manufacturing	493 31.46%	83 5.30%	556 35.48%	282 18.00%	111 7.08%	31 1.98%	11 0.70%	1567
D	Utilities	19 24.05%	14 17.72%	31 39.24%	5 6.33%	7 8.86%	3 3.80%	0 0.00%	79
E	Construction	30 48.39%	2 3.23%	17 27.42%	8 12.90%	5 8.06%	0 0.00%	0 0.00%	62
F	Wholesale & Retail	37 23.72%	5 3.21%	65 41.67%	23 14.74%	17 10.90%	4 2.56%	5 3.21%	156
G	Transportation	30 36.59%	15 18.29%	22 26.83%	8 9.76%	3 3.66%	4 4.88%	0 0.00%	82
H	Hotel industry	5 41.67%	1 8.33%	3 25.00%	2 16.67%	1 8.33%	0 0.00%	0 0.00%	12
I	Information technology	43 34.96%	9 7.32%	43 34.96%	22 17.89%	4 3.25%	1 0.81%	1 0.81%	123
J	Finance	11 25.58%	8 18.60%	15 34.88%	6 13.95%	2 4.65%	1 2.33%	0 0.00%	43
K	Real estate	48 35.04%	11 8.03%	38 27.74%	27 19.71%	10 7.30%	2 1.46%	1 0.73%	137
L	Leasing and Commercial services	6 30.00%	2 10.00%	6 30.00%	3 15.00%	2 10.00%	1 5.00%	0 0.00%	20

CSRC industry code	Industry description	Proportion of women on board							Total Firms
		0	1-10%	11%-20%	21%-30%	31%-40%	41%-50%	>50%	
M	Scientific research services	3 25.00%	1 8.33%	0 0.00%	7 58.33%	0 0.00%	1 8.33%	0 0.00%	12
N	Public facilities Management	8 34.78%	1 4.35%	8 34.78%	2 8.70%	4 17.39%	0 0.00%	0 0.00%	23
P	Education	1 100.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	0 0.00%	1
Q	Hygienism & Social work	0 0.00%	0 0.00%	1 33.33%	1 33.33%	1 33.33%	0 0.00%	0 0.00%	3
R	Entertainment	6 25.00%	2 8.33%	10 41.67%	5 20.83%	0 0.00%	1 4.17%	0 0.00%	24
S	Comprehensive	9 40.91%	0 0.00%	7 31.82%	3 13.64%	1 4.55%	0 0.00%	2 9.09%	22
Total		795	162	856	415	171	50	21	2470
Proportion of firms		32.19%	6.56%	34.66%	16.80%	6.92%	2.02%	0.85%	100%

Of the firms sampled in the study, 26.60% had more than 20% female directors, while less than 1% of firms had more than half of their directors as women. The distribution of female directors also differed strongly across industries. Additionally, some industries had limited representation in the sample, such as the education industry (CSRC = P), which had only one firm represented in the sample. The single firm represented had no female board members. However, the low sample size means that this is not necessarily indicative of other firms within the education industry. Firms within the entertainment (CSRC = R) and finance (CSRC = J) industries had the lowest percentages of boards without female directors (25.00% and 25.58%, respectively). As such, firms in these industries were the most likely to have at least one female director. In contrast, the mining (CRSC = B) and construction (CRSC = E) industries were the two industries with the highest proportion of firms with no female directors (52.31% and 48.39%, respectively).

## 4.2 Firms that Include Females: Are They Different?

The first step in this comparison was to consider the differences in the characteristics of boards with and without female directors. Table 3 presents the outcomes of a comparison of the means of the characteristics of firms across firm-years, between organizations that have female directors and those that did not. For this analysis, the proportion of females on the board was not considered, only the presence versus absence of females on the boards. The analysis shows that the organizations with female directors reported were relatively smaller in size, and had lower levels of performance both in relation to Tobin's Q and ROE. This comparison indicated that the appointment of female directors was related to the size of the organization and warrants further investigation relating to reasons for the decrease in the value of the firm. However, the observed differences were not statistically significant.

Table 3

### Comparisons of firms with and without female directors

Firm characteristic	Mean for firm-years with female directors n=788	Mean for firm-years without female directors n=9786	Difference	<i>t</i> statistic
Tobin's Q	1.731721 (9.9605279)	1.835163 (6.1728862)	-0.103442	0.639
ROE	0.105567 (7.4425135)	0.124432 (0.8538636)	-0.018865	0.982
Total assets (RMB in billion)	34.131317 (526.7532662)	40.225239 (480.1479228)	-6.093922	0.377

Note: Standard errors are reported in parentheses, beneath the parameter estimates.

## 4.3 Multivariate Results

Table 4 presents the results of the estimation of the correlation between the firm value and female directorship. Standard errors are reported in parentheses, beneath the beta estimates. The estimates for female directorship are negative, but not significant across the models.

Table 4

**Estimation of the relationship between firm value and female directorship**

Variables	Dep.Var =Tobin's Q (1)	Dep.Var= proportion of females on board (2)	Dep.Var= ROE (3)	Dep.Var= proportion of females on board (4)
% of independent directors on board	0.005 (0.018)	0.092*** (0.019)	0.013 (0.014)	0.092*** (0.019)
ROE				-0.010 (0.014)
Tobin's Q		-0.006 (0.010)		
Size (ln total assets)	-0.930*** (0.071)	-0.983*** (0.074)	-0.128*** (0.053)	-0.989*** (0.073)
% of female on board	-0.006 (0.009)		-0.005 (0.007)	
State-Owned or not (1/0)	0.058 (0.223)	-2.111*** (0.229)	0.008 (0.165)	-2.122*** (0.223)
CSRC industry code	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
N	10547	10547	10547	10547
Adjusted R <sup>2</sup>	0.330	0.380	0.290	0.381
F-Statistic	33.683***	70.375***	15.18***	70.401***

\*\*\* indicates statistical significance at 0.01 level. Standard errors are reported in parentheses, beneath the parameter estimates.

This indicates that the presence of female directors does not have a strong contribution to the performance of the organization overall. Nevertheless, there was a non-significant trend for higher female director ratio on the board to be associated with lower levels of firm performance, both in terms of Tobin's Q and ROE. Additionally, there was a significant correlation between the number of independent directors on boards and the proportion of female directors on the board. There was a substantial relationship between the proportion of independent directors and the performance of the organization, but this effect was not statistically significant.

This model showed significantly negative coefficient estimates for firm size in relation to female directorship. This indicates that larger firms are less likely to appoint female directors. Furthermore, the model showed that large firms did not have significantly better performance than smaller organizations. There were also strong differences between state-owned and non-state-owned organizations, with state-owned organizations experiencing higher levels of performance (on average), but being less likely to employ females. Finally, in this study, both the industry and year dummy variables were included in all models, and the VIF (Variance Inflation Factor) of all the variables across the models was less than 10. This indicates that the multicollinearity problem within the study was minimized.

## **Chapter 5: Discussion**

### **5.1 Females and Firm Performance**

Studies of the relationship between female directorship and firm performance have been prevalent in the literature in recent years, as there are strong internal and external pressures for diversity within the organization (Catalyst, 2004). Consequently, many organizations want to know whether the increased representation of female board members will have a positive, negative or insubstantial impact on the performance of the organization. Despite the prevalence of research, examination into this area has tended to focus on developed Western economies, even though differences in laws and cultures means that the impact of female directorship may be significantly different in other nations. The current study considered the relationship between female directorship and firm performance in China, a country subject to quite different market and political forces than many other countries. One significant aspect is that the China Securities Regulatory Commission places regulations on the proportion of independent directors present on the board, suggesting that on many boards, the presence of females is the result of this regulation. This indicates that females may not have a strong influence on decision making within boards and are still a minority. This theory is supported by the data in this study, which found a slight negative association (non-significant) between the presence of female directors and firm performance, and a significantly negative relationship between the proportion of females on the board and the performance of the firm. Furthermore, the data showed that few Chinese firms employ a majority of female directors, with less than 1% having women directors making up more than 50% of the board, and with around 97% of firms having female directors make up 40% or less of their board.

The observed correlation between female representation on boards and the percentage of independent directors suggests that these two factors are related. One possible explanation for this is that female directors are more likely to be independent than part of the firm. Farrell and Hersch (2005) argued that there is often an over-representation of females who serve on multiple boards (thus are independent directors on most if not all of those boards) as the result of limited numbers of qualified female directors. A second possible explanation for the relationship between independent directors and female representation on boards is that organizations who hire more directors that are independent are also more likely to hire more female directors. This is a reasonable explanation given that some organizations focus on increasing independent directors and female directorship as the result of internal and external pressures (Farrell & Hersch, 2005) with the aim of increasing probability of female directorship (Bhagat & Black, 1999).

Within China, as in other nations, the limited proportion of female representation on boards suggests that tokenism is likely to exist (Kanter, 1977; Adams & Ferreira, 2009; Torchia, Calabro, & Huse, 2011). Furthermore, the appointment of females onto boards has considerably diversified the structure of the board of directors, and thus has the potential to increase conflict between males and female directors, potentially harming decision-making processes in the organization, resulting in increased operation costs and lower firm value (Kanter, 1977). Likewise, the laws and regulations surrounding the amount of independent directors that firms have mean that organizations employ independent directors as the result of legal requirements, rather than due to the desires of the organization itself. In many cases, independent directors do not have a large amount of influence on the board, having a

humble status and often viewed as ‘vase directors’. This may minimize the impact that independent directors have on the performance of the organization. By extension, this may also limit the amount of influence that female directors have on the organization, particularly as there is a significant relationship between the proportion of female directors and independent directors within the organizations examined for this study. The limited impact of independent directors (and potentially female directors also) may be an explanation as to why neither female nor independent directorship had a significant impact on organizational performance in this study.

## **5.2 Directors and Organizational Characteristics**

One unexpected outcome that this study found was that there was a significantly negative relationship between organization size and female representation on the board of directors. This is opposite to the trend found in many other studies, such as Dobbin and Jung (2010), who argue that large organizations are more susceptible to internal and external pressure to hire females onto the board. Furthermore, in Western countries, such as the United States, there tends to be a positive relationship between organization size and performance, as larger organizations are able to operate under economies of scale, which decrease costs for the organization and allow it to be more competitive within the market. In contrast, large firms in China tend to have a relatively long history of operation and follow traditional models of operation. The majority of these types of firms are reluctant to change and adapt developments in society. This means that these organizations tend to be less efficient and competitive than their smaller competitors, and this can lead to poorer organizational performance.

This study found strong differences between state-owned organizations and those not owned by the state. In general, state owned firms are supported by the government, which provides them with more resources for development. Many of these firms have a relatively long history and are influenced by the traditional Confucian model, which regards males as superior to females, and reinforces the concept of male power. Consequently, many of these organizations are less likely to include female directors on the board. The differences between state-owned organizations and those not owned by the state, as well as differences across organization sizes, suggest that female directorship could potentially have differing impacts depending on the type of firm. For example, small and non-state-owned organizations may be more flexible and modern in their viewpoint, and more likely to allow females to have an influence on the functioning of the company.

### **5.3 Directorship in China**

The current study found many trends that differed from those anticipated. First, the outcomes of the study met the null hypothesis, as there was no significant impact of female directorship on organizational performance. Indeed, the direction of the relationship between female directorship and firm performance was negative, suggesting that the presence of females within boards either has no impact or a slight negative impact on the performance of the organization. Likewise, large organizations were less likely to hire female employees and did not perform as well as smaller organizations. Many of these trends can be seen as the result of differences between Chinese culture and that of other countries that have been studied in relation to female directorship and organizational performance. China is a country that can be characterized as having large power-distance with a strong amount of central decision-making. This results in the prevalence of

hierarchies within businesses and the government. As so, being promoted is highly important within Chinese culture and the title one holds is of significant social importance. Likewise, there is not a strong distinction between personal life and work, and if a person enters a powerful position, it is expected that their relatives would also receive promotions (Nordhaug, Zhang, Gooderham & Liu, 2007). Although female representation in managerial roles, including roles as board directors, has been increasing in recent years, this increase has been slow in China, with China reporting the lowest percentage of women professionals and managers in the world. This suggests that it is more of a challenge for women to obtain significant positions in organizations in China as compared to other countries, which could account for the low level of female board representation observed in this study (Davidson & Burke, 2011).

#### **5.4 Limitations and Future Directions**

Like many similar studies, this research was limited by the large variations present between companies and the issue of correlation versus causation in businesses. Some studies have shown that large businesses preferentially hire female employees as they have more resources to do so and women may themselves choose high performing organizations (Dobbin & Jung, 2010). This trend has the potential to drive the correlation between firm performance, as it creates a correlation between the two variables that is not driven by women promoting business growth. This outcome was not observed in the current study and large organizations were found to be less likely to hire females and tended to have fewer resources, which may be due to these businesses following traditional paths, while smaller businesses tend to be newer and more flexible. While it is unlikely that organization size drove the effects observed in this study, as the trends occurred in different directions, it

remains difficult to determine whether female directorship had no impact (or a slight negative impact) on firm performance, or whether there are other factors which were not observable.

The large variation in types of companies may also have obscured any relationship between female board membership and organization performance, particularly if this relationship was only present in some industries, organization size or type of organization. For example, it is possible that female board members in non-government organizations have more influence over the company than those in government-owned organizations. This is because government-owned businesses in China often closely follow Confucian ideals, which place females at a disadvantage. Nevertheless, despite the limitations of this study, the research reveals key information about the role of female board membership in China, and in general. In particular, this study showed that the relationship between female board membership and organization performance is complex and influenced by many different factors. Furthermore, this relationship is culturally specific, and may be different from one culture to another, particularly when the way that women are viewed in these cultures is taken into account.

Future research in this field needs to consider the impact that culture has on the way that females are viewed within boards and how this influences the actual role that females are able to play in a boardroom. It is likely that cultures that have a strong emphasis on male power will often employ female board members as a token gesture, rather than allowing them to have any real influence. Understanding the potential dynamics within the board

may be important for understanding when females are able to improve the performance of the organization and when they are not.

## **Chapter 6: Conclusion**

This study aimed to examine the relationship between female board membership in mainland Chinese businesses and organizational performance, hypothesizing that female board membership would have no impact on the performance of the organization as a whole. Statistical analysis showed this to be the case, with no significant relationship between female board membership and firm performance being found, although the presence of a non-significant negative relationship may have indicated that the presence of females on the board had some negative impact on the organization. In addition to a lack of significance, this study did find a significantly positive relationship between the proportion of independent board members and the proportion of female board members, suggesting that many of the females on boards in China may be independent board members. This study revealed key cultural differences within China that have the potential to significantly influence the impact that females have on organizational performance and their ability to be an influence in rooms board. These aspects include a focus on tradition and male dominance, in addition to a hierarchical society that places strong emphasis on career and promotions. Furthermore, unlike other finding, this study found that large firms in China were less profitable and less likely to hire female directors, the reverse of trends found in other countries. These outcomes suggest the critical importance of considering culture as part of the equation for the influence of female board members, and indicate that although female board members may have the potential to increase the performance of an organization, this potential varies between organizations and cultures.

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