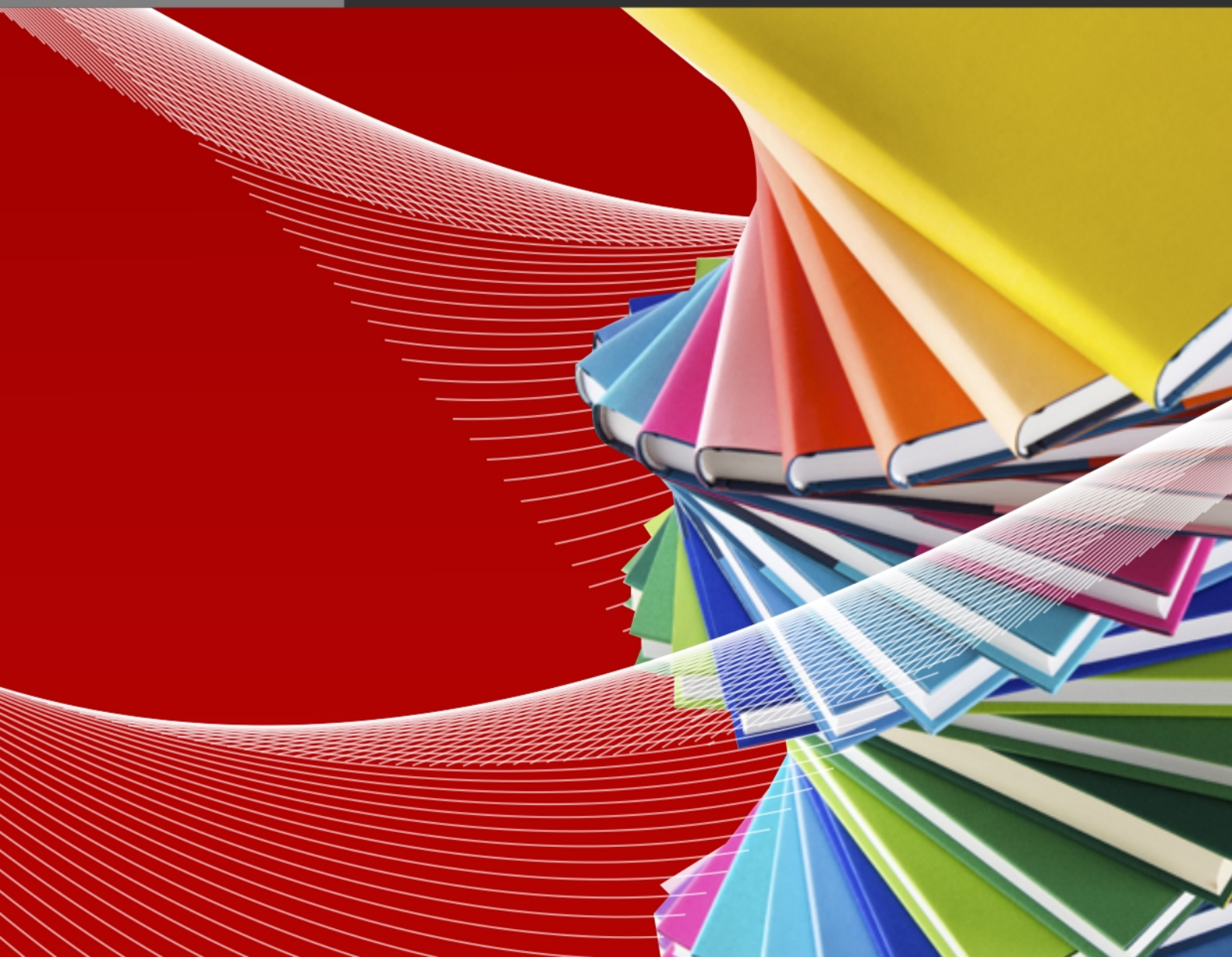
澳門大學
UNIVERSIDADE DE MACAU
UNIVERSITY OF MACAU

# Outstanding Academic Papers by Students
# 學生優秀作品



# UNIVERSITY OF MACAU

## FACULTY OF BUSINESS ADMINISTRATION

# Gender Diversity and Firm Financial Performance:

# Evidence from Hong Kong and China

Sam Kit Ian, Rita
M-B0-4310-0

Thesis presented to the
Faculty of Business Administration
University of Macau
In partial fulfillment for granting the degree of
Master of Science in Accounting
2014

# Table of Contents

## Acknowledgement

I would like to express my heartfelt acknowledgement to my supervisor, Dr. Lei Cheuk Hung, Adrian, for all his enlightenment, recommendation, guidance and encouragement. During my formulation of this thesis, he provides me insightful advices, comments and precious data. Without his support, guidance and feedback, I could not guarantee the completion of this thesis.

Meanwhile, he enlightens me for my future life, for his attitudes on research and life. He also gives me support and encouragement when I feel concerned for my health. Hence, I need to show my heartfelt gratitude to you. Thank you, Adrian Lei.

I would also like to thank my family for their love, support and encouragement.

## Abstract

The debate of gender diversity on boards becomes more and more popular all over the world. Male dominant on boards is very serious in Hong Kong and China listed companies**.** The relationship between gender diversity on boards and firm financial performance in different countries is worth to be investigated. This study examines the relationship between gender diversity on boards and firm value in Hong Kong and China. Further, the relationship between the proportion of independent directors and Tobin's Q, influence of Female CEO on the effect of female directors ratio on Tobin's Q, influence of Board Independence on the effect of female directors ratio on Tobin's Q, and the influence of Board Size on the effect of female directors ratio on Tobin's Q are also investigated in this study. These relationships are examined by using the financial data, corporate governance data, board directorship data and firm characteristic data in Hong Kong and China Main Board firms from the year 2001-2009. Correlation and regression analyses indicate that gender diversity on boards and board independence are positively related to firm financial performance measured by Tobin's Q in Hong Kong and China. Further, Female CEO has gender preference on directors in Hong Kong and China shares market. Board independence can strengthen the effect of female directors ratio on Tobin's Q and larger board size weakens the effect of female directors ratio on Tobin's Q in China shares market.

# 1. Introduction

## 1.1 Motivation of This Study

Debates about the relationship of board diversity and firm financial performance all over the world have been increasing. It is justified that diversifications on boards could improve the quality of board discussion and then increase the ability of board. Erhardt *et al.* (2003) state that higher levels of board diversity will lead to higher organizational performance. For organisational performance, it can be the corporate governance in the organization and the firm value. There are two general distinctions of board diversity in the related researches, which are the observable diversity and the non-observable diversity. The observable diversity includes gender, age, ethnicity and so on. The non-observable diversity includes education, perception, knowledge, values, personality characteristics and so on. Among these different types of diversity, this study focuses on gender diversity. According to the report "Standard Chartered Bank Women on Boards Hong Kong 2014" and "Standard Chartered Bank Women on Boards: Hang Seng Index 2013", only 9.6% of board positions are held by female in Hong Kong listed companies in March 2014. In China, this percentage is also only 8.5% in December 2011. Comparing with the international countries, these percentages are far below[1]. From these figures, it is clear that male dominant on boards is serous in Hong Kong and China listed companies**.** Gender diversity on boards should be received more attention and have some significant impacts on firm financial

[1]According to the report, 9.6% of board positions are held by female in Hong Kong listed companies in March 2014, while it is 9.4% in February 2013, 9.0% in 2012, and 8.9% in 2009. In China, it is 8.5% in December 2011. Norway has a 40.9% of women on boards in January 2012. UK has a 17.3% in January 2013, US has a 16.6% in June 2012, and Australia has a 15.4% in February 2013.

performance.

For China, as a rapidly developing market, the changes to the board diversity would enable detailed investigation of its relationship with firm performance. Also, board diversity could be more important compared to US counterparts as the Chinese firms have undertaken privatization in the past decade. Cross listing is common between Hong Kong and China shares market. For example, many companies incorporated in China trade their stocks on Hong Kong shares market. Also, there are many companies trade their stocks on Hong Kong shares market and China shares market simultaneously. Hong Kong can act as a benchmark to help separate the effects from the treatment variables. Hence, this study will examine whether there is empirical evidence to support the views that firms with diverse boards, in terms of gender composition, can make better financial performance using Hong Kong and China data.

After using the financial data, corporate governance data, board directorship data and the firm characteristic data in Hong Kong and China Main Board firms from the year 2001-2009, the Fixed-Effect regression model results show that the percentage of female directors on boards can increase the firm financial performance in terms of Tobin's Q in Hong Kong and China. Besides the relationship of the proportion of female directors on boards and Tobin's Q, the relationship between the proportion of independent directors and Tobin's Q, influence of Female CEO, Board Independence and Board Size on the effect of female directors ratio on Tobin's Q are also investigated in the regression model. Regression results show that board independence is important and good for firm financial performance in Hong Kong and China shares market, while board independence can also strengthen the effect of female directors ratio on Tobin's Q in China shares market. Female CEO has gender preference on

directors in Hong Kong and China shares market. It is not good to the firm financial performance and firms. Results also show that larger board size weakens the effect of female directors ratio on Tobin's Q in China shares market.

This study contributes and confirms an important role of board diversity in firms. The results show the importance of gender diversity and board independence. Gender diversity on boards and board independence can increase the firm value. Firms in Hong Kong and China should take an important position for gender diversity and independence on boards. Further, results also show that there are some significant links between Female CEO and the effect of female directors ratio, Board Independence and the effect of female directors ratio, also the Board Size and the effect of female directors ratio. The board of directors in the organizations should pay more attention to these diversity issues and strengthen the firm value in a correct direction.

The remaining parts of this study are organized as follows. The following section describes the institutional background of Hong Kong and China. Section 3 reviews the related literatures and develops the hypotheses. Section 4 describes the data collection process and the research design methodology. Section 5 presents the empirical regression results and discussion. Finally, section 6 concludes the research results and discusses the research limitations in this study.

# 2. Institutional Background

## 2.1 Institutional Background in Hong Kong

### 2.1.1 Institutional Environment in Hong Kong

Hong Kong is a Special Administrative Region of China. Before 1 July 1997, it belongs to British territory. It is operating under the Basic Law and British Common Law. From 1 July 1997, Hong Kong has returned to the sovereignty of China. From then on, it is governed under the principle of "one country, two systems". Government in Hong Kong respects and attaches importance to corporate governance of Hong Kong listing companies. To promote the good corporate governance, Government regulates high standards and regulations for corporate governance, such as Non-statutory Guidelines on Directors' Duties issued by the Companies Registry, Code on Takeovers and Mergers issued by the Securities and Futures Commission, and Code on Corporate Governance Practices by Hong Kong Exchanges and Clearing Limited.

### 2.1.2 Corporate Governance Code in Hong Kong

The Code on Corporate Governance Practices by HKEx sets out the principles and standards of good corporate governance. There are two levels in the Code, which are code provisions and recommended best practices. They are not mandatory rules. For the code provisions, the Code requires a comply-or-explain basis. It means companies should state in their annual reports and their interim reports that whether they comply with the code provisions in the Code or not and explain their progress and objectives. For the recommended best practices, it is for the listing companies' guidance.

On the Code on Corporate Governance Practices, it states the principle, code provisions and recommended best practices based on the board of directors, remunerations, board evaluation, accountability and audit, board delegation, shareholders communication and also the company secretary.

Further, the board of directors of the listing companies should issue a Corporate Governance Report in their summary financial reports and annual reports. There are two disclosure requirements in the Corporate Governance Report, one is mandatory disclosure requirements and the other is recommended disclosures.

For the mandatory disclosure requirements, the board of directors of the listing companies must include the information of corporate governance practices, security transactions of directors, board of directors, chairman and chief executive, non-executive directors, the committees of the board, remuneration of the auditors, company secretary, rights of the shareholders and the relations of investors in the Corporate Governance Report.

For the recommended disclosures, the board of directors of the listing companies is only encouraged to include the information of share interests of senior management, investor relations, internal controls, the functions of management in their Corporate Governance Report, not mandatory basis.

### 2.1.3 The Structure of the Board in Hong Kong

The regulations of board structure in Hong Kong are under the section of Directors in

the Code on Corporate Governance Practices. The listing companies should be headed by an effective board. The board of directors is responsible for monitoring the activities of the companies. They should make important and objective decisions for the best interests of companies. There are two important management roles in the companies, which are the management of the board and the day-to-day management of business. The important issue is that the roles, duties and responsibilities of the chairman and chief executive officer should better be separated. They should not be performed by the same person. Board diversity is important. The board of directors should have a balance of skills and experiences. The non-executive directors and executive directors on boards should be matched a balanced composition. Board independence is also important. Therefore, the independent directors take an important composition on the board.

## 2.2 Institutional Background in China

### 2.2.1 Institutional Environment in China

The economy of China structured as a state-owned, centrally planned economy before the year 1978. It means the enterprises and companies were government or commune owned. After the historic reforms initiated in 1978, most of the companies are partially or wholly privately owned. The government established the China Securities Regulatory Commission in 1993. It is to provide regulations on the listing companies and the capital market. Also, China instituted the Company Law in 1994 and the Securities Law in 1998. For promoting the good corporate governance, China Securities Regulatory Commission issued the Code of Corporate Governance for Listed Companies in China on 7 January 2001. The Code states that "it is formulated to promote the establishment and improvement of modern enterprise system by listed

companies, to standardize the operation of listed companies and to bring forward the healthy development of the securities market of our country".

### 2.2.2 Corporate Governance Code in China

The Code of Corporate Governance for Listed Companies in China sets up the basic principles and standards for good corporate governance to China listed compaines. The Code is a good standard for measuring and evaluating whether the listed companies in China are performed well with good corporate governance. The listed companies in China should put their efforts on improving their corporate governance according to the Code. There are 8 Chapters in the Code, which set up the basic principles and modal standards on the shareholders, the meetings of the shareholders, the controlling shareholders of listed companies, board of directors, the supervisory board, the assessments of performance, disciplinary systems, stakeholders, information disclosure and transparency.

### 2.2.3 The Structure of the Board in China

The regulations of the board structure in China are in the Chapter 3 and Chapter 4 of the Code of Corporate Governance for Listed Companies in China. Two-tier board structure is applied in China. There is a supervisory board overseeing the board of directors in the listed companies. The supervisory board of a listed company is accountable to all shareholders. It monitors and supervises the functions and duties of management, and the board of directors in the listed company. It is required to have three members at least. One third of the supervisory board members must be employee representatives. The same as the structure of the board in Hong Kong, the roles, duties and responsibilities of the chairman and chief executive officer should better be

separated. The listed companies should introduce the independent directors to the board of directors to ensure the board independence. Several specialized committees of the board of directors may be established. For examples, audit committee, corporate strategy committee and some other special committees which are responsible for the resolutions of shareholders' meetings.

### 2.3 Comparison of Board Structure in Hong Kong and China

For the structure of the board in Hong Kong and China, the board independence is important. Both Hong Kong and China set rules on the issue and need of independent directors. Moreover, Hong Kong and China also recommend to separate the roles, duties and responsibilities of the chairman and chief executive officers. It is better to perform by two different persons, not the same person. The most different structure in China is the two-tier board structure. There is a supervisory board overseeing the board of directors in the listed companies. It is similar to the German convention.

## 3. Literature Review and Hypotheses Development

There are many prior studies that examine the interesting relationship between corporate governance structures, diversifications and firm value. For corporate governance structures and firm value, Beiner *et al.* (2006) show that corporate governance is positively related to firm value by constructing a broad corporate governance index using the sample firms of Swiss. Bhagat and Bolton (2008) also find a positive relationship between corporate governance and operating performance. For diversifications and firm value, Anderson *et al.* (1998) find that the fraction of outside directors in a diversified firm is positively related to firm value. Black *et al.* (2006) also find that board independence is positively related to the shares prices. However, Klein *et al.* (2005) cannot find evidence on the positive relationship between board independence and the performance of firms. Indeed, they find this effect is negative for family-owned firms. Hence, the link between corporate governance structures, board diversifications and firm value is comprehensive and interesting. This study focuses on the relationship between the board diversifications and firm value.

For board diversifications, the board of directors, as the most important monitoring body in a company, oversees the activities, establishes policies, approves strategies and makes important decision, such as financial decisions. Mamun *et al.* (2010) state that board serves as a bridge in separation of the ownership and control. As the board of directors is formed by a group of competencies and capabilities, the composition and diversity of the board are very important. Campbell and Mı´nguez-Vera (2008) state that the monitoring role of the directors as the corporate governance control mechanism is very important. They also suggest that the quality of this important

monitoring role and firm value can be affected by the gender diversity on boards. Stephenson (2004) also states that female can have a special point of view on decisions making. Nielsen and Huse (2010) also find a positive relationship between female directors percentage and board strategic control. Hence, the managerial role of female on boards is important.

As mentioned in the section of Introduction, Gender diversity on boards should be received more attention. Addition of female to the board becomes an important issue in board diversity. Farrell and Hersch (2005) show evidence on the negative relationship between the female composition on boards and the addition of one female during the decade of the 1990s. They also find a material significant positive relationship between the departure of female on boards and the addition of female on boards. It suggests that the overall increase of female percentages on boards is only related to the demand of gender diversity.

Gender diversity on boards should have some significant impacts on firm financial performance. There are many prior studies that examine the relationship between gender diversity on boards and firm performance. Herring (2009) finds a positive relationship between gender diversity on boards, sales revenue and profits. Abubakar *et al.* (2011) reveal that gender diversity and board composition have significant and positive influence on firms' financial performance. Lückerath-Rovers (2013) finds that companies with female directors on boards can perform better than the companies without female directors on boards using the sample of Dutch firms. Erhardt *et al.* (2003) show evidence on the positve relationship between female or minorities percentage on boards and firm financial performance using the sample of US companies. Carter *et al.* (2003) also can find that the female directors ratio and the

minorities ratio on boards are positive and significantly related to firm value using Fortune 1000 firms. For the sample of Danish firms, Smith *et al.* (2006) also find the positive effects between the percentage of top management with female and firm value. These researches examine the relationship in foreign courtries, such as US and Denmark. There are few studies that examine these relationships in Hong Kong and Mainland China.

In China, there is one key provision in terms of equality in the law of The Constitution of China, which is Article 48.

Article 48 in The Constitution of China states that:

"Women enjoy equal rights with men in all spheres of life, political, economic, cultural and social, including family life. It provides that the State must protect the rights and interests of women, apply the principle of equal pay for equal work and train and select cadres from among women as well."

The Constitution of China is adopted in 1982 by the People's Congress. Therefore, women equality is protected and confirmed in Mainland China for a long time. Further, China is a rapidly developing market. It also goes through a spectacular economic transformation and becomes an important market for business in the world. Traditional Chinese society is male-dominant, with the development of China market, instead of the old "state-owned" and "Chinese-style" management, more diversified board may higher the quality of the board. It then needs to a higher value for the board. I expect it has the same positive relationship and nature as aforementioned countries in prior studies. Hence, the following hypothesis is formed.

*Hypothesis 1: There is a positive relationship between board female ratio and firm performance in terms of Tobin's Q in China Main Board shares market.*

For Hong Kong, it is a Special Administrative Region. It goes through from a fishing village from 150 years before; to an important financial and tourism city in the world. One of Hong Kong's equal opportunities ordinances is the Sex Discrimination Ordinance. Both male and female in Hong Kong is protected by this ordinance. The Hong Kong Exchanges and Clearing's new Code Provision on board diversity was introduced on 1 September 2013. All listed companies in Hong Kong are required on a "comply or explain" basis to have the detailed board diversity policies, to disclose the related diversity policies and to report their progress and implementation of these policies from 1 September 2013. With the introduction of the new Code Provision on board diversity, the discussions and focuses of board diversity is expanded and taken important attention in the business and companies. It is also under the prediction that diversified boards can higher the quality, ability and the value of the boards. Johl and Kaur (2012) also investigate the relationship between gender diversity and firm performance in Malaysia in 2012. They show that women participation on the board matters has a positive effect on firm performance using both financial and non-financial data from annual reports of the 700 public listed firms in Malaysia for the year 2009. Therefore, I predict that the same positive relationship exists in Hong Kong shares market and develop the following hypothesis.

*Hypothesis 2: There is a positive relationship between board female ratio and firm performance in terms of Tobin's Q in Hong Kong Main Board shares market.*

# 4. Data and Methodology

## 4.1 Data Sources and Sample Selection

For Hong Kong shares market, the original samples are the firms traded in Hong Kong Main Board market during the years 2001 to 2009. The firm characteristic data is from Datastream International. The related board directorship data is collected from Webb-site database, such as number of directors on boards, the percentage of female directors on boards, independent director ratio. The firm financial data is collected by hand on annual reports from HKEx website. For China shares market, the original samples are the A shares traded in China Main Board market, including ShangHai A shares and ShenZhen A shares. The firm characteristic data, the related board directorship data and firm financial data are all collected from the CSMAR database. Table 1 below shows the data sources of the variables used in this study.

[Table 1 about here]

After collecting the original samples, I exclude the observations with the missing related financial, board directorship and firm characteristic data. Then I also exclude the industry of the financial firms since the laws and regulations in these financial firms are more regulatory compared to other industries. For Hong Kong, I form the sample firms with 6,118 observations during the years 2001 to 2009. For China, I form the sample firms with 12,238 observations during the years 2001 to 2009. Finally it forms my full sample with 18,356 observations.

Table 2 shows the distribution of my full sample firms over the nine years from 2001 to 2009. Table 3 and Table 4 summarize the industry distribution of Hong Kong and China Main Board sample firms over the nine years from 2001 to 2009 respectively.

[Table 2 about here]

[Table 3 about here]

[Table 4 about here]

### 4.2 Measuring the Firm Financial Performance

In this study, Tobin's Q is used to measure the firm financial performance. Rose (2007) states that Tobin's Q is a common measure of the ability of the firms in most literatures of corporate governance. The Tobin's Q ratio is usually calculated by dividing the firm market value by the equity replacement value. If the Tobin's Q ratio is less than 1, it means this company's market value is cheaper than its book value. If the Tobin's Q ratio is larger than 1, it means this company has strong growth opportunities. Hence, Tobin's Q is a good proxy for the firm financial performance.

### 4.3 Research Methodology

Hermalin and Weisbach (1998, 2003) suggest the endogenous problem between board composition and firm performance. Farrell and Hersch (2005) state that the endogenous problem is caused by determining the board characteristics and performance jointly. It gives doubts and implication on the causal links and

relationships between board composition and firm performance. Therefore, the endogeneity issues should better be avoided in the analysis. Adams and Ferreira (2009) employ firm fixed effects to avoid the endogeneity problem. Hagendorff and Keasey (2012) use the returns on a specific announcement to avoid the endogeneity problem. Garay and Gonzalez (2008) examine the related relationships by using lagged dependent variables in a single equation model.

Prior studies use different models and methods to examine the relationship between board diversity and firm financial performance. To examine the relationship of gender diversity and sales revenue, Herring (2009) uses multivariate analyses. To examine the relationship of firm performance and the percentage of women and minorities, Erhardt *et al.* (2003) use hierarchical regression analysis. To examine the relationship of gender diversity, board composition and firm financial performance, Abubakar *et al.* (2011) use cross-sectional regression model data. To investigate the relationship between Tobin's Q and female board representation, Rose (2007) also performs cross-sectional regression model. Johl and Kaur (2012) use OLS regression model to show that women participation on the board matters has a positive effect on firm performance. Smith *et al.* (2006) use three models to analysis and show the relaionship of the proportion of women and the firm performance. The three analysis models are random-effect regression model, fixed-effect regression model and pooled ordinary least squares (OLS) regression model.

In this study, Fixed-Effect regression model is used to examine the effect and analysis the relationship between the proportion of female directors on boards and Tobin's Q. Since Fixed-Effect regression controls all time differences, the time-varying variables such as firm size and capital expenditure are controlled. Further, to avoid the

endogeneity problems and causal relationship for time, the independent variables are lagged in the regression model. It can allow the regression model to predict the effect of future year based on the recent history of the year before. Besides the relationship of the proportion of female directors on boards and Tobin's Q in Hong Kong and China Main Board market in Hypothesis 1 and Hypothesis 2, the relationship between the proportion of independent directors and Tobin's Q, influence of Female CEO, Board Independence and Board Size on the effect of female directors ratio are also investigated in the regression model. In this study, the following regression model is used. For the definition and explanation of each variable in the regression model, Table 5 can be referred.

$$\begin{aligned} TOBINQ = {} & \alpha_0 + \alpha_1 PFE + \alpha_2 PINE + \alpha_3 BUSSIZE + \alpha_4 BDSIZE + \alpha_5 TANG + \\ & \alpha_6 SHARESDY + \alpha_7 FECEODY + \alpha_8 SHARESDY * PFE + \\ & \alpha_9 SHARESDY * PINE + \alpha_{10} SHARESDY * FECEODY * PFE + \\ & \alpha_{11} SHARESDY * PINE * PFE + \alpha_{12} SHARESDY * BDSIZE * PFE + \varepsilon \end{aligned}$$

[Table 5 about here]

Further, in order to analysis and compare the results, six sub-models for this regression model are investigated. The first model is to look at the overall performance and effect using the full sample firms of Hong Kong and China shares market. Then the other models are to look at the performance and effect of Hong Kong sample firms only, China sample firms only, full sample with Hong Kong shares market interaction, full sample with China shares market interaction, Chinese H shares in Hong Kong shares market, and A-H shares in China shares market.

### 4.4 Variables Measurement

In this model, Tobin's Q (TOBINQ) is a dependent variable. The shares dummy variable (SHARESDY) is used to separate the full dataset into subgroups, which are Hong Kong shares data, China A shares data, H shares data and A-H shares data. To investigate the Tobin's Q effect in Hong Kong, a Hong Kong shares dummy variable will be used. To investigate the Tobin's Q effect in China, a China shares dummy variable will be used. Proportion of female directors on boards (PFE) and proportion of independent directors on boards (PINE) are the independent variables. Business size (BUSSIZE), board size (BDSIZE), and tangibility (TANG) are the control variables. Business size (BUSSIZE) is proxy as the Natural logarithm of the total assets. Board size (BDSIZE) is proxy as the Natural logarithm of the board size. Tangibility (TANG) is calculated by dividing the property, plant and equipment value by the total assets. Female CEO dummy (FECEODY) is a dummy variable. It is equal to 1 if the firm CEO is female. This variable is used to investigate whether the effect of female diversity on boards on Tobin's Q will be influenced by the CEO gender. Further, the variables FECEODY * PFE, PINE * PFE and BDSIZE * PFE are used to investigated the influence of Female CEO, Board Independence and Board Size on the effect of board female ratio on Tobin's Q. To control the influence of the outliers, I also winsorize the upper and lower 1% of some variables, which are Tobin's Q (TOBINQ), business size (BUSSIZE), board size (BDSIZE), and tangibility (TANG).

### 4.5 Expected Signs for Explanatory Variables

To test the Hypothesis 1 and Hypothesis 2, the variables of PFE and SHARESDY * PFE can be the explanatory variable in this regression model. After using the shares

dummy variable data, the effect of female ratio on boards on Tobin's Q in Hong Kong and China will be showed. For the Hypothesis 1 and Hypothesis 2, I also make a positive prediction. It means that board female ratio may increase and improve the firm financial performance. Therefore, I expect that the sign of the coefficient of the explanatory variables is positive.

Further, the relationship between the proportion of independent directors and Tobin's Q, influence of Female CEO, Board Independence and Board Size on the effect of female directors ratio are also investigated in the regression model. For relationship between the proportion of independent directors and Tobin's Q, the variable SHARESDY * PINE can be the explanatory variable. For the influence of Female CEO on the effect of female directors ratio, influence of Board Independence on the effect of female directors ratio and also influence of Board Size on the effect of female directors ratio, the variables SHARESDY * FECEODY * PFE, SHARESDY * PINE * PFE and SHARESDY * BDSIZE * PFE can be the explanatory variables respectively.

# 5. Empirical Results

## 5.1 Summary Descriptive Statistics

Table 6 Panel A provides the summary descriptive statistics of all variables for the full sample of Hong Kong and China firms. There are 18,356 observations in the full sample. Among the full sample firms in Hong Kong and China, the average Tobin's Q value is 1.53. It means these companies normally have good firm performance and strong growth opportunities. The average percentage of the female directors on the boards is only 12.7% among Hong Kong and China Main Board firms. The average percentage of independent directors on the boards is 33.3%. Table 6 Panel A also shows that there is only 3.7% female CEO among Hong Kong and China Main Board firms. It is quite a low rate. It indicates that there is a large percentage of CEO gender is male.

Further, Table 6 Panel B and Panel C provide the summary descriptive statistics of all variables for the sub-sample of Hong Kong and China Main Board firms respectively. There are 6,118 observations and 12,238 observations for the sample of Hong Kong and China, respectively. For Hong Kong sample in Table 6 Panel B, the average Tobin's Q value is 1.11, while the average Tobin's Q value is 1.75 for the China Main Board sample in Table 6 Panel C. It means that China Main Board firms perform better, have more comparative advantages and stronger growth opportunities compared with Hong Kong Main Board firms. The average percentage of the female directors on boards in China is larger than Hong Kong's. Hong Kong has an average ratio of 10.3%, while China has an average ratio of 13.8%. It simply implies the thoughts that whether

the larger female ratio on boards will really lead to better firm performance and higher Tobin's Q value. For the average percentage of independent directors on the boards, Hong Kong is 36.8 % and China is 31.5%. For Hong Kong Main Board firms, Table 6 Panel B shows that there are only 2.1% female CEO, while Table 6 Panel C shows that there are 4.6% female CEO. It indicates that the female CEO in China Main Board firms is two times larger than Hong Kong's. Does the female CEO influence the percentage of female on the boards, since China also has a higher percentage of female directors? It will be discussed in the section of Correlation Analysis.

[Table 6 about here]

**5.2 Correlation Analysis**

Table 7 displays the correlation of all variables for the full sample of Hong Kong and China Main Board firms. The independent variables in Table 7 are lagged variables. For correlation analysis, the percentage of female directors (PFE) on boards is positively related to the Tobin's Q value (TOBINQ) among the full sample in Hong Kong and China. It means that generally larger female directors ratio on the boards can contribute better firm financial performance in terms of Tobin's Q. It is the same correlation with Abubakar *et al.* (2011). They reveal that gender diversity and board composition have significant and positive influence on firms' financial performance. Table 7 shows that the proportion of independent directors (PINE) on the boards is also positively correlated to the Tobin's Q value (TOBINQ) among the full sample of Hong Kong and China. It means board director's independence is also important and good for firm financial performance in terms of Tobin's Q. For the relationship of the female CEO (FECEODY) and the percentage of female directors (PFE) on boards, it is

positively and significantly related. It means that when the firm CEO is female, there are higher opportunities to have more female directors on the boards. However, whether this significant relationship influences or relates to the effect of the ratio of female directors on firm financial performance, it will be examined and discussed in the following regression analysis section. For the correlation of board size (BDSIZE) and the percentage of female directors (PFE), Table 7 shows a negative relationship between them. It means generally in Hong Kong and China Main Board shares market, the larger the board size, the smaller of the percentage of female directors. Further, Kiel and Nicholson (2003) use correlation analysis to find that company size is positively correlated with board size in 348 of Australia's largest publicly listed companies. Table 7 also shows that the board size (BDSIZE) is positively and significantly related to the business size (BUSSIZE) in Hong Kong and China Main Board firms. This positive relationship may be due to the reason that, larger companies need a larger number of directors on boards to control and monitor the activities of the firms.

[Table 7 about here]

**5.3 Regression Results and Discussions**

As mentioned in the section of Research Methodology, Fixed-Effect regression model is used in this study. The independent variables are also lagged in the regression model. Before lagging the independent variables, the observation of the full sample of Hong Kong and China Main Board shares market are 18,356 observations, of which sub-sample of Hong Kong shares market has 6,118 observations and sub-sample of China A shares market has 12,238 observations. After the independent variables are

lagged, the full sample of Hong Kong and China Main Board shares market has 15,584 observations, of which sub-sample of Hong Kong shares market has 5,181 observations and sub-sample of China A shares market has 10,403 observations.

### 5.3.1 Effect of Female Directors Percentage on Boards on Tobin's Q

Table 8 presents the Fixed-Effect regression results of Model 1 to Model 6 regarding the relationship between the female directors percentage on boards and Tobin's Q. Model 1 in Table 8 shows the overall relationship between board female ratio (PFE) and Tobin's Q (TOBINQ) when using the full sample firms of Hong Kong Main Board shares market and China Main Board shares market. It shows a positive and significant (p-value = 0.000) relationship in the full sample of Hong Kong and China shares market. Model 2 in Table 8 presents the relationship between board female ratio (PFE) and Tobin's Q (TOBINQ) when using the Hong Kong Main Board sample only. It shows a positive and significant (p-value = 0.083) relationship. For the relationship between board female ratio (PFE) and Tobin's Q (TOBINQ) in China Main Board sample, Model 3 in Table 8 also shows a positive and significant (p-value = 0.050) relationship between them. It means that, generally in Hong Kong shares market, China shares market and full sample market, gender diversity can increase the firm value in terms of Tobin's Q.

Using the full sample firms with Hong Kong shares market interaction (HKSharesDY * PFE), with China shares market interaction (ASharesDY * PFE), with Chinese H shares listed in Hong Kong shares market interaction (HSharesDY * PFE) and with A-H shares interaction (AHSharesDY * PFE), Model 4(A), Model 4(B), Model 5 and Model 6 in Table 8 also show an insignificant relationship (p-value = 0.583, 0.583, 0.767 and 0.226 respectively) between female directors ratio on boards and Tobin's Q. It means

that there are no significant differences between these markets.

Thus, Model 3 supports the positive relationship of Hypothesis 1 in China Main Board shares market and Model 2 also supports the positive relationship of Hypothesis 2 in Hong Kong Main Board shares market. The gender diversity on boards can higher and improve the firm financial performance in terms of Tobin's Q in China and Hong Kong shares market.

[Table 8 about here]

### 5.3.2 Effect of Independent Directors Ratio on Boards on Tobin's Q

Table 8 also presents the Fixed-Effect regression results of Model 1 to Model 6 regarding the relationship between independent directors ratio and Tobin's Q. Model 1 in Table 8 shows the overall relationship between independent directors ratio (PINE) and Tobin's Q (TOBINQ) when using the full sample firms of Hong Kong Main Board shares market and China Main Board shares market. It shows a positive and significant (p-value = 0.000) relationship in the full sample of Hong Kong and China shares market. Model 2 in Table 8 presents the relationship between independent directors ratio (PINE) and Tobin's Q (TOBINQ) when using the Hong Kong Main Board sample only. It shows a positive and significant (p-value = 0.070) relationship. For the relationship between independent directors ratio (PINE) and Tobin's Q (TOBINQ) in China Main Board sample, Model 3 in Table 8 also shows a positive and significant (p-value = 0.000) relationship between them. The regression results in Model 1, Model 2 and Model 3 also show that, board independence is also very important in Hong Kong shares market and China shares market. It can higher the firm financial performance in terms of

Tobin's Q.

Using the full sample firms with Hong Kong shares market interaction and with China shares market interaction, Model 4(B) in Table 8 shows a positive and significant (p-value = 0.000) relationship between independent directors ratio (ASharesDY * PINE) and Tobin's Q (TOBINQ) in China shares market. However, relatively to China shares market, Model 4(A) in Table 8 shows a negative and significant (p-value = 0.000) relationship between independent directors ratio (HKSharesDY * PINE) and Tobin's Q (TOBINQ) in Hong Kong shares market. Further, Model 5 in Table 8 presents the performance of Chinese H shares listed in Hong Kong shares market and Model 6 in Table 8 presents the performance of A-H shares, the A shares listed in China shares market and also listed in Hong Kong shares market. They also show an insignificant relationship between independent directors ratio (HSharesDY * PINE and AHSharesDY * PINE respectively) and Tobin's Q (TOBINQ).

[Table 8 about here]

### 5.3.3 Influence of Female CEO on Effect of Female Ratio on Tobin's Q

Table 9 presents the Fixed-Effect regression results of Model 1 to Model 6 regarding the relationship between Female CEO and the effect of female ratio on Tobin's Q. In this table, Model 1 (FECEODY * PFE), Model 3 (FECEODY * PFE) and Model 4(B) (ASharesDY * FECEODY * PFE) show a negative and significant (p-value = 0.078, 0.000 and 0.004 respectively) relationship. Model 2 (HKSharesDY * FECEODY * PFE) shows a positive and significant (p-value = 0.093) relationship. No matter positive or negative relationship, regression results show a significant relationship between

Female CEO and the effect of Female Ratio on Tobin's Q. It means that Female CEO may have gender preference on directors. It may not good for the firm performance and firms.

[Table 9 about here]

### 5.3.4 Influence of Independence on Effect of Female Ratio on Tobin's Q

Table 10 presents the Fixed-Effect regression results of Model 1 to Model 6 regarding the relationship between Board Independence and the effect of female ratio on Tobin's Q. For Hong Kong shares market only, H shares in Hong Kong market and also A-H shares in China market, Model 2 (PINE * PFE), Model 5 (HSharesDY * PINE * PFE) and Model 6 (AHSharesDY * PINE * PFE) in Table 10 show an insignificant (p-value = 0.115, 0.913 and 0.204 respectively) relationship. For the full sample of Hong Kong and China shares market, and sub-sample of China shares market only, Model 1 and Model 3 in Table 10 also presents a positive and significant (p-value = 0.012 and 0.017 respectively) relationship (PINE * PFE). It means that Board Independence can strengthen the effect of female directors ratio on Tobin's Q in these market.

Using the full sample firms with Hong Kong shares market interaction and with China shares market interaction, Model 4(B) in Table 10 shows a positive and significant (p-value = 0.000) relationship (ASharesDY * PINE * PFE) in China shares market. However, relatively to China shares market, Model 4(A) in Table 10 shows a negative and significant (p-value = 0.000) relationship ((HKSharesDY * PINE * PFE) in Hong Kong shares market. It means that, among the full sample of Hong Kong and China shares market, Board Independence can strengthen the effect of female directors ratio

on Tobin's Q in China shares market. Relatively, Board Independence weakens the effect of female directors ratio on Tobin's Q in Hong Kong shares market.

[Table 10 about here]

### 5.3.5 Influence of Board Size on Effect of Female Ratio on Tobin's Q

Table 11 presents the Fixed-Effect regression results of Model 1 to Model 6 regarding the relationship between Board Size and the effect of female ratio on Tobin's Q. For Hong Kong shares market only, full sample with Hong Kong shares market interaction, full sample with China shares market interaction, H shares in Hong Kong market and also A-H shares in China market, Model 2 (BDSIZE * PFE), Model 4(A) (HKSharesDY * BDSIZE * PFE ), Model 4(B) (ASharesDY * BDSIZE * PFE), Model 5 (HSharesDY * BDSIZE * PFE) and Model 6 (AHharesDY * BDSIZE * PFE) in Table 11 all show an insignificant (p-value = 0.434, 0.671, 0.320, 0.778 and 0.291 respectively) relationship. For the full sample of Hong Kong and China shares market, and sub-sample of China shares market only, Model 1 and Model 3 show a negative and significant (p-value = 0.045 and 0.038 respectively) relationship (BDSIZE * PFE). It means that, larger board size weakens the effect of female ratio on Tobin's Q in these markets.

[Table 11 about here]

### 5.3.6 Summary Results and Discussions

For the relationship between the female directors percentage on boards and Tobin's Q, the results support the positive relationship in Hypothesis 1 and Hypothesis 2. It means

in China shares market and Hong Kong shares market, gender diversity can increase the firm financial performance. There are no significant differences between Hong Kong and China shares market. Also, the same insignificant relationship exists for H shares in Hong Kong shares market and A-H shares in China shares market. There are some prior studies that also cannot find any significant relationship between female diversity on boards and firm financial performance. Rose (2007) does not find any significant link between female ratio on boards and firm performance in terms of Tobin's Q. Carter *et al.* (2010) also do not find any significant links between gender divrsity and ethnic diversity on boards and firm financial performance using the sample of US companies. In this study, for the positive relationship between the percentage of female directors on boards and firm financial performance in terms of Tobin's Q in China Main Board shares market and Hong Kong shares market, it is the same results as the studies of Abubakar *et al.* (2011), Erhardt *et al.* (2003), Carter *et al.* (2003), Smith *et al.* (2006) and Johl and Kaur (2012), as introduced in the section of Literature Review and Hypotheses Development.

In China, the role and rights of female go through a dramatic transformation. From long time ago, traditional Chinese society is male-dominant. Most of the female stays at home and takes care of the duties in their family. Male works outside as an important labor force in the society. Nowadays, female takes up most of the important roles in the society, such as economic, educational, political industries and so on. According to the report of "Diversity & Inclusion in Asia Country View - China", in China, the percentage of women in total population in year 2011 is 47%, and the female labor participation rate in year 2010 is 70%. It means most of the female takes an important role as labor force in China. They should take up the duties at work and at home. Their power, ability and capability are affirmed now. As mentioned in the

Literature Review and Hypotheses Development section, one key provision in terms of equality in the law of The Constitution of China is adopted in 1982 by the People's Congress. It means women equality is protected and confirmed in Mainland China from the year 1982. With the development of China market, more diversified board can higher the quality of the board and higher the value of the board. Therefore, it is no doubt and the reason why that the positive relationship between the percentage of female directors on boards and firm financial performance in terms of Tobin's Q in China Main Board shares market exists.

In Hong Kong, it also develops quickly in recent decades. Hong Kong becomes an important financial and tourism city in the world. According to the report of "Diversity & Inclusion in Asia Country View – Hong Kong", the percentage of women in total population in year 2011 is 53.4%, and the female labor participation rate in year 2011 is 53.8%. Many people in Hong Kong confirm that both male and female should enjoy equal opportunity and equal status in the society, such as in the workplace and in their family. More and more women work in the society and they can show their ability and performance on workplace and the family. The Hong Kong Exchanges and Clearing's new Code Provision on board diversity was introduced on 1 September 2013. It strengthens the importance of board diversity in Hong Kong. Therefore, it is also no doubt and the reason why that the positive relationship between the percentage of female directors on boards and firm financial performance in terms of Tobin's Q in Hong Kong Main Board shares market exists.

For the relationship between the independent directors ratio on boards and Tobin's Q, the results show that the board independence is also important to the firm value in Hong Kong shares market and China shares market. It can increase the firm financial

performance. For the influence of Board Independence on the effect of female ratio on Tobin's Q, although the result shows an insignificant relationship in Hong Kong shares market, board independence can strengthen the effect of female ratio on Tobin's Q in China shares market. Therefore, these results imply that board independence is very important. Although Klein *et al.* (2005) do not find any evidence on the positive links between board independence and firm performance. The positive relationship between board independence and firm value are consistent with some existing literatures. The results are similar to the studies of Mashayekhi and Bazaz (2008) and Pombo and Gutierrez (2011). Pombo and Gutierrez (2011) find a positive relationship between the outside directors ratio and firm ROA using the sample of Colombian business groups for the year of 1996-2006. Mashayekhi and Bazaz (2008) find that outside directors can strengthen the firms' performance of EPS, ROA and ROE using the data from firms listed in the Tehran Stock Exchange during years of 2005 to 2006. Further, Kim and Lim (2010) also examine the relationship between board independence and firm value using Korean firms. Besides the quantity of the independent directors, they show evidence that the quality of the independent directors also affects the firm value.

For the influence of Female CEO on the effect of female ratio on Tobin's Q, the results show that, Female CEO has gender preference on directors in Hong Kong and China shares market. Thus it may be detrimental in these companies. There are some prior studies that examine the relationship between CEO gender and firm financial performance. Kolev (2012) provides evidence that Female CEOs underperform on the returns of the shareholders compared with male counterparts. The result of this study shows that Female CEO may be detrimental, inversely, Vieito and Khan (2013) find that companies with female CEO have better performance compared with the

companies with male CEO. Mersland and Strom (2009) also find that firm value improves with Female CEO.

For the influence of Board Size on the effect of female ratio on Tobin's Q, Hong Kong shares market has an insignificant link. For China shares market, larger board size will weaken the effect of female ratio on Tobin's Q. Although Beiner *et al.* (2004) show evidences that the board size is an independent corporate governance mechanism and do not find a significant relationship between board size and firm value, there are many prior studies that show negative relationship between board size and firm value in different countries. Conyon and Peck (1998) show the negative effect of board size on corporate performance using European economies. Eisenberg *et al.* (1998) find that board size is negative correlated with profitability using the sample of Finnish companies. Mak and Kusnadi (2005) show that the board size is negative related to firm value in terms of Tobin's Q using Singapore and Malaysia firms. Mashayekhi and Bazaz (2008) also show the negative correlations between board size and firm financial performance using the firms listed in the Tehran Stock Exchange. Connell and Cramer (2010) also provide evidences on the significant and negative relationship between board size and firm financial performance using companies in Irish Stock Market. The results of this study show that larger board size weakens the effect of female ratio on Tobin's Q in China shares market. It somehow implies that board size may destroy the firm value. It is similar nature as the results of the aforementioned studies.

# 6. Conclusion

## 6.1 Overview of This Study

The purpose of this study is to investigate the relationship between board diversity and firm financial performance in Hong Kong and China. As male-dominant is serious in Hong Kong and China, gender diversity on boards is treated as the proxy of the board diversity in this study. It is mainly to examine whether the percentage of female directors on boards can higher and improve the firm financial performance in terms of Tobin's Q in Hong Kong and China market. The results of this study are performed and examined by using the financial data, corporate governance and directorship data in Hong Kong and China Main Board shares market during the year 2001-2009. After performing the Fixed-Effect regression model, the results show that, the percentage of female directors on boards can increase the firm financial performance in Hong Kong and China. The positive relationship result in Hong Kong and China shares market may be due to the affirmation of female power, ability and capability. Female equality is protected and supported in the society. Board diversity is also treated as an important issue on Boards. Besides the relationship of the proportion of female directors on boards and firm financial performance in Hong Kong and China Main Board market, the relationship between the proportion of independent directors and Tobin's Q, influence of Female CEO, Board Independence and Board Size on the effect of female directors ratio on Tobin's Q are also investigated in the regression model. Results show that board independence is important and good for firm financial performance in Hong Kong and China shares market, while board independence can also strengthen the effect of female directors ratio on Tobin's Q in China shares market. Female CEO has

gender preference on directors in Hong Kong and China shares market. And larger board size will weaken the effect of female directors ratio on Tobin's Q in China shares market.

The findings of this study suggest that gender diversity is important on boards. We realize that male dominant on boards is serious in Hong Kong and China firms. Board diversity in these companies should be improved. Followings are some suggested policies for improving the board diversity in companies. Firstly, companies can educate the directors and managers the importance of the board diversity. Let them know the relationship between diversity and firm value. Secondly, after setting up the board diversity policies, companies can assess their implementation periodically. Thirdly, companies can often share their efforts and policies on diversity with other organizations. Then they can learn with each other. Also, government or related parties can promote the importance of board diversity at some public conference.

### 6.2 Limitation of This Study

This paper is subject to several limitations. Firstly, there is not any database of corporate governance data and directorship data in Hong Kong. Unlike the CSMAR database in China, it is difficult to collect all useful, necessary and sufficient data in Hong Kong. Secondly, if the regression model in this study can include more variables of board diversity, it may be more convincible and better. However, due to the data limitation in Hong Kong, it cannot be performed in this study. Thirdly, prior researches about the relationship between board diversity and firm financial performance in Hong Kong and China are few. It is difficult to compare the results in this study with others in Hong Kong and China.

## Reference

Aparna Banerji and Kate Vernon. Community Business (2012). Standard Chartered Bank Women on Boards: Hang Seng Index 2012.

Benjamin E. Hermalin and Michael S. Weisbach (1998). Endogenously chosen boards of directors and their monitoring of the CEO. *American Economic Review*, 88, 96-118.

Benjamin E. Hermalin and Michael S. Weisbach (2003). Boards of directors as an endogenously determined institution: A survey of the economic literature. *FRBNY Economic Policy Review*, 9, 7-26.

Bernard Black (2001). The corporate governance behavior and market value of Russian firms. *Emerging Markets Review*, 2(2), 89-108.

Bernard S. Black, Hasung Jang, Woochan Kim (2006). Does Corporate Governance Predict Firms' Market Values? Evidence from Korea. *JLEO*, 22 (2), 366-413.

Bilkisu Aliyu Abubakar, Tukur Garba, Abubakar Abdullahi Sokoto, Malami M. Maishanu (2011). Corporate Board Gender Diversity and Performance: Evidence from Nigerian Stock Exchange. *The Economic Journal of Nepal*, 34(4).

Bita Mashayekhi and Mohammad S. Bazaz (2008). Corporate Governance and Firm Performance in Iran. *Journal of Contemporary Accounting & Economics*, 4(2), 156-172.

Boeker, W. (1997) Executive Migration and Strategic Change: The Effect of Top Manager Movement on Product-Market Entry, *Administrative Science Quarterly*, 42, 213–237.

Caspar Rose (2007). Does female board representation influence firm performance? The Danish evidence. *Corporate Governance: An International Review,* 15(2), 404-413.

Carlos Pombo and Luis H. Gutierrez (2011). Outside directors, board interlocks and firm performance: Empirical evidence from Colombian business groups. *Journal of Economics and Business*, 63(4), 251-277.

Carol Stephenson (2004). Leveraging diversity to maximum advantage: The business case for appointing more women to boards. *Ivey Business Journal,* September/October 2004.

Cedric Herring (2009). Does Diversity Pay?: Race, Gender, and the Business Case for Diversity. *American Sociological Review*, 74:208.

China Securities Regulatory Commission, State Economic and Trade Commission. Code of Corporate Governance for Listed Companies in China.

Chong-En Bai, Qiao Liu, Joe Lu, Frank M. Song, Junxi Zhang (2004). Corporate governance and market valuation in China. *Journal of Comparative Economics*, 32(4), 599-616.

David A. Carter, Betty J. Simkins, W. Gary Simpson (2003). Corporate Governance, Board Diversity, and Firm Value. *The Financial Review*, 38, 33-53.

David A. Carter, Frank D'Souza, Betty J. Simkins, and W. Gary Simpson (2010). The Gender and Ethnic Diversity of US Boards and Board Committees and Firm Financial Performance. *Corporate Governance: An International Review*, 18(5), 396-414.

Dipali Kotecha and Kate Vernon. Community Business (2014). Standard Chartered Bank Women on Boards Hong Kong 2014.

Fernando Lefort and Francisco Urzúa (2008). Board independence, firm performance and ownership concentration: Evidence from Chile. *Journal of Business Research*, 61(6), 615-622.

Geoffrey C. Kiel and Gavin J. Nicholson (2003). Board Composition and Corporate Performance: how the Australian experience informs contrasting theories of corporate governance. *Corporate Governance: An International Review*, 11(3), 189-205.

Gueorgui I. Kolev (2012). Underperformance by female CEOs: A more powerful test. *Economics Letters*, 117(2), 436-440.

Haksoon Kim and Chanwoo Lim (2010). Diversity, outside directors and firm valuation: Korean evidence. *Journal of Business Research*, 63(3), 284-291.

HKICS Research Project sponsored by CLP (2012). Diversity on the Boards of Hong Kong Main Board Listed Companies.

Hoje Jo and Maretno A. Harjoto (2011). Corporate Governance and Firm Value: The Impact of Corporate Social Responsibility. *Journal of Business Ethics*, 103(3), 351-383.

Jens Hagendorff and Kevin Keasey (2012). The Value of Board Diversity in Banking: Evidence from the Market for Corporate Control. *The European Journal of Finance*, 18(1), 41-58.

João Paulo Vieito and Walayet A. Khan (2013). CEO Gender and Firm Performance. *Journal of Economics and Business*, 67, 55-66.

John E. Core, Robert W. Holthausen, David F. Larcker (1999). Corporate governance, chief executive officer compensation, and firm performance. *Journal of Financial Economics*. 51(3), 371-406.

Kate Vernon. Community Business (2013). Standard Chartered Bank Women on Boards: Hang Seng Index 2013.

Kate Vernon and Amanda Yik. Community Business (2012). Diversity & Inclusion in Asia Country View – China.

Kathleen A. Farrell, Philip L. Hersch (2005). Additions to corporate boards: the effect of gender. *Journal of Corporate Finance*, 11(1-2), 85-106.

Kevin Campbell, Antonio Mı´nguez-Vera (2008). Gender Diversity in the Boardroom and Firm Financial Performance. *Journal of Business Ethics*, 83, 435-451.

Kevin C.K. Lam, Paul B. McGuinness, João Paulo Vieito (2013). CEO gender, executive compensation and firm performance in Chinese- listed enterprises. *Pacific-Basin Finance Journal*, 21, 1136-1159.

Kilduff, M., Angelmar, R. and Mehra, A. (2000) Top Management-Team Diversity and Firm Performance: Examining the Role of Cognitions, *Organization Science*, 11, 21–34.

Martin J. Conyon and Simon I. Peck (1998). Board size and corporate performance: evidence from European countries. *The European Journal of Finance*, 4(3), 291-304.

Maznevski, M. L. (1994) Understanding Our Differences: Performance in Decision-Making Groups with Diverse Members, *Human Relations*, 47, 531–552.

Mijntje Lückerath-Rovers (2013). Women on boards and firm performance. *Journal of Management & Governance*, 17(2), 491-509.

Milliken, F. and Martins, L. (1996) Searching for Common Threads: Understanding the Multiple Effects of Diversity in Organizational Groups, *Academy of Management Review*, 21, 402–434.

Niclas L. Erhardt, James D. Werbel and Charles B. Shrader (2003). Board of Director Diversity and Firm Financial Performance. *Corporate Governance: An International Review*, 11(2), 102-111.

Nina Smith, Valdemar Smith and Mette Verner (2006). Do women in top management affect firm performance? A panel study of 2,500 Danish firms. *International Journal of Productivity and Performance Management*, 55(7), 569-593.

Pelled, L. (1996) Demographic Diversity, Conflict, and Work Group Outcomes: An Intervening Process Theory, *Organization Science*, 7, 615–631.

Peter Klein, Daniel Shapiro, Jeffrey Young (2005). Corporate Governance, Family Ownership and Firm Value: the Canadian evidence. *Corporate Governance: An International Review*, 13(6), 769-784.

Petersen, R. (2000) The Management of a Diverse Workforce in the Business Environment of Israel and Possible Applications for South Africa, *Dissertation Abstracts International Section B: The Sciences and Engineering*, 60, 4284.

Rene´e B. Adams and Daniel Ferreira (2009). Women in the boardroom and their impact on governance and performance. *Journal of Financial Economics*, 94, 291-309.

Ronald C. Anderson, John M. Bizjak, Michael L. Lemmon, Thomas W. Bates (1998). Corporate Governance and Firm Diversification. *Working papers series.*

Roy Mersland and R. Oystein Strom (2009). Performance and governance in microfinance institutions. *Journal of Banking & Finance*, 33(4), 662-669.

Sabina Nielsen and Morten Huse (2010). The Contribution of Women on Boards of Directors Going beyond the Surface. *Corporate Governance: An International Review,* 18(2), 136-148.

Sanjai Bhagat and Brian Bolton (2008). Corporate governance and firm performance. *Journal of Corporate Finance*, 14(3), 257-273.

Satirenjit Kaur Johl and Shireenjit Kaur (2012). Gender Diversity and Firm Performance: Evidence from Malaysian Public Listed Firms. *International Proceedings of Economics Development and Research*, 57(29), 152-157.

Shalini Mahtani & Kate Vernon. Community Business (2009). Women on Boards: Hang Seng Index 2009.

Shalini Mahtani, Kate Vernon and Amanda Yik. Community Business (2012). Diversity & Inclusion in Asia Country View – Hong Kong.

Stefan Beiner, Wolfgang Drobetz, Frank Schmid and Heinz Zimmermann (2004). Is Board Size an Independent Corporate Governance Mechanism?. *KYKLOS*, 57(3), 327-356.

Stefan Beiner, Wolfgang Drobetz, Markus M. Schmid, Heinz Zimmermann (2006). An Integrated Framework of Corporate Governance and Firm Valuation. *European Financial Management*, 12(2), 249-283.

Stock Exchange of Hong Kong. Code on Corporate Governance Practices, Corporate Governance Code and Corporate Governance Report, Appendix 14.

Syed Abdulla Al Mamun, Sundar Venkatesh, Muzzaffar Mirzaev (2010). Board Characterstics: Survey Evidence from Large Companies in South East Asia. *Working papers series.*

The Hong Kong Institute of Directors. The Handbook of International Corporate Governance.

Theodore Eisenberg, Stefan Sundgren and Martin T. Wells (1998). Larger board size and decreasing firm value in small firms. *Journal of Financial Economics*, 48(1), 35-54.

Timmerman, T. (2000) Racial Diversity, Age Diversity, Interdependence, and Team Performance, *Small Group Research*, 31, 592–606.

Urbi Garay and Maximiliano Gonzalez (2008). Corporate governance and firm value: The case of Venezuela. *Corporate Governance: An International Review*, 16(3), 194-209.

Vincent O'Connell and Nicole Cramer (2010). The relationship between firm performance and board characteristics in Ireland. *European Management Journal*, 28(5), 387-399.

Watson, W., Johnson, L. and Merritt, D. (1998) Team Orientation, Self-Orientation, and Diversity in Task Groups: Their Connection to Team Performance Over Time, *Group and Organization Management*, 23, 161–189.

Winnie Ng. Community Business (2010). "State of Work-Life Balance in Hong Kong Survey 2010".

Xia Lijun and Fang Yiqiang (2005). Government Control, Institutional Environment and Firm Value: Evidence from the Chinese Securities Market. *Economic Research Journal*, 2005-05.

Y.T. Mak and Yuanto Kusnadi (2005). Size really matters: Further evidence on the negative relationship between board size and firm value. *Pacific-Basin Finance Journal*, 13(3), 301-318.

Yu Liu, Zuobao Wei and Feixue Xie (2013). Do women directors improve firm performance in China?. *Journal of Corporate Finance*.

# Appendix

**Table 1.Data Sources of Variables**

| Variables | Data | Hong Kong | China |
|---|---|---|---|
| TOBINQ | Market Value of a Company | Hand Collected from Annual Reports on HKEx Website | CSMAR Database |
| | Replacement Value of Book Equity | Hand Collected from Annual Reports on HKEx Website | CSMAR Database |
| PFE | Number of Female on Boards | Webb-site Database | CSMAR Database |
| | Number of Directors on Boards | Webb-site Database | CSMAR Database |
| PINE | Number of Independent Directors on Boards | Webb-site Database | CSMAR Database |
| | Number of Directors on Boards | Webb-site Database | CSMAR Database |
| BUSSIZE | Total Assets | Hand Collected from Annual Reports on HKEx Website | CSMAR Database |
| BDSIZE | Number of Directors on Boards | Webb-site Database | CSMAR Database |
| TANG | PPE | Hand Collected from Annual Reports on HKEx Website | CSMAR Database |
| | Total Assets | Hand Collected from Annual Reports on HKEx Website | CSMAR Database |
| FECEODY | CEO Gender | Webb-site Database | CSMAR Database |
| FAMILYDY | Family Firms | Datastream International | N/A |
| INDTDY | Industry Distribution | Datastream International | CSMAR Database |

**Table 2.Composition of the Full Sample Firms**

| | Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | Total |
| Hong Kong Main Board Sample Firms | 476 | 532 | 578 | 635 | 668 | 723 | 778 | 845 | 883 | 6,118 |
| China Main Board Sample Firms | 1,116 | 1,174 | 1,239 | 1,329 | 1,328 | 1,400 | 1,481 | 1,524 | 1,647 | 12,238 |
| Total | 1,592 | 1,706 | 1,817 | 1,964 | 1,996 | 2,123 | 2,259 | 2,369 | 2,530 | 18,356 |

**Table 3.Industry Distribution for Hong Kong Main Board Sample Firms**

| Industry Code | Industry Classification | Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | Total |
| 00 | Energy | 22 | 24 | 30 | 33 | 32 | 36 | 39 | 43 | 45 | 304 |
| 10 | Materials | 30 | 37 | 38 | 45 | 46 | 50 | 56 | 62 | 69 | 433 |
| 15 | Industrials | 44 | 48 | 52 | 59 | 63 | 69 | 76 | 81 | 86 | 578 |
| 20 | Consumer Goods | 95 | 108 | 122 | 137 | 147 | 166 | 182 | 200 | 205 | 1,362 |
| 30 | Consumer Services | 93 | 108 | 118 | 129 | 138 | 149 | 157 | 169 | 178 | 1,239 |
| 40 | Telecommunications | 8 | 8 | 9 | 9 | 9 | 10 | 11 | 12 | 12 | 88 |
| 45 | Utilities | 19 | 23 | 23 | 24 | 25 | 25 | 25 | 26 | 26 | 216 |
| 60 | Properties & Construction | 104 | 109 | 116 | 123 | 125 | 132 | 142 | 153 | 160 | 1,164 |
| 70 | Information Technology | 38 | 43 | 47 | 51 | 59 | 62 | 65 | 71 | 73 | 509 |
| 80 | Conglomerates | 23 | 24 | 23 | 25 | 24 | 24 | 25 | 28 | 29 | 225 |
| | Total | 476 | 532 | 578 | 635 | 668 | 723 | 778 | 845 | 883 | 6,118 |

**Table 4.Industry Distribution for China Main Board Sample Firms**

| Industry Code | Industry Classification | Year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | Total |
| 2 | Utilities | 96 | 105 | 112 | 119 | 119 | 129 | 137 | 136 | 147 | 1100 |
| 3 | Properties | 115 | 115 | 119 | 122 | 122 | 122 | 123 | 123 | 127 | 1088 |
| 4 | Conglomerates | 181 | 189 | 198 | 216 | 209 | 223 | 228 | 236 | 256 | 1936 |
| 5 | Industrials | 616 | 652 | 699 | 758 | 764 | 808 | 871 | 904 | 982 | 7,054 |
| 6 | Commerce | 108 | 113 | 111 | 114 | 114 | 118 | 122 | 125 | 135 | 1,060 |
| | Total | 1116 | 1174 | 1239 | 1329 | 1328 | 1400 | 1481 | 1524 | 1647 | 12,238 |

**Table 5.Variables Definitions**

| | | |
|---|---|---|
| Dependent Variables | | |
| TOBINQ | = | Tobin's Q effect after using the shares dummy variable data: Hong Kong shares dummy variable, China A shares dummy variable, H shares dummy variable, A-H shares dummy variable |
| Explanatory Variables | | |
| PFE | = | Proportion of female directors on the board |
| PINE | = | Proportion of independent directors on the board |
| BUSSIZE | = | Business Size, Natural log of Total Assets |
| BDSIZE | = | Board Size, Natural log of Board Size |
| TANG | = | Tangibility, PPE / Total Assets |
| SHARESDY | = | Shares dummy variable:<br>(1) HKSharesDY, which is equal to 1 if the shares are Hong Kong Main Board shares, and 0 otherwise<br>(2) ASharesDY, which is equal to 1 if the shares are A shares in China Main Board market, and 0 otherwise<br>(3) HSharesDY, which is equal to 1 if the shares are H shares, Chinese firms listed in Hong Kong Main Board<br>(4) AHSharesDY, which is equal to 1 if the shares are A shares listed in China Main Board market and also H shares in Hong Kong Main Board Market |
| FECEODY | = | Female CEO dummy, which is equal to 1 if the CEO is Female, and 0 if the CEO is Male |
| SHARESDY * PFE | = | Effect of PFE variable after using the shares dummy variable data |
| SHARESDY * PINE | = | Effect of PINE variable after using the shares dummy variable data |
| SHARESDY * FECEODY * PFE | = | Influence of Female CEO on the effect of PFE variable after using the shares dummy variable data |
| SHARESDY * PINE * PFE | = | Influence of Board Independence on the effect of PFE variable after using the shares dummy variable data |
| SHARESDY * BDSIZE * PFE | = | Influence of Board Size on the effect of PFE variable after using the shares dummy variable data |
| ε | = | Error term |

**Table 6.Descriptive Statistics**

Panel A. Full Sample of Hong Kong & China Main Board Firms (N=18,356)

Panel B. Sub-Sample of Hong Kong Main Board Firms (N=6,118)

Panel C. Sub-Sample of China Main Board Firms (N=12,238)

See Table 5 for the Variables Definitions.

| Sample | Panel A. Full Sample of Hong Kong & China | | | | | Panel B. Sub-Sample of Hong Kong | | | | | Panel C. Sub-Sample of China | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Variable | Obs | Mean | Std. Dev. | Min | Max | Obs | Mean | Std. Dev. | Min | Max | Obs | Mean | Std. Dev. | Min | Max |
| TOBINQ | 18,356 | 1.533 | 1.294 | 0.200 | 9.087 | 6,118 | 1.109 | 1.387 | 0.200 | 9.087 | 12,238 | 1.746 | 1.189 | 0.200 | 9.087 |
| PFE | 18,356 | 0.127 | 0.108 | 0.000 | 1.000 | 6,118 | 0.103 | 0.119 | 0.000 | 1.000 | 12,238 | 0.138 | 0.100 | 0.000 | 0.667 |
| PINE | 18,356 | 0.333 | 0.110 | 0.000 | 1.000 | 6,118 | 0.368 | 0.108 | 0.000 | 1.000 | 12,238 | 0.315 | 0.107 | 0.000 | 0.750 |
| BUSSIZE | 18,356 | 18.952 | 3.552 | 10.910 | 24.301 | 6,118 | 14.338 | 1.842 | 10.910 | 22.135 | 12,238 | 21.259 | 1.126 | 10.910 | 24.301 |
| BDSIZE | 18,356 | 2.188 | 0.247 | 1.609 | 2.773 | 6,118 | 2.123 | 0.286 | 1.609 | 2.773 | 12,238 | 2.221 | 0.219 | 1.609 | 2.773 |
| TANG | 18,356 | 0.126 | 0.217 | 0.000 | 1.005 | 6,118 | 0.321 | 0.277 | 0.000 | 1.005 | 12,238 | 0.029 | 0.059 | 0.000 | 1.000 |
| SHARESDY (HKSharesDY) | 18,356 | 0.333 | 0.471 | 0.000 | 1.000 | 6,118 | 1.000 | 0.000 | 1.000 | 1.000 | 12,238 | 0.000 | 0.000 | 0.000 | 0.000 |
| SHARESDY (ASharesDY) | 18,356 | 0.667 | 0.471 | 0.000 | 1.000 | 6,118 | 0.000 | 0.000 | 0.000 | 0.000 | 12,238 | 1.000 | 0.000 | 1.000 | 1.000 |
| SHARESDY (HSharesDY) | 18,356 | 0.030 | 0.172 | 0.000 | 1.000 | 6,118 | 0.091 | 0.288 | 0.000 | 1.000 | 12,238 | 0.000 | 0.000 | 0.000 | 0.000 |
| SHARESDY (AHSharesDY) | 18,356 | 0.018 | 0.132 | 0.000 | 1.000 | 6,118 | 0.000 | 0.000 | 0.000 | 0.000 | 12,238 | 0.027 | 0.161 | 0.000 | 1.000 |
| FECEODY | 18,356 | 0.037 | 0.190 | 0.000 | 1.000 | 6,118 | 0.021 | 0.142 | 0.000 | 1.000 | 12,238 | 0.046 | 0.209 | 0.000 | 1.000 |

**Table 7.Correlations of Variables for the Full Sample of Hong Kong & China Main Board Firms**

This table displays correlations of variables. The independent variables are lagged variables.

See Table 5 for the Variables Definitions.

***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

| Variable | TOBINQ | PFE | PINE | BUSSIZE | BDSIZE | TANG | SHARESDY (HKSharesDY) | SHARESDY (ASharesDY) | SHARESDY (HSharesDY) | SHARESDY (AHSharesDY) | FECEODY |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TOBINQ | 1.0000 | | | | | | | | | | |
| PFE | 0.0834*** | 1.0000 | | | | | | | | | |
| PINE | 0.0776*** | -0.0018 | 1.0000 | | | | | | | | |
| BUSSIZE | 0.1013*** | 0.0803*** | -0.2343*** | 1.0000 | | | | | | | |
| BDSIZE | -0.0861*** | -0.0670*** | -0.3252*** | 0.3318*** | 1.0000 | | | | | | |
| TANG | -0.1890*** | -0.1002*** | 0.1095*** | -0.5465*** | -0.0735*** | 1.0000 | | | | | |
| SHARESDY (HKSharesDY) | -0.2352*** | -0.1509*** | 0.2370*** | -0.9226*** | -0.1997*** | 0.6418*** | 1.0000 | | | | |
| SHARESDY (ASharesDY) | 0.2352*** | 0.1509*** | -0.2370*** | 0.9226*** | 0.1997*** | -0.6418*** | -1.0000 | 1.0000 | | | |
| SHARESDY (HSharesDY) | -0.1449*** | -0.0894*** | 0.0128 | -0.1265*** | 0.1077*** | 0.2723*** | 0.2491*** | -0.2491*** | 1.0000 | | |
| SHARESDY (AHSharesDY) | -0.0047 | -0.0238*** | 0.0212*** | 0.1592*** | 0.0967*** | -0.0642*** | -0.0942*** | 0.0942*** | -0.0235*** | 1.0000 | |
| FECEODY | 0.0393*** | 0.1850*** | -0.0133* | 0.0472*** | -0.0065 | -0.0540*** | -0.0695*** | 0.0695*** | -0.0345*** | 0.0100 | 1.0000 |

## Table 8.Regression Results for the Effect of Female Ratio & Independent Directors Ratio on Tobin's Q

Model 1: Full sample of Hong Kong and China. Model 2: Sample of Hong Kong shares market only. Model 3: Sample of China shares market only. Model 4(A): Full sample with Hong Kong shares market interaction. Model 4(B): Full sample with China shares market interaction. Model 5: Sample of Hong Kong shares market with H shares interaction. Model 6: Sample of China shares market with A-H shares interaction. The independent variables are lagged variables. See Table 5 for the Variables Definitions. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

| | PFE & PNIE | | | Interaction with PFE | | | | Interaction with PINE | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Models | Model 1 | Model 2 | Model 3 | Model 4(A) | Model 4(B) | Model 5 | Model 6 | Model 4(A) | Model 4(B) | Model 5 | Model 6 |
| Variables | TOBINQ | TOBINQ | TOBINQ | TOBINQ | TOBINQ | TOBINQ | TOBINQ | TOBINQ | TOBINQ | TOBINQ | TOBINQ |
| PFE | 0.560*** | 0.421* | 0.403** | 0.632*** | 0.456* | 0.435* | 0.430** | 0.464*** | 0.464*** | 0.414* | 0.403** |
| | (0.000) | (0.083) | (0.050) | (0.002) | (0.067) | (0.079) | (0.037) | (0.003) | (0.003) | (0.088) | (0.050) |
| PINE | 1.890*** | 0.416* | 2.158*** | 1.887*** | 1.887*** | 0.417* | 2.158*** | 2.254*** | -0.022 | 0.355 | 2.167*** |
| | (0.000) | (0.070) | (0.000) | (0.000) | (0.000) | (0.070) | (0.000) | (0.000) | (0.922) | (0.132) | (0.000) |
| BUSSIZE | -0.334*** | -0.389*** | -0.380*** | -0.334*** | -0.334*** | -0.389*** | -0.381*** | -0.332*** | -0.332*** | -0.390*** | -0.380*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| BDSIZE | -0.317*** | 0.123 | -0.566*** | -0.317*** | -0.317*** | 0.123 | -0.565*** | -0.410*** | -0.410*** | 0.116 | -0.566*** |
| | (0.000) | (0.288) | (0.000) | (0.000) | (0.000) | (0.287) | (0.000) | (0.000) | (0.000) | (0.314) | (0.000) |
| TANG | -0.493*** | 0.011 | -4.316*** | -0.494*** | -0.494*** | 0.011 | -4.320*** | -0.512*** | -0.512*** | 0.010 | -4.319*** |
| | (0.000) | (0.892) | (0.000) | (0.000) | (0.000) | (0.897) | (0.000) | (0.000) | (0.000) | (0.904) | (0.000) |
| FECEODY | -0.065 | 0.129 | -0.069 | -0.066 | -0.066 | 0.128 | -0.073 | -0.036 | -0.036 | 0.133 | -0.069 |
| | (0.400) | (0.443) | (0.416) | (0.390) | (0.390) | (0.448) | (0.391) | (0.636) | (0.636) | (0.431) | (0.416) |
| HKSharesDY*PFE | | | | -0.177 | | | | | | | |
| | | | | (0.583) | | | | | | | |
| ASharesDY*PFE | | | | | 0.177 | | | | | | |
| | | | | | (0.583) | | | | | | |
| HSharesDY*PFE | | | | | | -0.384 | | | | | |
| | | | | | | (0.767) | | | | | |
| AHSharesDY*PFE | | | | | | | -2.329 | | | | |
| | | | | | | | (0.226) | | | | |
| HKShares*PINE | | | | | | | | -2.276*** | | | |
| | | | | | | | | (0.000) | | | |
| Ashares*PINE | | | | | | | | | 2.276*** | | |
| | | | | | | | | | (0.000) | | |
| Hshares*PINE | | | | | | | | | | 1.144 | |
| | | | | | | | | | | (0.244) | |
| AHShares*PINE | | | | | | | | | | | -0.885 |
| | | | | | | | | | | | (0.367) |
| Observations | 15,584 | 5,181 | 10,403 | 15,584 | 15,584 | 5,181 | 10,403 | 15,584 | 15,584 | 5,181 | 10,403 |
| R-squared | 0.0583 | 0.0542 | 0.1020 | 0.0583 | 0.0583 | 0.0542 | 0.1021 | 0.0645 | 0.0645 | 0.0545 | 0.1021 |

## Table 9.Regression Results for Female CEO on the Effect of Female Ratio on Tobin's Q

Model 1: Full sample of Hong Kong and China. Model 2: Sample of Hong Kong shares market only. Model 3: Sample of China shares market only. Model 4(A): Full sample with Hong Kong shares market interaction. Model 4(B): Full sample with China shares market interaction. Model 5: Sample of Hong Kong shares market with H shares interaction. Model 6: Sample of China shares market with A-H shares interaction.

The independent variables are lagged variables. See Table 5 for the Variables Definitions. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

| Models | Model 1 | Model 2 | Model 3 | Model 4(A) | Model 4(B) | Model 5 | Model 6 |
|---|---|---|---|---|---|---|---|
| Variables | TOBINQ | TOBINQ | TOBINQ | TOBINQ | TOBINQ | TOBINQ | TOBINQ |
| PFE | 0.618*** | 0.341 | 0.550*** | 0.540*** | 0.613*** | 0.421* | 0.404** |
| | (0.000) | (0.168) | (0.009) | (0.001) | (0.000) | (0.083) | (0.049) |
| PINE | 1.888*** | 0.448* | 2.157*** | 1.891*** | 1.888*** | 0.416* | 2.159*** |
| | (0.000) | (0.052) | (0.000) | (0.000) | (0.000) | (0.070) | (0.000) |
| BUSSIZE | -0.334*** | -0.389*** | -0.378*** | -0.334*** | -0.334*** | -0.389*** | -0.381*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| BDSIZE | -0.319*** | 0.134 | -0.566*** | -0.315*** | -0.317*** | 0.123 | -0.566*** |
| | (0.000) | (0.247) | (0.000) | (0.000) | (0.000) | (0.288) | (0.000) |
| TANG | -0.494*** | 0.012 | -4.317*** | -0.490*** | -0.488*** | 0.011 | -4.317*** |
| | (0.000) | (0.887) | (0.000) | (0.000) | (0.000) | (0.892) | (0.000) |
| FECEODY | 0.146 | -0.301 | 0.411** | -0.105 | 0.195* | 0.129 | -0.073 |
| | (0.304) | (0.326) | (0.010) | (0.201) | (0.098) | (0.443) | (0.392) |
| FECEODY*PFE | -0.941* | 1.634* | -2.238*** | | | | |
| | (0.078) | (0.093) | (0.000) | | | | |
| HKSharesDY*FECEODY*PFE | | | | 0.804 | | | |
| | | | | (0.169) | | | |
| ASharesDY*FECEODY*PFE | | | | | -1.493*** | | |
| | | | | | (0.004) | | |
| HSharesDY*FECEODY*PFE | | | | | | 0.000 | |
| | | | | | | (.) | |
| AHSharesDY*FECEODY*PFE | | | | | | | 2.201 |
| | | | | | | | (0.695) |
| Observations | 15,584 | 5,181 | 10,403 | 15,584 | 15,584 | 5,181 | 10,403 |
| R-squared | 0.0585 | 0.0548 | 0.1033 | 0.0584 | 0.0589 | 0.0542 | 0.1020 |

## Table 10.Regression Results for Independence on the Effect of Female Ratio on Tobin's Q

Model 1: Full sample of Hong Kong and China. Model 2: Sample of Hong Kong shares market only. Model 3: Sample of China shares market only. Model 4(A): Full sample with Hong Kong shares market interaction. Model 4(B): Full sample with China shares market interaction. Model 5: Sample of Hong Kong shares market with H shares interaction. Model 6: Sample of China shares market with A-H shares interaction.

The independent variables are lagged variables. See Table 5 for the Variables Definitions. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

| Models | Model 1 | Model 2 | Model 3 | Model 4(A) | Model 4(B) | Model 5 | Model 6 |
|---|---|---|---|---|---|---|---|
| Variables | TOBINQ | TOBINQ | TOBINQ | TOBINQ | TOBINQ | TOBINQ | TOBINQ |
| PFE | -0.095 | 1.275** | -0.274 | 0.966*** | -0.146 | 0.426* | 0.425** |
| | (0.756) | (0.032) | (0.434) | (0.000) | (0.466) | (0.085) | (0.039) |
| PINE | 1.631*** | 0.666** | 1.848*** | 1.920*** | 1.427*** | 0.418* | 2.165*** |
| | (0.000) | (0.017) | (0.000) | (0.000) | (0.000) | (0.070) | (0.000) |
| BUSSIZE | -0.333*** | -0.389*** | -0.379*** | -0.335*** | -0.334*** | -0.389*** | -0.380*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| BDSIZE | -0.323*** | 0.136 | -0.566*** | -0.323*** | -0.338*** | 0.123 | -0.565*** |
| | (0.000) | (0.239) | (0.000) | (0.000) | (0.000) | (0.288) | (0.000) |
| TANG | -0.492*** | 0.013 | -4.296*** | -0.500*** | -0.500*** | 0.011 | -4.323*** |
| | (0.000) | (0.882) | (0.000) | (0.000) | (0.000) | (0.894) | (0.000) |
| FECEODY | -0.064 | 0.142 | -0.068 | -0.066 | -0.066 | 0.129 | -0.072 |
| | (0.402) | (0.402) | (0.420) | (0.388) | (0.386) | (0.445) | (0.396) |
| PINE*PFE | 2.012** | -2.303 | 2.313** | | | | |
| | (0.012) | (0.115) | (0.017) | | | | |
| HKSharesDY*PINE*PFE | | | | -2.773*** | | | |
| | | | | (0.000) | | | |
| ASharesDY*PINE*PFE | | | | | 3.938*** | | |
| | | | | | (0.000) | | |
| HSharesDY*PINE*PFE | | | | | | -0.385 | |
| | | | | | | (0.913) | |
| AHSharesDY*PINE*PFE | | | | | | | -5.422 |
| | | | | | | | (0.204) |
| Observations | 15,584 | 5,181 | 10,403 | 15,584 | 15,584 | 5,181 | 10,403 |
| R-squared | 0.0587 | 0.0547 | 0.1026 | 0.0594 | 0.0607 | 0.0542 | 0.1022 |

## Table 11.Regression Results for Board Size on the Effect of Female Ratio on Tobin's Q

Model 1: Full sample of Hong Kong and China. Model 2: Sample of Hong Kong shares market only. Model 3: Sample of China shares market only. Model 4(A): Full sample with Hong Kong shares market interaction. Model 4(B): Full sample with China shares market interaction. Model 5: Sample of Hong Kong shares market with H shares interaction. Model 6: Sample of China shares market with A-H shares interaction

The independent variables are lagged variables. See Table 5 for the Variables Definitions. ***, ** and * denote significance at the 1%, 5% and 10% levels, respectively.

| Models | Model 1 | Model 2 | Model 3 | Model 4(A) | Model 4(B) | Model 5 | Model 6 |
|---|---|---|---|---|---|---|---|
| Variables | TOBINQ | TOBINQ | TOBINQ | TOBINQ | TOBINQ | TOBINQ | TOBINQ |
| PFE | 2.503** | -0.708 | 3.359** | 0.506** | 0.745*** | 0.434* | 0.427** |
| | (0.011) | (0.628) | (0.020) | (0.013) | (0.002) | (0.079) | (0.039) |
| PINE | 1.898*** | 0.403* | 2.158*** | 1.892*** | 1.896*** | 0.417* | 2.158*** |
| | (0.000) | (0.080) | (0.000) | (0.000) | (0.000) | (0.070) | (0.000) |
| BUSSIZE | -0.334*** | -0.388*** | -0.380*** | -0.334*** | -0.334*** | -0.389*** | -0.381*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| BDSIZE | -0.200** | 0.060 | -0.381*** | -0.320*** | -0.304*** | 0.123 | -0.564*** |
| | (0.023) | (0.671) | (0.001) | (0.000) | (0.000) | (0.285) | (0.000) |
| TANG | -0.493*** | 0.012 | -4.313*** | -0.492*** | -0.491*** | 0.011 | -4.320*** |
| | (0.000) | (0.884) | (0.000) | (0.000) | (0.000) | (0.896) | (0.000) |
| FECEODY | -0.062 | 0.129 | -0.070 | -0.063 | -0.062 | 0.128 | -0.073 |
| | (0.416) | (0.446) | (0.413) | (0.408) | (0.419) | (0.448) | (0.394) |
| BDSIZE*PFE | -0.940** | 0.586 | -1.367** | | | | |
| | (0.045) | (0.434) | (0.038) | | | | |
| HKSharesDY*BDSIZE*PFE | | | | 0.069 | | | |
| | | | | (0.671) | | | |
| ASharesDY*BDSIZE*PFE | | | | | -0.144 | | |
| | | | | | (0.320) | | |
| HSharesDY*BDSIZE*PFE | | | | | | -0.156 | |
| | | | | | | (0.778) | |
| AHSharesDY*BDSIZE*PFE | | | | | | | -0.850 |
| | | | | | | | (0.291) |
| Observations | 15,584 | 5,181 | 10,403 | 15,584 | 15,584 | 5,181 | 10,403 |
| R-squared | 0.0586 | 0.0543 | 0.1024 | 0.0583 | 0.0584 | 0.0542 | 0.1021 |