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女性決策者對高階經理人薪酬風險誘因的影響

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中 文 摘 要 ： 本研究主要目標為探討CEO性別與ESO之關聯性。公司透過給予高階經理人 ESOs降低經 理人的代理人問題與提升經理人願意進行風險投資的意願，而性別做為對於個人風險偏好及過度自信程度有重要影響之特質，會改變ESO給予經理人的誘因 —delta及vega的影響。

中 文 關 鍵 詞 ： 女性決策者, 風險性投資，高階經理人薪酬

英 文 摘 要 ： This project aims to discuss the relationship between CEO gender and ESOs. We find that on average female CEOs are more risk averse, with lower capital investment, lower leverage, and more cash holdings, than male CEOs. The risk aversion characteristics of female not only affect firms' risk profiles, but it also constrains the risk incentive effects of ESOs. The risk incentive effect of ESOs tends to be smaller in firms with female CEOs than firms with male CEOs, and the wealth effect of ESOs tends to be slightly higher. In addition, the external shock does not seem alter the risk taking incentive to female CEOs.

英 文 關 鍵 詞 ： ESOs; Risk taking; female CEOs

The Gender Impact of Executive Compensation on Corporate Risk Taking

Abstract

This project aims to discuss the relationship between CEO gender and ESOs. We find that on average female CEOs are more risk averse, with lower capital investment, lower leverage, and more cash holdings, than male CEOs. The risk aversion characteristics of female not only affect firms' risk profiles, but it also constrains the risk incentive effects of ESOs. The risk incentive effect of ESOs tends to be smaller in firms with female CEOs than firms with male CEOs, and the wealth effect of ESOs tends to be slightly higher. In addition, the external shock does not seem alter the risk taking incentive to female CEOs.

Keywords: ESOs; Risk taking; female CEOs

1. Introduction

Executive stock options (ESOs) are designed to alleviate the interest conflicts between executives and investors. ESOs lure executives to act as shareholders' best interest through delta and vega incentives. Delta incentive links the interests of executives with shareholder through underlying stock price return of ESOs. On the other side, vega incentive indicates that the convexity payoff scheme of ESOs can increase managerial risk-taking (Haugen and Senbet, 1981; Smith and Stulz, 1985; Rajgopal and Shevlin, 2002). However, the risk aversion characteristic of executives may constrain the incentive effect of ESOs on managerial risk-taking (Larraza-Kintana, Wiseman, Gomez-Mejia, and Welbourne, 2007). The Limitation of ESOs is attributed to different kinds of risks, systematic risks and idiosyncratic risks. While shareholders can eliminate idiosyncratic risk through diversifying their portfolios, executives can't diversify idiosyncratic risks. Thus, CEOs with ESOs tend to increase systematic risks rather than idiosyncratic risks. Nevertheless, before firms can put their new technology into production process, a series of research and development is taken place. Pastor and Veronesi (2009) argue that firms are more associated with idiosyncratic risk than systematic risk before they commit to the adoption of new technology in their production. That is, the idiosyncratic risk investment is critical to firms' long-term value creation. If ESOs cannot encourage managers undertaking idiosyncratic risk, then ESOs may not always function as long-term incentive compensation as expected (Chen and Lee, 2010).

As CEOs and board are important in the decision making process, the characteristics of CEOs have significant impact on firm decision-making. Thus, CEO's attitude toward risk have critical impact on the risk taking. Furthermore, psychology literatures indicate that male and female differ in their attitude toward risks. Women

tend to be more risk averse than men when dealing with uncertainty. The gender difference in attitude toward risk can be attributed to psychological risk preference, initial wealth and expected social norm. In corporate finance, literatures also show that female executives are more risk averse and less overconfidence in decision making. Meanwhile, managing high-risk firms involves longer working times and less flexible schedules. Women may self-select into low-risk firms because they bear disproportionate household pressure.

Despite of women's lower level of risk tolerance and disproportionate pressure from social expectation, there are more and more female CEOs in high-risk firms. Meanwhile, recent literatures also verify that the gender difference in risk-taking activities turn to be insignificant following the decrease of gender gap in wealth constraint and professional knowledge among some managerial population (Adams and Funk, 2012; Atkinson, Baird and Frye, 2003; Birley, 1989; Master and Meier,1988). Attitude toward risks are hard to change. The risk-taking activities of female CEOs in high-risk firms can be attributed to overconfidence. A woman's elevation to a top management position often includes more hinges, higher pressure and limitation in social networks than their male counterparties. Pulford and Colman (1997) verify the hard easy effect in overconfidence. They indicate that people tend to be more overconfident in hard things rather than easy things because the biased evaluation can stimulate people to overcome hard things. Women who overcome more obstacles in their career path and become CEOs should be more overconfident than male CEOs. Thus, we argue that female CEO's risk-taking will be U-shaped. That is, female CEOs in high-risk firms should be more overconfident and less risk averse than male CEOs while exhibiting less overconfidence and more risk aversion in low-risk firms.

Overconfident CEOs often underestimate the investment risk and overestimate the investment returns, and thus will be less risk averse than non-overconfident CEOs (Gervais, Heaton, and Odean, 2011). Therefore, overconfident CEOs have less agency problem of underinvestment than non-overconfident managers. More importantly, the CEOs with excess overconfidence are more capable to create value by taking more risky investments than the CEOs with mild overconfidence. As CEOs with excess overconfidence will overestimate the value of ESOs, firms can take advantage of this overvaluation to induce more risk taking by providing these CEOs with more ESOs, referred to the exploitation effect (Gervais et al., 2011). Accordingly, it is reasonable to argue that the effect of ESOs for overconfident CEOs to undertake more risky investments for value creation is not due to the risky incentive (vega) but indirectly due to the potential wealth effect (delta) provided by ESOs because the overconfident CEOs are not as risk averse as non-overconfident CEOs. Thus, the positive wealth effect of ESOs could outweigh the potential risk aversion effect caused by delta of ESOs that normally happens to non-overconfident CEOs.

Given the opposite attitude toward risk among female CEOs, the incentive of ESOs should have different effects on them. For female CEOs in high-risk firm, the main value-creating investment generated by ESOs will be resulted from delta effect; for female CEOs in low-risk firms, shareholders can increase female CEO's valuable risk-taking investments by vega effect of ESOs. Moreover, we argue that the effect of ESOs on female CEOs will be larger than male CEOs because female CEOs are more overconfident in high-risk firms and more risk averse in low-risk firms.

The impact of female director increases as numbers of women in the boardroom increase. While the board stands for important role in monitoring CEOs and making decisions, the increasing number of female representation in the boardroom can

transform firm's risk-taking investments. Adams and Ferreira (2009) document that the monitoring function of board become more effective as the number of female director increase. Furthermore, female directors have better attendance record and are more willing to attend the monitoring committee. Meanwhile, Sila, Gonzalez and Hagendorff (2016) indicate that there is few effect of female director representation in firm risk because CEOs stand for the main role in adopting risk-taking investments. Under better monitoring functions of female director, ESOs should have more pronouncing effects in boosting value-creating risk-taking investments.

In the following sections, the related literature and empirical prediction for each issue above will be discussed.

2. Literature Review

2.1 The Effect of Executive Stock Options on the Idiosyncratic Risk Taking of CEOs

The compensation literature examines the relation between the incentives of executive stock options and managerial risk taking. The incentives of executive stock option consist of the wealth incentive (or delta) and the risk incentive (or vega) (Tian, 2004; Duan and Wei, 2005; Armstrong and Vashishtha, 2012). Vega is the partial derivative of option price with respect to the underlying stock return volatility. Risk-averse managers are prone to accept less risky investments and forgo value-increasing investments. Vega provides managers with incentive to take more risk by linking managers' interests to firm risk (Coles et al., 2006; Low, 2009). The sensitivity of CEO wealth to stock price, or delta, is aligning the interests of managers with the interests of shareholders. Higher delta value suggests that managers will work harder or more effectively because managers share gains and losses with shareholders. It is however believe that delta will enhance the risk aversion of CEOs in contrast to the risk incentive

(vega). The conflicting effect between the risk taking (vega) and risk aversion (delta) effects explains why the literature identify that the vega effect (risk incentive effect) of ESOs increases firm risk primarily through the increase of systematic risk but not idiosyncratic risk (Tian, 2004; Duan and Wei, 2005; Armstrong and Vashishtha, 2012; Chen, Chen and Chu, 2014). Although the delta of ESOs results in the risk-averse effect, with higher delta, the increase in the underlying stock price will generate higher option value, and CEOs will assess higher utility as being wealthier. Ross (2004) examines different incentive toward managerial risk-taking activities and argues that when ESOs can generate high wealth effect to managers through the connection with stock price (delta), then managers can be more or less risk averse. Accordingly, if CEOs are not as risk averse as rational CEOs, then the delta of ESOs will not necessarily lead to the risk aversion effect but instead the wealth effect.

Recently, empirical studies show that CEO overconfidence would affect the decision-making process. Overconfident CEOs tend to overestimate returns and underestimate risks (Dittrich, Guth, and Maciejovsky, 2005; Malmendier and Tate, 2005, 2008; Kolasinski and Li, 2013). Malmendier and Tata (2008) find that overconfident CEOs tend to overestimate their ability and thus overinvest, resulting in lower firm value. However, such overinvestment is not similar to the agency problem of overinvestment, because rational CEOs with agency problems pursue their own interests ahead of shareholders' interest in decision-making and overconfident CEOs consider their decisions are creating value for shareholders. For instance, Malmendier et al. (2005) indicate that overconfident CEOs would not realize their deep-in-money option compensation because they believe they are pursuing the best interests of firms and their decisions could increase the value of their option holdings. The bias on returns and risk makes overconfident managers become less conservative than their rational

counterparties. The characteristics of overconfidence imply that overconfident CEOs are more willing to take risky projects because they believe in their ability in creating value for their firms. Furthermore, Gervais et al. (2011) indicate that when firms are able to detect the managerial overconfidence, they can construct the compensation contracts based on the level of overconfidence. Gervais et al. (2011) classify CEOs into rational, mild overconfident and excessive overconfident CEOs and argue that firms that detect their overconfidence can benefit from giving mild overconfident CEOs less compensation and giving excessive overconfident CEOs highly convex compensation. For excessive overconfident managers, however, the effect of ESO on encouraging more managerial risk taking is not induced via the same logics. In the theoretical model of Gervais et al. (2011), it is assumed that overconfident CEOs will overestimate the precision of their information and thus overvalue their ESOs, and therefore they will reflect to the information more aggregate than their rational counterparties. When confronting with the same investment opportunity sets, overconfident managers will have a broader accepting regime. Overconfident managers underestimate their risk so they will be more willing to undertake risky investment. When provided with highly convex compensation contracts, the utility function of overconfident CEOs will simultaneously upward via the wealth effect of ESOs because the CEOs will overvalue their option.

2.2 The Effect of Gender Difference in Risk Preference on Risk Taking

In economic and psychology literatures, it is well documented that women are generally more risk averse than men in different domains (Bernasek and Shwiff, 2001; Bruce and Johnson, 1994; Croson and Gneezy, 2009; Hudgens and Fatkin, 1985; Johnson and Powell, 1994; Sundén and Surette, 1998). There are several explanations

discussing the reason of gender difference in risk preference. For example, Harshman and Paivio (1987) show that women experience stronger emotions than men, especially in negative outcomes. Block (1983) documents that women are prone to consider risks as threats while men tend to consider risks as challenge. As people are more likely to have positive response to challenges but have negative response to threats, men are often more willing to take risks than women. Barber and Odean (2001) find that men trade more but have worse payoff than women. They explain the men's worse performance is resulted from overconfidence. Niederle and Vesterlund (2007) also support their conclusion and find that women often shy away from competition. Huang and Kisgen (2013) show that male executives are more overconfident than female executives in investments, thus receiving worse announcement effect than female executives. The characteristics of overconfidence allows men to underestimate the risks or overestimate their ability. Thus, overconfident men tend to take more risk than women.

In the labor market, there are more social environment factors that make women to behave more risk averse than men in selection of their careers. First, women bear higher unemployment risk than men. Phelps and Mason (1991) indicate that women remain unemployed for longer than men after losing their jobs. Gronau (1988) also finds that women have shorter career lives and higher turnover rate. Second, social expectation about what is the most suitable role of women also constrains women's career decision (Altonji and Blank, 1999; Akerlof and Kranton, 2000). Meanwhile, women often bear disproportionate share of family responsibilities (Goldin and Katz, 2010). Third, there is gender difference in wage level. Bertrand, Goldin, and Katz (2009) examine the career lives of young graduates and find that women earn significantly less than men who graduate from the same college. Last, women have limited social network in firms.

Inci, Narayanan and Seyhun (2017) examine the difference between male and female executives in return of insider trading and show that women earn less than men. They argue that the difference in insider trading return is due to women's constraint on accessibility to valuable information. Kanter (1977b) indicate that when workplace is dominated by men, male workers tend to emphasize their difference from women and exclude women form their social network. Davies-Netzley (1988) and Moore (1988) also show the same conclusion. Managing high-risk firms or taking risky projects takes longer working times and requires inflexible schedules. Under these disadvantageous condition in the workplace, women are prone to self-select into low-risk firms or reduce firm risks after they become top executives. Faccio, Marchica and Mura (2016) document that women take less risky investment than men and have inefficient capital allocation.

However, there are still female CEOs in high-risk firms. Also, the proportion of female CEOs and directors is increasing recently. Adams and Funk (2012) argue that gender difference in risk-taking activities is insignificant in managerial population as gender gap in wealth constraint and professional knowledge eliminate. Atkinson, Baird and Frye (2003) support the argument of Adams et al. (2012) and document that performance of male and female mutual fund managers are indifferent. The increasing in female executives' risk taking activities can be attributed to overconfidence. In psychology literatures, it is well documented that people are more biased in hard things rather than easy things, which is referred as hard easy effect (Schiex, Fargier and Verfaillie. 1995). Schiex et al. (1995) indicate that people will unconsciously overestimate their abilities in order to increase their confidence for overcoming hard things. Pulford and Colman (1997) examine the link between overconfidence and hard easy effect and indicate people are prone to be overconfidence in hard things. For

female CEOs in high-risk firms, their elevation to CEO position include more obstacles than men. Thus, these female CEOs should be more overconfident than their male counterparties in the same industry. We argue that there is U-shape in risk-taking for female executives.

2.3 The Effect of Gender Diversity in the Boardroom on ESOs

Under the pressure of legislation to invite female directors, more women have moved into managerial positions and the pool of qualified candidates for the board has become larger. Potential explanation for requiring female directors indicates is attributed to corporate governance. While CEOs are often assigned by the boards, Coles, Daniel and Naveen (2008), Linck, Netter and Yang (2008) and Boone, Field, Karpoff, Raheja (2007) indicate that the CEO characteristics are related to the board structure. Ahern and Dittmar (2012) show that changing in board structure have significant impact on stock prices. While board structure is well-documented to have impact on firm value, gender diversity in board is one of the factors that can be obviously observed. Carter et al. (2003) and Adams and Ferreira (2003) show that increasing in board gender diversity improves firm value by Tobin's Q. Adams et al. (2009) examine marginal effect of increasing one female directors in the boardroom. Their results document that the increase in firm value is resulted from improvement in corporate finance. Female directors increase the efficiency of monitoring function of boards as they are more willing to attend the monitoring committees and have less attendance problem. Furthermore, male director's attendance problem decrease as there are more female directors. Schwartz-Ziv (2017) emphasize on the number of female directors and argues that boards with at least 3 directors of each genders are more active and more efficient in monitoring CEO's performance. However, in the process of risk taking decisions,

gender diversity show limited effect on change in firm risk (Sila et al., 2016). Accordingly, we expect the effects of ESOs on female directors increase when board gender diversity improves.

3. Empirical Analysis

3.1 Data and sample

The major datasets needed to perform this analysis include the executive compensation data from the ExecuComp database of the Standard and Poor (S&P) Company, the stock price data from the Center for Research in Security Prices (CRSP), and the corporate financial data from the Compustat database of the S&P Company. The sample selection starts from selecting firms included in the ExecuComp database in the period from 1993 to 2015 (2016 if possible). The database consists of all executive compensation data for firms covered in the S&P 500, S&P 400, and S&P 600 indexes. We exclude financial firms (SIC code 6000-6999) and utilities (SIC code 4900-4999) from the sample because their cash holdings can be subject to level of capital requirement and regulatory supervision instead of the economic reason examined in this study.

3.2 Empirical Models

The purpose of this study is to investigate whether female CEOs can enhance the effect of ESOs on idiosyncratic risk, following the findings of Armstrong and Vashishtha (2012). Therefore, we adapt their model by adding the variable of overconfident CEOs onto the analysis. The model is a two-stage least squares (2SLS) regression model and it controls for endogeneity in ESO incentives and the instrumental

variables selected for the model are validated by the over-identification test. We assume that ESO risk incentive at time t is a crucial determinant of risk in period t+1. Thus, the main model to test our prediction is specified in the following form:

$$Risk_{i,t+1} = \beta_0 + \beta_1 Vega_{i,t} + \beta_2 Delta_{i,t} + \beta_3 Gender_{i,t} + \beta_4 Gender_{i,t} * Vega_{i,t} + \beta_5 Gender_{i,t} * Delta_{i,t} + \beta_5 Size_{i,t} + \beta_6 Leverage_{i,t} + \beta_7 Market_{i,t} + \beta_8 Market - to - Book_{i,t} + \beta_9 SalesGrowth_{i,t} + \beta_{10} PPE_{i,t} + \beta_{11} CashComp_{i,t} + \beta_{12} Tenure_{i,t} + \mu_{i,t+1} \quad (1)$$

We include CEO gender and the interactive variables of CEO gender and different incentives of ESOs, delta and vega, into the regression model to examine the magnitude of impact of excess cash holdings on managerial risk-taking. The variable of CEO gender (Gender) equal to 1 if CEO is female while the variable of CEO gender (Gender) equal to 0 if CEO is male. The estimation of vega and delta are the same as in the literature (Guay, 1999; Core and Guay, 2002). Vega is the sensitivity of the change in the Black-Scholes option value to a change of 0.01 in stock return volatility. Delta is the sensitivity of the change in Black-Scholes option value to a change of 1% in stock price.

The risk variable consists of systematic risk and idiosyncratic risk and both risks are measured by the estimates of the Fama-Fench three-factor model, in which the depend variable is the imputed monthly return instead of realized return to capture CEO's pure risk preferences and investment decision thinking. The imputed monthly return is measured by asset-weighted average industry monthly return, in which the weight is the proportion of each segment' assets to total assets in each firm. We measure total risk by calculating the moving variance of each firm's imputed monthly return

over previous 60-month window and require with minimum 20 months. Then we regress imputed monthly return on the Fama and French (1993) three factors to disaggregate total risk into systematic risk and idiosyncratic risk by the same time series window with measuring total risk. The square root of the explained variance is the measure of systematic risk and the square root of the unexplained variance is the measure of idiosyncratic risk.

Equation (1) will be used to regress both types of risk: systematic risk and idiosyncratic risk on explanatory variables and all control variables, although the research question is mainly the idiosyncratic risk. In this study, the coefficient of β5 should be positive and significant based on our prediction. The selection and definitions of controlled variables: firm size (Size), financial leverage (Leverage), investment opportunity set (IOS) measured by Market-to-Book, Sales Growth, and the ratio of property, plant, and equipment to total assets (PPE), cash compensation (CashComp), and CEO tenure (Tenure) are also consistent with Armstrong and Vashishtha (2012) in order to properly compare and contrast this study with Armstrong and Vashishtha (2012). Meanwhile, Equation (1) will be performed with fixed effects of year and industry.

Both the theoretical and empirical literature suggests that equity incentives and innovative activities are endogenously determined (Smith and Watts, 1992; Hirshleifer and Suh, 1992; Gaver and Gaver, 1993; Hemmer et al., 1999; Guay, 1999; Bryan et al., 2000). To mitigate the endogeneity bias of ESO incentives, it is necessary to adopt several models simultaneously. Following Armstrong and Vashishtha (2012), the ESO incentive equations are specified as:

$$Vega_{i,t} = \alpha_0 + \alpha_1 Size_{i,t} + \alpha_2 Leverage_{i,t} + \alpha_3 Market - To - Book_{i,t} + \alpha_4 SalesGowth_{i,t} + \alpha_5 PPE_{i,t} + \alpha_6 CashComp_{i,t} + \alpha_7 CEOTenure_{i,t} + \alpha_8 Cash_{i,t} + \alpha_9 TaxLoss_{i,t} + \alpha_{10} ROA_{i,t} + \alpha_{11} StockRet_{i,t} + \alpha_{12} StockRet_{i,t} + \upsilon_t \quad (2)$$

$$Delta_{i,t} = \alpha_0 + \alpha_1 Size_{i,t} + \alpha_2 Leverage_{i,t} + \alpha_3 Market - To - Book_{i,t} + \alpha_4 SalesGowth_{i,t} + \alpha_5 PPE_{i,t} + \alpha_6 CashComp_{i,t} + \alpha_7 CEOTenure_{i,t} + \alpha_8 Cash_{i,t} + \alpha_9 TaxLoss_{i,t} + \alpha_{10} ROA_{i,t} + \alpha_{11} StockRet_{i,t} + \alpha_{12} StockRet_{i,t} + \upsilon_t \quad (3)$$

Equations (2) and (3) specify the determinants of vega and delta. The predicted values of the dependent variables will be then used to control the endogenous nature of equity incentives while examining corporate innovative activities. Equation (1) can thus be estimated in a two-stage procedure using the predicted value of ESO vega and delta. We adopt several instrumental variables to estimate equity incentives in addition to pre-determined control variables. The pre-determined control variables include firm size (Size), leverage ratio (Leverage), IOS (Market-to-Book, Sales Growth, PPE), and CEO risk aversion (Cash Comp, CEO Tenure). The instrumental variables consist of corporate cash balance (Cash), marginal tax rate (Tax Loss), and performance (ROA, Stock Ret(t), Stock Ret(t-1)). We use the same instrumental variables as in Armstrong and Vashishtha (2012) in order to compare and contrast with their findings and verify our prediction. These instrumental variables are already validated by Hansen's over-identification for the exogenous assumption of instrumental variables in Armstrong and Vashishtha (2012).

3.3 Additional tests for robustness

We note that whether firms are managed by female CEOs or male CEOs might not be determined exogenously. Women are prone to reduce the risk-taking investments after they become CEOs. On the other side, these women tend to self-select into low-risk firms when searching for jobs. To deal with the potential selection effect, we implement difference-in-difference estimation. To form the treatment group, we first estimate a logistic regression model with a set of firm characteristics that should capture the likelihood that a given firm to attract female CEOs. Specifically, we consider size, leverage, capital expenditures, acquisition expenditures, R&D expenditures, and dividend. We also require the matching firms share the same industry and year as the firms managed by female CEOs. By using the propensity scores from the estimated logistic regression, we match each female firm-year observation with a male firm-year observation that minimizes the absolute value of the difference between propensity scores.

4. Empirical Results

4.1 Statistics and Univariate Analysis

Table 1 shows the summary statistics of variable used in this paper and Table 2 exhibits the difference analysis between firms with female and male CEOs. Consistent with the literature, the number of observations for female CEOs is much smaller than that for male CEOs (294 v.s. 13512). Such a small number of observations for female CEOs could lead the estimation results biased, and therefore an econometrical treatment would be needed.

The risk variables tend to be similar between the female and male CEO samples, while the risks tend to be statistically higher for female-CEO firms than for male-CEO firms. That is, female CEOs tend to be statistically more risk taking than male CEOs. However, the compensation variables show that the compensation to female CEOs are statistically lower the compensation to male CEOs. The incentives of ESOs are also lower due to fewer ESOs granted to female CEOs than to male CEOs. That is, female CEOs pursue more risk than male CEOs for every unit of compensation granted to them. This implies the incentive effects of ESOs might be better for the female-CEO than male-CEO firms.

Nevertheless, firms with female CEOs use less financial leverage, conduct less capital investments and save more cash than firms with male CEOs. These results instead suggest that female CEOs tend to be conservative than male CEOs. Combined with the risk incentive findings, the impact of gender on the ESO incentives still remains uncertain.

4.2 Impact of Gender on the Risk Incentive of Executive Stock Options

Table 3 and Table 4 report the 2SLS and 3SLS estimations for the gender impact on the risk incentive of ESOs. The results of both tables indicates that gender is not affecting the risk incentives of executive stock options, as the coefficients of the gender variable interacted with vega and delta are not statistically significant. In addition, most other coefficients are also insignificant. In particular, the coefficient of tenue is positive and significant in Table 4, which is however in contrast to the literature. Therefore, we can conclude that the sample issue make the multivariate analysis biased. Therefore, we further performance propensity score matching to identify the control group from male-CEO firms, and perform the model (1) accordingly.

Table 5 reports the results of risk regression analysis for the treatment group and the matched control group. The results of Table 5 verify the insignificance of gender on the risk incentives of ESOs. Despite the insignificance, the coefficients of the female dummy interacted with vega tend to be negative and the coefficients of the female dummy interacted with delta tend to be positive in all estimations. The risk adverse characteristics of female tend to dominates the power the executive stock options in encouraging risk taking. That is, the effect of option compensation on risk taking is limited to risk-adverse CEOs.

4.3 Robustness: Difference-in-Difference

We extend the analysis to performance a difference-in-difference analysis for two external events. The first one is the regulation change on compensation disclosure requirement in 2006 and the second one is the financial market shock in 2008. The former alters the firms' compensation scheme and the later alters the corporate risk takings. Both could adversely affect the effect of ESOs on risk taking. The results are reported in Tables 6 and 7, respectively.

From both tables, the effect of the external shocks on the gender impact seems very marginal. Nevertheless, when the shock variables are included to the model, we can the negative coefficients of female dummy interacted with vega and the positive coefficients of female dummy interacted with delta become statistically significant. The results verify the risk adverse characteristics of female CEOs. Because female CEOs have been more cautious in responding the risk incentives of ESOs than male CEOs regularly, the external shocks would not cause them to suddenly change their risk taking behaviors.

5. Conclusion

The executive stock options are argued on the limitation of encouraging risk taking incentives. While the literature attributes such limitation to the CEOs' risk adverse, it does not clearly demonstrate how such risk aversion limits the risk incentives of ESOs. By examining the impact of gender on ESOs incentives allows us to understand how the risk aversion affect the effects of ESOs.

Female are socially and psychologically considered more risk adverse than male, and the literature argues that female CEOs tend to work in firms with lower risk than male CEOs. The summary statistics shows that firms with female CEOs tend to have more cash, lower capital expenditure, and lower leverage than firms with male CEOs. Given that the ESOs are designed to mitigate the agency problem of underinvestment due to risk adverse, the ESOs should provide stronger effects to firms that are likely to have underinvestment problems.

Nevertheless, the empirical results show that the risk aversion is not easily altered. As the literature mostly identifies a positive effect of ESOs on firms' stock volatility, mainly systematic risk and not idiosyncratic risk, such positive risk-taking effects of ESOs are not observable in firms with female CEOs. That is, the limitation of ESOs on risk taking is not only limited to the types of risk taking, but mostly importantly to the magnitude of CEOs' risk aversion. While we are unable to measure CEOs' risk aversion, identifying the gender of CEOs allows us to distinguish the firms with different risk preference.

There is still some limitation in this study and requires further improvement. In most empirical analyses, the effect of gender is not significant. Although such issue has been improved after adopting the propensity score matching, the effects are still limited.

The fundamental issue is still on the proportion of female CEOs is too small. Using alternative measures to represent the gender influence may resolve this issue.

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Table 1. Statistics Description

	N	Mean	StdEv	25th Percentile	Median	75th Percentile
Risk profile measures						
Total risk	13806	0.07	0.02	0.06	0.07	0.09
Systematic risk	13806	0.06	0.02	0.05	0.06	0.07
Idiosyncratic risk	13806	0.04	0.02	0.03	0.04	0.05
CEO characteristics						
Vega ($000s)	13806	119	168	10	49	150
Delta ($000s)	13806	505	746	76	200	551
Tenure (years)	13806	9	8	3	7	11
CashCompensation ($000s)	13806	1066	762	567	850	1267
Female CEOs	13806	0	0	0	0	0
Firm characteristics						
Sales ($ millions)	13806	3458	8936	342	879	2635
Book-to-market	13806	0.46	0.21	0.31	0.45	0.60
Leverage	13806	0.13	0.12	0.01	0.12	0.21
Growth	13806	0.83	0.54	0.67	0.79	0.94
PP&E	13806	0.21	0.17	0.08	0.16	0.30
Cash	13806	0.11	0.13	0.02	0.06	0.15
TaxLoss	13806	0.43	0.50	0.00	0.00	1.00
ROA	13806	0.12	0.10	0.07	0.11	0.17
Return	13806	0.16	0.49	-0.13	0.10	0.35

Table 2. Univariate Comparison between Female CEOs and Male CEOs

	Female CEOs (N=294)			Male CEOs (N=13512)				
	Mean	Median	Std	Mean	Median	Std	t-test	Wilcoxon
Risk profile measures								
Total risk	0.08	0.07	0.02	0.07	0.07	0.03	(-1.85)*	(-3.17)***
Systematic risk	0.06	0.06	0.02	0.06	0.06	0.02	(-2.04)**	(-3.06)***
Idiosyncratic risk	0.04	0.04	0.02	0.04	0.04	0.02	(-1.13)	(-1.97)**
CEO characteristics								
Vega ($000s)	75	22	127	120	50	168	(4.58)***	(5.67)***
Delta ($000s)	321	114	531	509	202	749	(4.29)***	(5.79)***
Tenure (years)	8	5	9	9	7	8	(1.97)**	(4.24)***
CashCompensation ($000s)	872	743	562	1071	850	765	(4.42)***	(4.11)***
Firm characteristics								
Sales ($ millions)	3283	442	11167	3462	891	8881	(0.34)	(7.31)***
Book-to-market	0.49	0.47	0.22	0.46	0.44	0.21	(-1.85)*	(-1.52)
Leverage	0.10	0.05	0.13	0.13	0.12	0.12	(4.32)***	(6.27)***
Growth	0.75	0.72	0.18	0.83	0.79	0.55	(2.52)***	(5.85)***
PP&E	0.17	0.16	0.12	0.21	0.16	0.17	(3.94)***	(2.29)**
Cash	0.16	0.12	0.14	0.11	0.06	0.13	(-6.57)***	(-7.35)***
TaxLoss	0.40	0.00	0.49	0.43	0.00	0.50	(1.14)	(1.14)
ROA	0.10	0.09	0.07	0.12	0.11	0.10	(2.99)**	(4.56)***
Return	0.14	0.07	0.52	0.16	0.10	0.48	(0.37)	(0.74)

Table 3. Impact of Gender and ESO Incentives: 2SLS Estimation

	Total risk		Systematic risk		Idiosyncratic risk	
	(1)	(2)	(3)	(4)	(5)	(6)
Vega	0.096	0.018	0.149	0.039	-0.045	-0.036
	(1.23)	(0.04)	(1.09)	(0.09)	(-0.44)	(-0.14)
Delta	0.070	-0.022	0.104	-0.022	-0.045	-0.013
	(0.35)	(-0.13)	(0.31)	(-0.13)	(-0.18)	(-0.13)
Female CEO	0.322	-0.616	0.525	-0.610	-0.279	-0.355
	(0.28)	(-0.14)	(0.26)	(-0.15)	(-0.18)	(-0.14)
Female CEO*Vega	-0.167	-3.919	2.733	-3.598	-5.234	-2.086
	(-0.01)	(-0.40)	(0.15)	(-0.38)	(-0.37)	(-0.37)
Female CEO*Delta	-1.078	2.125	-2.381	2.015	1.989	1.241
	(-0.19)	(0.17)	(-0.24)	(0.17)	(0.28)	(0.17)
Log(Sales)	-0.016	-0.000	-0.024	-0.001	0.009	0.002
	(-0.46)	(-0.01)	(-0.41)	(-0.04)	(0.22)	(0.12)
Leverage	0.003	-0.007	0.016	-0.006	-0.020	-0.005
	(0.06)	(-0.27)	(0.18)	(-0.22)	(-0.31)	(-0.34)
Book-to-market	0.084	0.010	0.120	0.014	-0.045	-0.002
	(0.43)	(0.14)	(0.37)	(0.21)	(-0.18)	(-0.06)
Growth	-0.001	-0.001	-0.001	-0.001	-0.000	-0.001
	(-0.90)	(-0.25)	(-0.56)	(-0.27)	(-0.19)	(-0.21)
CashCompensation	-0.018	0.005	-0.029	0.003	0.013	0.007
	(-0.49)	(0.06)	(-0.46)	(0.04)	(0.27)	(0.14)
Tenure	-0.002	-0.000	-0.003	-0.000	0.001	-0.000
	(-0.44)	(-0.10)	(-0.35)	(-0.10)	(0.12)	(-0.09)
PP&E	0.000	0.015	-0.032	0.010	0.041	0.012
	(0.02)	(0.21)	(-0.88)	(0.15)	(1.52)	(0.30)
Industry indicators	No	Yes	No	Yes	No	Yes
Observations	13806	13806	13806	13806	13806	13806

Table 4. Impact of Gender and ESO Incentives: 3SLS Estimation

	Total risk		Systematic risk		Idiosyncratic risk	
	(1)	(2)	(3)	(4)	(5)	(6)
Vega	0.306***	0.139	0.449***	0.173	-0.146**	-0.013
	(4.58)	(0.79)	(4.31)	(0.93)	(-2.04)	(-0.15)
Delta	-0.148	-0.052	-0.207	-0.061	0.082	-0.020
	(-1.41)	(-0.56)	(-1.26)	(-0.62)	(0.73)	(-0.46)
Female CEO	-0.935*	-0.079	-1.326	-0.242	0.534	0.108
	(-1.69)	(-0.05)	(-1.53)	(-0.14)	(0.90)	(0.14)
Female CEO*Vega	-5.444	-3.298	-6.005	-3.264	-0.347	-1.522
	(-0.71)	(-0.53)	(-0.50)	(-0.50)	(-0.04)	(-0.51)
Female CEO*Delta	4.099	0.978	5.261	1.310	-1.437	0.214
	(1.38)	(0.21)	(1.13)	(0.26)	(-0.45)	(0.09)
Log(Sales)	0.014	0.004	0.019	0.004	-0.009	0.005
	(0.77)	(0.33)	(0.65)	(0.28)	(-0.45)	(0.77)
Leverage	-0.044	-0.011	-0.056	-0.010	0.017	-0.008
	(-1.51)	(-0.77)	(-1.23)	(-0.64)	(0.54)	(-1.21)
Book-to-market	-0.092	-0.042	-0.127	-0.040	0.057	-0.034
	(-0.93)	(-0.66)	(-0.82)	(-0.59)	(0.54)	(-1.10)
Growth	-0.001	0.001	-0.001	0.001	0.001	0.001
	(-0.75)	(0.45)	(-0.99)	(0.36)	(0.83)	(0.78)
CashCompensation	0.009	-0.007	0.012	-0.007	-0.006	-0.000
	(0.50)	(-0.22)	(0.40)	(-0.21)	(-0.28)	(-0.03)
Tenure	0.005**	0.001	0.007*	0.001	-0.003	0.001
	(1.96)	(0.65)	(1.75)	(0.69)	(-1.00)	(0.59)
PP&E	0.032***	-0.000	0.013	-0.003	0.024*	0.002
	(2.83)	(-0.00)	(0.74)	(-0.10)	(1.95)	(0.19)
Industry indicators	No	Yes	No	Yes	No	Yes
Observations	13806	13806	13806	13806	13806	13806

Table 5. Impact of Gender and ESO Incentives: PSM Estimation

	Total risk		Systematic risk		Idiosyncratic risk	
	(1)	(2)	(3)	(4)	(5)	(6)
Vega	0.004	-0.003	0.003	0.004	-0.007	0.001
	(0.27)	(-0.31)	(0.50)	(0.52)	(-0.80)	(0.09)
Delta	-0.000	0.001	0.003***	0.003**	-0.001	-0.000
	(-0.20)	(1.03)	(3.04)	(2.44)	(-1.31)	(-0.21)
Female CEO	0.002	0.001	0.001	0.000	0.002	0.001
	(0.70)	(0.37)	(0.27)	(0.19)	(0.77)	(1.03)
Female CEO*Vega	-0.031	-0.012	-0.021	-0.014	-0.013	-0.006
	(-1.39)	(-0.56)	(-1.28)	(-0.97)	(-1.07)	(-0.49)
Female CEO*Delta	0.005	0.003	0.004	0.002	0.001	0.001
	(1.16)	(0.60)	(1.19)	(0.48)	(0.22)	(0.23)
Log(Sales)	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001*
	(-0.78)	(-0.41)	(-1.04)	(-0.70)	(-0.63)	(-1.76)
Leverage	-0.005	0.001	-0.003	-0.005	-0.008	0.003
	(-0.49)	(0.05)	(-0.33)	(-0.50)	(-0.75)	(0.44)
Book-to-market	-0.001	-0.004	0.001	-0.000	-0.001	-0.000
	(-0.14)	(-0.80)	(0.18)	(-0.06)	(-0.19)	(-0.03)
Growth	-0.006	-0.004	0.002	0.001	0.001	0.001
	(-0.72)	(-0.46)	(0.87)	(0.70)	(0.21)	(0.55)
CashCompensation	-0.001	-0.003	-0.003	-0.003*	0.004	0.000
	(-0.30)	(-1.20)	(-1.57)	(-1.68)	(1.63)	(0.10)
Tenure	-0.000	-0.000	-0.000**	-0.000*	0.000	-0.000
	(-1.22)	(-0.49)	(-2.42)	(-1.69)	(0.15)	(-0.32)
PP&E	0.004	-0.007	-0.014	-0.003	0.051***	0.013**
	(0.48)	(-0.54)	(-1.66)	(-0.30)	(6.44)	(2.05)
Industry indicators	No	Yes	No	Yes	No	Yes
Observations	588	588	588	588	588	588

Table 6. Difference-in-Difference Analysis for the Risk Regressions: post 2006

	Total risk		Systematic risk		Idiosyncratic risk	
	(1)	(2)	(3)	(4)	(5)	(6)
Vega	0.002	0.011	-0.011	-0.003	0.017	0.020
	(0.10)	(0.81)	(-1.06)	(-0.30)	(0.76)	(1.29)
Delta	-0.002	-0.002	0.001	-0.001	-0.006**	-0.002
	(-1.28)	(-1.23)	(0.85)	(-0.59)	(-2.35)	(-1.46)
Female CEO	0.003	-0.000	0.000	-0.000	0.005	0.000
	(0.66)	(-0.01)	(0.08)	(-0.03)	(1.18)	(0.05)
Female CEO*Vega	-0.027	-0.023	-0.004	-0.005	-0.034	-0.031**
	(-1.11)	(-1.35)	(-0.26)	(-0.38)	(-1.29)	(-2.00)
Female CEO*Delta	0.011**	0.008	0.010**	0.007*	0.004	0.002
	(2.39)	(1.55)	(2.54)	(1.86)	(0.78)	(0.59)
Post (2006-2011)	0.016***	0.015***	0.014***	0.014***	0.007	0.006***
	(2.97)	(3.31)	(3.67)	(3.99)	(1.46)	(2.89)
Female CEO*Post	-0.007	0.001	-0.002	-0.001	-0.008	0.002
	(-0.91)	(0.12)	(-0.36)	(-0.11)	(-1.22)	(0.38)
Female CEO*Vega*Post	0.000	0.008	-0.009	0.003	0.017	0.013
	(0.03)	(0.59)	(-0.63)	(0.28)	(1.37)	(1.37)
Female CEO*Delta*Post	-0.005	-0.003	-0.005	-0.004	-0.003	-0.001
	(-0.70)	(-0.44)	(-0.66)	(-0.58)	(-0.52)	(-0.12)
Log(Sales)	-0.002	-0.000	-0.001	-0.000	-0.002	-0.001
	(-1.15)	(-0.43)	(-0.81)	(-0.25)	(-1.22)	(-0.79)
Leverage	-0.002	-0.001	0.012**	0.004	-0.020*	-0.005
	(-0.27)	(-0.12)	(2.42)	(0.82)	(-1.89)	(-0.99)
Book-to-market	-0.009	-0.005	-0.000	-0.002	-0.016**	-0.006*
	(-1.66)	(-1.15)	(-0.02)	(-0.62)	(-2.16)	(-1.67)
Growth	-0.023***	-0.013**	-0.014**	-0.010**	-0.018***	-0.002
	(-3.29)	(-2.53)	(-2.36)	(-2.00)	0.002	-0.000
CashCompensation	-0.000	-0.001	-0.001	-0.001	(1.20)	(-0.24)
	(-0.02)	(-0.96)	(-0.45)	(-0.71)	0.000	0.000
Tenure	-0.000	0.000	-0.000	0.000	(0.31)	(0.20)
	(-0.06)	(1.08)	(-0.55)	(1.01)	0.063***	0.005
PP&E	0.037***	0.002	0.001	-0.001	(4.64)	(0.63)
	(3.16)	(0.24)	(0.22)	(-0.19)		
Industry indicators	No	Yes	No	Yes	No	Yes
Observations	240	240	240	240	240	240

Table 7. Difference-in-Difference Analysis for the Risk Regressions: Post 2008

	Total risk		Systematic risk		Idiosyncratic risk	
	(1)	(2)	(3)	(4)	(5)	(6)
Vega	0.026*	0.028**	0.015	0.015	0.021	0.022**
	(1.71)	(2.37)	(1.08)	(1.47)	(1.60)	(2.57)
Delta	-0.003	-0.002	-0.002	-0.001	-0.002	-0.002
	(-1.25)	(-0.97)	(-0.79)	(-0.39)	(-1.30)	(-1.47)
Female CEO	-0.004	-0.005	-0.005	-0.003	0.001	-0.003
	(-1.02)	(-1.01)	(-1.25)	(-0.82)	(0.28)	(-0.98)
Female CEO*Vega	-0.042*	-0.041**	-0.022	-0.026	-0.036**	-0.030***
	(-1.90)	(-1.99)	(-0.88)	(-1.24)	(-2.63)	(-2.61)
Female CEO*Delta	0.015***	0.012**	0.017***	0.013***	0.001	0.003
	(3.21)	(2.41)	(3.82)	(2.78)	(0.16)	(1.05)
Post (2008-2013)	-0.012	-0.016**	-0.009	-0.010*	-0.007	-0.011**
	(-1.36)	(-2.26)	(-1.63)	(-1.85)	(-0.90)	(-2.31)
Female CEO*Post	0.002	0.004	0.003	0.002	-0.002	0.004
	(0.36)	(0.69)	(0.70)	(0.44)	(-0.41)	(0.97)
Female CEO*Vega*Post	-0.002	0.017	-0.004	0.013	0.006	0.007
	(-0.06)	(0.89)	(-0.18)	(0.75)	(0.53)	(0.59)
Female CEO*Delta*Post	-0.010	-0.009	-0.011*	-0.010	-0.002	-0.001
	(-1.47)	(-1.24)	(-1.80)	(-1.64)	(-0.27)	(-0.29)
Log(Sales)	-0.004***	-0.004***	-0.004***	-0.004***	-0.001	-0.002**
	(-2.83)	(-2.92)	(-2.83)	(-3.50)	(-1.05)	(-2.04)
Leverage	-0.003	0.009	0.008	0.008	-0.011	0.006
	(-0.22)	(0.82)	(1.08)	(0.90)	(-0.81)	(0.69)
Book-to-market	0.001	0.003	0.007*	0.003	-0.007	0.004
	(0.17)	(0.50)	(1.92)	(0.64)	(-0.83)	(0.88)
Growth	-0.004	-0.006**	-0.006***	-0.007***	0.001	-0.001
	(-1.38)	(-2.55)	(-3.24)	(-3.18)	(0.47)	(-1.06)
CashCompensation	-0.001	-0.001	-0.001	-0.001	0.002	0.000
	(-0.21)	(-0.75)	(-0.53)	(-0.89)	(0.90)	(0.42)
Tenure	-0.000	-0.000	-0.000**	-0.000*	0.000	0.000
	(-1.32)	(-0.84)	(-2.65)	(-1.85)	(0.30)	(0.17)
PP&E	0.035***	0.011	-0.011	-0.007	0.069***	0.019***
	(3.17)	(1.43)	(-1.24)	(-1.11)	(5.76)	(2.79)
Industry indicators	No	Yes	No	Yes	No	Yes
Observations	382	382	382	382	382	382

科技部補助專題研究計畫執行國際合作與移地研究心得報告

日期: 2019 年 8 月 30 日

計畫編號	107-2629-H-004-001		
計畫名稱	女性決策者對高階經理人薪酬風險誘因的影響		
出國人員姓名	陳嬿如	服務機構及職稱	政大財管系
移地研究時間	2019 年 7 月 10 日 至 2019 年 7 月 22 日	出國地點	Florida International University
出國研究目的	□實驗 □田野調查 □採集樣本■國際合作研究□使用國外研究設施		

一、 執行國際合作與移地研究過程

7/10

上午時間出發前往，歷經二地轉機，24 小時後（台灣時間 7/11 上午 10 點、當地時間 7/10 晚上 10 點）抵達邁阿密。

7/11

下午與 FIU 教授見面、討論目前主流研究議題以及執行專題所遇到的困難。

7/12

再與 FIU 教授及正在 FIU 就讀的台灣籍博士生見面、就前日所提及的問題繼續討論。

7/13-14

與邁阿密當地的學生及友人會晤，了解當地企業的運作方式及拉美文化對企業決策的影響。

7/15

下午與 FIU 教授見面、報告專題研究細節並討論未來可進行的方向。

7/16-17

自主研究時間、間歇性的與博士生討論。

7/18

再次與 FIU 教授見面、討論文化議題對企業決策的影響，並確認未來合作方式。

7/19-20

自主研究時間、做議題的最後確認。

7/21-22

當地時間 7/21 上午離開邁阿密並於台灣時間 7/22 晚間返抵台灣

二、 研究成果

企業高階主管的特質對企業決策有極大的影響，其中一個重要的因素來自高階主管的文化背景。在與海外教師就海外企業進行討論、得到寶貴的意見與建議，對進一步架構文章方向及修改文章有極大的助益。

近年來高品質文章發表愈來愈見困難，議題的創新性外、研究方法的強化及學術合作團隊的建立的都是重要環節。因此，持續性的建立於維持國際合作關係來強化研究能量有其必要性。移地研究最重要的部分在於議題的建立，專題執行中的細節或許能透過網路通訊來即時討論，但是研究議題與文章定位卻很難透過網路通訊來達成共識。

此次移地研究除了就現有的文章以完成的部分討論改善的空間之外，更重要的是討論未來合作研究的議題及理論觀念的釐清。FIU 是位於佛州邁阿密的州立大學，學生多達六萬人。由於地緣關係，學生尤其是國際學生主要是中南美洲裔的。在當地聽到私下交談的對話也多是西班牙語，相形之下亞裔學生就少了。FIU 商學院學生超過一萬人，是最大的學院，佔有三棟樓。有一些華人教師在商院表現良好，其中剛上任不久的現任院長是位香港裔的學者，上任後開始計畫增加與亞洲交流、尤其是華裔。這個學校的多元性與包容性對於需要考慮文化因素的經理人決策相關研究，對會刺激新的想法。

三、 建議

雖然網路得以讓異地的學者之間進行討論，但是移地研究得以與合著者面對面地討論、亦可進一步得到其他學者的建議，獲益不可不謂多，敬請務必持續補助移地研究。

四、本次出國若屬國際合作研究，雙方合作性質係屬：(可複選)

□分工收集研究資料
□交換分析實驗或調查結果
■共同執行理論建立模式並驗証
■共同執行歸納與比較分析
□元件或產品分工研發
□其他（請填寫）_____

五、其他

107年度專題研究計畫成果彙整表

計畫主持人：陳嬿如	**計畫編號：**107-2629-H-004-001-
計畫名稱：女性決策者對高階經理人薪酬風險誘因的影響	

成果項目					量化	單位	質化 （說明：各成果項目請附佐證資料或細項說明，如期刊名稱、年份、卷期、起訖頁數、證號...等）
國內	學術性論文	期刊論文			0	篇	
		研討會論文			0		
		專書			0	本	
		專書論文			0	章	
		技術報告			0	篇	
		其他			1	篇	developing a more insightful study
	智慧財產權及成果	專利權	發明專利	申請中	0	件	
				已獲得	0		
			新型/設計專利		0		
		商標權			0		
		營業秘密			0		
		積體電路電路布局權			0		
		著作權			0		
		品種權			0		
		其他			0		
	技術移轉	件數			0	件	
		收入			0	千元	
國外	學術性論文	期刊論文			0	篇	
		研討會論文			0		
		專書			0	本	
		專書論文			0	章	
		技術報告			0	篇	
		其他			0	篇	
	智慧財產權及成果	專利權	發明專利	申請中	0	件	
				已獲得	0		
			新型/設計專利		0		
		商標權			0		
		營業秘密			0		
		積體電路電路布局權			0		
		著作權			0		
		品種權			0		
		其他			0		

	技術移轉	件數	0	件	
		收入	0	千元	
參與計畫人力	本國籍	大專生	3	人次	knowing the importance of the topic and how to search data from public sources
		碩士生	3		knowing how to search data and related literature
		博士生	0		
		博士級研究人員	0		
		專任人員	0		
	非本國籍	大專生	0		
		碩士生	0		
		博士生	0		
		博士級研究人員	0		
		專任人員	0		
其他成果 （無法以量化表達之成果如辦理學術活動、獲得獎項、重要國際合作、研究成果國際影響力及其他協助產業技術發展之具體效益事項等，請以文字敘述填列。）			International collaborations with a faculty at Florida International University in the US and a faculty at Nanyang Technology University in Singapore.		

科技部補助專題研究計畫成果自評表

請就研究內容與原計畫相符程度、達成預期目標情況、研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性）、是否適合在學術期刊發表或申請專利、主要發現（簡要敘述成果是否具有政策應用參考價值及具影響公共利益之重大發現）或其他有關價值等，作一綜合評估。

1. 請就研究內容與原計畫相符程度、達成預期目標情況作一綜合評估
   ■達成目標
   □未達成目標（請說明，以100字為限）
   　□實驗失敗
   　□因故實驗中斷
   　□其他原因
   說明：

2. 研究成果在學術期刊發表或申請專利等情形（請於其他欄註明專利及技轉之證號、合約、申請及洽談等詳細資訊）
   論文：□已發表　□未發表之文稿　■撰寫中　□無
   專利：□已獲得　□申請中　■無
   技轉：□已技轉　□洽談中　■無
   其他：（以200字為限）

3. 請依學術成就、技術創新、社會影響等方面，評估研究成果之學術或應用價值（簡要敘述成果所代表之意義、價值、影響或進一步發展之可能性，以500字為限）
   隨著法規制度及性別平權意識之興起，職場環境對於女性高階經理人及董事會成員的玻璃天花板有降低趨勢，本研究透過研究女性經理人之獎酬制度，幫助提升女性職場參與

4. 主要發現
   本研究具有政策應用參考價值：■否　□是，建議提供機關
   （勾選「是」者，請列舉建議可提供施政參考之業務主管機關）
   本研究具影響公共利益之重大發現：□否　□是
   說明：（以150字為限）