Factors Impacting the Issue Price of Private Equity Placements by Financial Institutions - Evidence from Taiwan

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This study aims to investigate factors impacting private placement selling price. We use OLS and Tobit regression models to examine five dimensions; investor identity, corporate governance, operating performance, market structure and information asymmetry. In addition, we also take the macro-economic variables into consideration and conduct a robustness test. Our findings are as follows: foreign ownership leads to premium private equity sales and the more foreign ownership, the more premium. Financial institutions with better corporate governance, operating performance and greater market power lead to premium private equity sales. Smaller information asymmetry reduces the discount level of selling private equity placements. If the macro-economic environment is positive, private equity placements are more likely to sell at a premium.

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Operating Performance, Market Structure, Information Asymmetry

1. Introduction

The Taiwan government approved the private placement system in 2002. Since this change, the private placement market has boomed. Data released by the Securities and Future Bureau of the Financial Supervisory Commission demonstrated that funding from private placements gradually increased over years. It means private placements have become an important approach to raising capital for publicly held companies since the procedures involved are relatively simple. Recently, numerous listed companies have used private placements to recruit strategic alliance partners to improve their corporate governance or enhance their operating performance. Compared to public offerings, the number of investors in private placements is relatively small and such private placements lack investment prospectuses, potentially resulting in a lack of information transparency, which favours specific individuals at the expense of other shareholders. Private placements thus suffer some significant weaknesses. Owing to recent cases involving highly profitable companies that have used private placements to raise capital, with offer prices deviating significantly from the market price or net worth and with specific investors being inside the company or

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related parties, negatively impacting shareholder equity, the authorities have revised and released regulations and guidelines that clearly define the offering price, principles and strategic investors of the private placement.

Literature[1] dealing with private placement in Taiwan is still lacking. Regarding the literature of private placements in Taiwan, it was found that most of the samples[2] used comprised listed companies and since the characteristics and regulations of the financial industry differ from other industries, researchers frequently deleted the samples of the financial industry. However, this study deliberately focuses on the financial industry. The financial industry includes banks, securities, insurance and financial holding companies whose sources of earnings and business models differ from other industries, making it essential to separate the financial industry from other industries to conduct a detailed review. Owing to the significant differences in regulatory and operating models between the financial industry and other industries, previous studies on private placements always consciously excluded the financial industry. When investors have a special identity, such as a parent financial holding company and its subsidiary, they can use private placements to transfer funds rapidly and efficiently between companies. Moreover, private placements are often used in the financial service industry to increase the ratio of capital adequacy differing from its purpose in other industries. Consequently, this study focuses particularly on the samples of financial industries with the aim of investigating the factors that influence whether private placements are sold at a discount or premium and uses the OLS and Tobit models to examine the following questions.

1) Financial companies have recently introduced strategic investors, including foreign investors and this study thus examines how foreign investors influence the selling price of private placements. We also investigate private placements involving insiders, and outsiders obtaining directorships via private placements, to understand how these factors influence the selling price of private placements.
2) To examine the influence of governance mechanisms on the selling price of private placements, we use shareholding and collateral percentage of insiders as well as voting to cash-flow rights of controlling shareholders. We expect the higher shareholding percentage, the more possible the private equity placement selling at a premium, while the higher collateral percentage and voting to cash-flow rights of insiders and controlling shareholders lead to the private placement selling at a discount.
3) We added specific financial industry variables like capital-adequacy ratio, cost-revenue ratio and operating years of the financial industry, trying to provide a comprehensive and overall review of the factors influence on the selling price of a private placement.

The paper is organized as follows. The literature is introduced in Section 2. Section 3 presents the research design and hypothesis. Section 4 depicts the data and descriptive statistics. Section 5 summaries the empirical results. Robust analysis is in Section 6. Finally, Section 7 presents conclusions.

2. Literature Review

2.1 Performance and Market Reaction

Barclay *et al.* (2007) classified private placements into three types: active placements, managerial placements and passive placements and used these three classifications to verify the monitoring and certification hypotheses. The findings support the entrenchment hypothesis rather than monitoring and certification hypotheses. Hertzel *et al.* (2002) stated that announcement of a private placement initially positively affected the share price but after the announcement date the effect was negative and concluded that investors were excessively optimistic concerning the future of the company. Tan *et al.* (2002), Marciukaytite *et al.* (2005) and Chou *et al.* (2009) also noted that companies only sustained a high Tobin's Q when their share price remained under-valued for a long period. The reason for this phenomenon was the same as that proposed by Hertzel, namely, that investors are excessively optimistic regarding firm-growth rate. However, Chen *et al.* (2002) used the example of Singapore during 1988-1993 and obtained opposite findings to Tan *et al*, revealing that private placement not only resulted in negative CAR but also displayed phenomenon of dispersed ownership. Krishnamurthy (2005) found that share prices increased significantly before private placements and CAR displayed significant and sustained negative growth following a private placement. Wruck and Wu (2009) analyzed how the relationship between issuer and investor influences firm performance and showed that if private placement causes the establishment of a new relationship, firm share price displays a positive effect on the announcement date. Furthermore, the empirical findings of Lin (2008) showed that firms engaging in private equity placements displayed significantly negative and sustained CAR over long periods.

2.2 Factors Impacting the Selling Price of Private Equity Placement

Krishnamurthy (2005) classified investors as affiliated and unaffiliated. He thought that investors purchased the shares at a discount to reflect whether the share price will decrease in future and that affiliated investors are more likely to avoid purchasing over-valued shares than are unaffiliated investors. Xu (2006) found that controlling rights significantly influenced the selling price of a private placement. Chen (2009) examined whether insiders participating in the private placement influence the discount level and showed that insiders purchase shares at a relatively lower price motivated by self-benefit, resulting in a larger discount level in private equity placements, supporting the entrenchment hypothesis, but Meidan (2006) indicated that controlling the characteristics of private placement, investor type was unrelated to private placement price.

Barclay *et al.* (2001) identified two methods of purchasing large numbers of shares. One method is to purchase from other shareholders and the other is through a private placement. In block trades, an average 11% premium exists following the announcement date. However, a 19% discount exists in the case of private placements. This reflects that purchasers of block trades generally became top managers and the premium reflects the benefits associated with future expectations. Investors in private placements are generally passive investors and share prices begin to decline following such events. These phenomena indicate that the discounts offered for private

placements compensate outsiders for helping the managers to solidify their position, a hypothesis supported by the empirical results of Barclay *et al.* (2007) which indicated that most participants in private placements are passive investors and could help top managers strengthen their control rights or positions and, thus, most private placements sell at a discount. Bajaj (2001) used the issuing amount to measure the scale of private equity placements and noted the unit information costs paid by the purchaser and, thus, the discount level, reduces with increasing issue scale.

3. Research Hypothesis and Design

3.1 Research Hypothesis

3.1.1 The Identity of the Investors

Since 2006, to improve the Taiwanese banking system and make Taiwan an Asia Pacific financial centre, the Taiwanese government has welcomed foreign investors to assume control of financial institutions. Foreign banks generally have large scale and sound operating systems. Therefore, if participants in private placements which have foreign investment and, particularly, if foreign investors hold a large percentage, those private placements generally sell at a premium. As for why foreign investors are willing to pay a premium for private placements, besides thinking they have sound operating systems that can improve the bank's constitution, they are also unfamiliar with the local environment. To extend the territory and shorten the time required to familiarize themselves with Taiwan market, foreign investors are willing to pay a premium and, therefore, this study hypothesizes the following.

Hypothesis 1 : Financial institutions with higher proportions of foreign ownership, or the investors in private placements, including foreign investors, tend to sell the private equity placements at a premium.

If the investors in private placements include insiders in financial institutions, then, based on the information cost hypothesis, insiders will have more information than outsiders and, thus, will receive less compensation from the discount but the principal-agent, self-interest hypothesis indicates that if managers hold fewer shares, they can subscribe to new shares at a lower price and through skill at buying low and selling high, generate a wealth-transfer effect and, thus, cause the private placement to sell at a large discount. However, if outsiders obtain a Board seat via a private placement, their ability to receive the controlling rights enables them to pay a premium and they will pay a higher premium if they expect to receive more benefits. Accordingly, Hypothesis 2 was developed.

Hypothesis 2: If investors in a private placement include insiders, the private placement will sell at a discount; but if outsiders can gain board seats from a private placement they become willing to pay a premium.

3.1.2 Corporate Governance

Votes-to-Cash-Flow-Rights and Seats-to-Rights are used to measure share-rights violation levels and it is posited that if the controlling rights are far from cash flow rights and earnings distribution rights, then investors in private placements will request a price premium to compensate for the rights lost. Therefore, Hypothesis 3 is presented.

Hypothesis 3: The larger deviation of Votes-to-Cash Flow Right and Seats-to-Rights, the more likely the private placement will sell at a premium to compensate losing the control right of the controlling shareholders.

Zhao and Dai (2006) found that the higher the collateral of directors and supervisors, the more likely that performance would suffer a negative impact, supporting the entrenchment hypothesis. In our opinion, the larger the shareholding of directors and supervisors in financial institutions, the more likely their decisions will match the interests of other shareholders and, thus, private equity placements tend to sell at a premium. Two main perspectives exist in relation to the collateral percentage of directors and supervisors, Zhang (2007) believed that higher collateral percentage of directors and supervisors represented worse corporate governance leading to private placements tending to be sold at a discount. Based on this perspective Hypothesis 4 was established.

Hypothesis 4: The higher the shareholding of the directors and supervisors in the financial institution, the more their decisions agree with the interests of the other shareholders, leading to private equity placements tending to sell at a premium. Higher collateral percentages of the directors and supervisors represented worse governance, so private equity placements tend to sell at a discount.

Ye *et al* (2010) investigated differences in earnings management in the Taiwanese banking industry in different environments. They found that owing to the occurrence of the local financial storm, the allowance for bad debts increased with bank earnings. Top managers enjoy the power of providing for uncollectible accounts to prevent company financial crises so this study presents Hypothesis 5.

Hypothesis 5: If the financial institution allows for bad debts provision abnormally before the private placement, it will tend to sell the private equity placement at a premium.

3.1.3 Operating Performance

A high capital adequacy ratio suggests that the financial institution owns sufficient capital to provide better protection to investors. Moreover, a higher rate of return on assets and lower cost-revenue ratio represent better overall profitability. Therefore, this study assumes that higher capital adequacy ratio is associated with higher rate of

return on assets and lower cost-revenue ratio resulting in selling the private equity placement at a premium, thus, Hypothesis 6.

Hypothesis 6: Financial institutions with higher capital adequacy ratios have higher ability to deal with losses and, thus, tend to sell private equity placements at a premium; higher rates of return on assets and lower cost-revenue ratios tend to be associated with firms selling private equity placements at a premium.

3.1.4 Market Structure

Boyd and Gianni (2005) stated that a concentrated market would increase the profitability of the banking industry. Furthermore, the market-power hypothesis also indicates that if the financial market is less competitive, credit rationing will occur and loan prices will be more tightly controlled. Chen and Wu (2010) used data from 44 countries to perform an empirical study and found a positive relationship between market share and profitability, supporting the market power hypothesis. Market power is clearly strongly related to financial institution performance. Because financial institutions with more market power also have more negotiating power, they also tend to achieve higher profitability.   Both market share and market concentration as well as Herfindahl-Hirschman Index (HHI) are used to see whether they lead to private placements selling at a discount or a premium   Hypothesis 7 is based on the above statement.

Hypothesis 7: Financial institutions with more market power have more negotiating power and, therefore, tend to sell private equity placements at a premium.

3.1.5 Information Asymmetry

If the issuing scale or size of a financial institution is larger or if the institution has been established for longer, the cost to investors of collecting information is cheaper, resulting in a smaller discount level; moreover, if the proportion of private placement is higher, because of the original investor having no pre-emptive right to subscribe to the shares, the new shareholders will benefit more and, thus, they will receive a smaller discount. Based on the above statement, this study established Hypothesis 8.

Hypothesis 8: The discount level reduces with increasing size of the issuing scale, size of the financial institution or length of establishment; if the proportion of private placement is higher, it tends to sell the private equity placement at a discount.

3.2 The Empirical Models and Variables Measure

We discuss factors impacting whether financial institutions sell private equity placements at a discount or premium in five different dimensions, including investor identity, corporate governance, operating performance, market structure and information asymmetry and use the OLS method to perform regression analysis.

Furthermore, considering variable robustness, we construct the Tobit model for further analysis and comparison. The regression model can be used in different definitions and can distinguish the definitions of the independent variables in the model itself. Therefore, we define the discount or premium in the private equity placement as (Reference price-Declaration price/ Declaration price) in the OLS model but define them as (Reference price/ Declaration price) in the Tobit model, where all the values of this definition exceed 0. Therefore, this investigation applied the Tobit model, which limited the value scope of the dependent variable. We also defined the reference price as the higher of the closing price of common stock before pricing days 1, 3 and 5, or the simple arithmetic average 30 business days of closing price of common stock before pricing day. We set the regression model as follows.

$$Discount_j = \alpha_j + \sum_{j=1}^{4} u_i \, lnvj_i + \sum_{j=1}^{6} \beta_i Govj_i + \sum_{j=1}^{3} \gamma_i \, Perj_i + HHI_i + \sum_{j=1}^{4} \delta_i Infoj_i + \varepsilon_i$$

In the model, *i* denotes as the sample *i*, and *j* represents the *jth* variable of the specified dimension. The following table defines the model variables.

Table 1: Factors impacting the selling price of a private placement in financial institution and variables definition

Factors Impact	Variables	Symbols	Expect Direction	Definition
Dependent	Equity Discount or Premium	*Discount*	$+/-$	Reference Price-Declaration Price)/Declaration Price[3]
Investors' Identify (*Inv*)	Foreign Investor	*Inv1*	$-$	The dummy variable *inv1* will be 1 if the private placement has the foreign investor involved, otherwise 0.
	The ratio of foreign ownership	*Inv2*	$-$	Shares held by foreign people＋shares held by foreign financial institution＋shares held by foreign legal person＋shares held by foreign trust fund
	Insider Participation	*Inv3*	$+$	The dummy variable *Inv3* will be 1 if the investors of the private placement had directors and supervisors involved, otherwise 0.
	Board Seats by Outsiders[4]	*Inv4*	$-$	Measure the controlling right for outsider by getting the seats of director, when outsider get the director seat after the private placement, *Inv4* will be 1, otherwise 0.
Corporate Governance (*Gov*)	Votes-to-Cash Flow Rights	*Gov1*	$-$	Share controlling right／Earning distribution right
	Seats-to-Rights	*Gov2*	$-$	Seats controlling right／Earning distribution right
	Interaction of shareholding percentage by insiders and the insiders' Shares are not Collateralized	*Gov3*	$-$	Share holding percentage by directors and supervisors*（1－collateral percentage by directors and supervisors）
	Shareholding-Percentage by insider (%)	*Gov4*	$-$	(Total shares held by directors and supervisors/outstanding shares)*100
	Shareholding-Percentage of insiders and the insiders' Shares are Collateralized (%)	*Gov5*	$+$	(Shares held by directors and supervisors collateralized/ Total shares held by directors and supervisors)*100
	Abnormal allowance for bad debts	*Gov6*	$-$	The allowance for bad debts at the end of the year before one year of the declaration day are more than previous two years, and the level are up to 15%, the sample will be regard as through private placement to manipulate the earning, the dummy variable of *Gov6*

				would equal 1, otherwise 0.
Operating performance (*Per*)	Capital Adequacy Ratio	*Per1*	−	(Qualified capital-capital deductive items) / (credit risk weighted risky assets+ market risk and operating risk provided by capital *12.5) [4]
	Rate of Return on Assets	*Per2*	−	Continuing net income before depreciation but after tax /average total assets *100
	Cost Revenue Ratio	*Per3*	+	Operating cost/net operating revenue*100
Market Structure (*HHI*)	Herfindahl -Hirschman Index	*HHI*	−	$$HHI = \sum_{i=1}^{n} S_i^2$$ Si：The market share among the industry of individual financial company，the market share described respectively below: Bank：Total assets of individual bank/Total assets of total banks。 Securities：Net operating revenues of individual underwriter/ Total net operating revenues of total underwriters。 Insurance：Net operating revenues of individual insurance company/ Total net operating revenues of total insurance companies[5]
Information Asymmetry (*Info*)	Issuing Scale	*Info1*	+	Logarithm of equity private placement to measure
	Issuing Percentage (%)	*Info2*	+	Shares of private placement/total shares after private placement
	Size of Financial Institution[6]	*Info3*	+	Logarithm of total stockholder's equity at the end of the year before one year of the pricing day
	Founding Years of the Financial institution	*Info4*	+	Founding years of the financial institution since the pricing day of the private placement and logarithm the founding years to measure

4. Data and Descriptive Statistics

4.1 Data Sources

This study focuses on listed and OTC companies and financial institutions engaged in public offerings. Besides private placement data, public offering data were also collected for comparison. Since the inception of private placements in 2002, eight years of data covering 2002 to 2010, 68 observations, were collected. Within the data set, 32 observations involved private placements and 36 involved public offerings. Data were obtained from the TEJ data base and the annual and semi-annual financial statements of each financial institution.

4.2 Descriptive Statistics

The samples were divided into private placement, public offering and total of both and the descriptive statistics for the mean and median were listed, as well as using the Kruskal-Wallis, T test to examine whether the mean or median of public offering and private placement exhibit significant differences. For space consideration, the descriptive statistics table was omitted. First, it was found that unlike public offerings, private placements generally sell at a premium. The median has significant difference at the 5% level. Regarding investor identity, the variable of the percentage of shares held by foreign investors, the median of public offerings is significantly higher than private placements. In the dimension of corporate governance, the mean and median in Votes-to-Cash-Flow Rights and Seats-to-Rights of private placement significantly exceed the public offering, the significance level of the median is up to 1%, revealing that share-rights deviation is serious and both the percentage of shares held by insiders and the percentage of shares held by insiders which are collateralized are higher for private placements than public offerings but only the former differ significantly. The last variable of abnormal allowance for bad debts also differs significantly between private placements and public offerings. These phenomena reveal that earnings management is more likely to occur in association with private placements than public offerings.

Regarding the operating performance dimension, the mean and median of ROA are -0.8% and -0.02%, worse than the levels for public offerings, namely, o.12% and o.22%, respectively. Furthermore, the mean and median of the cost-revenue ratio of private placements are 27.69% and 29.61%, still exceeding the levels for public offerings, namely, 24.49% and 27.44%. The results presented in this study are obtained from the empirical findings and show that the operating performance of public offerings exceeds that of private placements but the difference is not significant. Regarding the perspective of market structure measured by HHI, the means of private placements and public offerings do not differ significantly but the median (4.37) of public offering is higher than for private placement (4.28) and, moreover, the difference is significant at the 10% significance level. Finally, this study discusses the dimension of information asymmetry and finds that the issuing percentage for public offerings is significantly higher than for private placements and the mean is significantly different at the 5% significance level but the mean and median of issuing scale and average of total equity in private placement exceed those for public offerings. As for the number of founding years of financial institutions, firms issuing private placements have been established

for an average of 25.44 years, less than those issuing public offerings, at 32.92 years. Moreover, the same results are obtained for the median but are insignificant.

5. Empirical Results

Before the empirical analysis, a VIF test was performed and the results show a significant correlation between *Gov1* and *Gov2*. Therefore these two variables should be examined using different regression models. Besides that factor, it was still found that the VIF value of *Gov3, Gov4* and (1- *Gov5)* are all exceeded 10. Furthermore, the Pearson correlation coefficient of the interaction item and *Gov4* was 0.8959, demonstrating a close correlation. But the coefficient of the previous interaction item and *Gov5* is -0.6709 and, thus, the interaction items are individually entered into the regression model. This investigation uses OLS to examine the factors impacting whether private placements sell at a discount or premium and uses the Tobit regression model to perform further robust analysis, where the dependent variable is defined as (Reference price-Declaration price/ Declaration price) in the OLS model, while in the Tobit model it is defined as (Reference price/ Declaration price) and for this value exceed 0. Therefore, the Tobit model is applied, limiting the value scope of independent variables. Table 2 lists the results.

Table 2 lists the variables of corporate governance, market structure and information asymmetry in Models 1 and 2. Model 1 includes variables of interaction for the shareholding percentage of insiders and for the percentage of shares not collateralized. Model 2 includes variables of the percentage of shares held by insiders and the percentage of shares held by insiders which are collateralized, respectively. Models 3 and 4 include the variables of the dimension of operating performance and Models 5 and 6 include the variables of the dimension of the identity of investors. Furthermore, Models 7 and 8 include the variable of capital adequacy ratio, since different capital adequacy ratio criteria exist in the banking, insurance and securities industries, to avoid large differences in measuring capital adequacy ratios only the banking industry was considered. All models displayed 10% significant model fit. The results listed in Table 2 show that in the dimension of investor identity, when foreign investors are involved *(Inv1)* their percentage ownership of financial institutions (*Inv2*) is relatively higher. Owing to the participation of foreign capital, firm operating performance is good, resulting in private equity placements selling at a premium, supporting Hypothesis 1. When insiders are involved, private equity placements tend to sell at a discount, resulting in a wealth shifting or transfer effect, consistent with the previously mentioned weakness.

Table 2: The OLS model results of factors impacting private placement selling at a discount or premium

Independent Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Intercept	-3.4817***	-3.5332**	-2.4232	-2.3059	-3.9529**	-4.8623**	-10.8382***	-9.7665***
Gov1	0.0015	0.0005	0.0012	0.0003	0.0014	0.0004	0.0015	0.0013
Gov3	-0.0046**		-0.0040*		-0.0070***		-0.0092***	
Gov4		-0.0022		-0.0020		-0.0054		-0.0064**
Gov5		0.0048*		0.0047*		0.0073**		0.0114*
Gov6	-0.0470	0.0203	-0.0144	0.0546	-0.1237	-0.1190	-0.2216	-0.2394
Inv1*Inv2					-0.0058	-0.0037	-0.0077	-0.0012
Inv3					0.4810	0.8449		
Inv4					-0.1403	-0.2509	0.0622	-0.0848
Per1							0.0062	0.0110
Per2			0.0284	0.0347	0.0301	0.0442	-0.0285	-0.0111
Per3			-0.0025	-0.0037	-0.0010	-0.0024	0.0125	0.0069
HHI	-0.0019	0.0039	-0.0019	0.0027	-0.0183	-0.0166	-0.0288	-0.0261
Info1	-0.1739	-0.2497*	-0.2012	-0.2789**	-0.1851	-0.2464*		
Info2	0.0110*	0.0128**	0.0113*	0.0128**	0.0132*	0.0143**	0.0102**	0.0053
Info3	0.3024***	0.3665***	0.2744**	0.3386**	0.3800***	0.5091***	0.6598**	0.6023***
Info4	0.3256**	0.2705*	0.2811*	0.2033	0.2253	0.0644	-0.1275***	-0.1742
Adjusted R-square	0.3049	0.2549	0.2994	0.2940	0.2982	0.3387	0.7312	0.7970
F Value	2.64**	2.14*	2.28*	2.14*	1.98*	2.1*	5.53**	7.04***

a. ***, **, * indicate significance at the 0.01, 0.05 and 0.1 levels respectively.
b. Since the results of *Gov1* and *Gov2* are the same, for editing arrangement, we just present the results of *Gov1*.
c. In this study we try to use total asset of financial institution as the size proxy for financial institution scale, since the model appears a relative big auto-correlation and results a worse fit, so we use total shareholders' equities instead and in model 7 and 8 we just put the samples of banking industry.

If outsiders obtain director seats from private placements, they tend to purchase at a premium, supporting Hypothesis 2. However, all of these perspectives are insignificant. In the dimension of corporate governance, the interaction of percentage of shares held by directors and supervisors and the percentage that is not collateralized (*Gov3*) is significantly negative, indicating that the higher the proportion of shares held by directors and supervisors and not collateralized, the better the governance of the financial institutions, leading to private equity placements being sold at a premium. Percentage of shares held by directors and supervisors (*Gov4*) and percentage of shares that are collateralized (*Gov5*) were tested and obtained the same results. The former variable displays negative significance which presented that the higher the proportion of shares held by directors and supervisors, the more likely the private placement is to be sold at a premium. Moreover, when the latter displayed positive significance it presented a higher collateralized ratio, indicating worse corporate governance, leading to the private placement selling at a discount, supporting Hypothesis 4.

In the dimension of operating performance, only cost revenue ratio (*Per3*) displays positive significance, presenting that the higher the cost revenue ratio, the lower the profitability of the financial institution, resulting in the private placement selling at a discount. As for the Herfindahl-Hirschman index (*HHI*), it does not significantly affect the selling price to private placements. Regarding the dimension of information asymmetry, this study found that the variable of scale (*Info 1*) has negative significance, inconsistent with the hypothesis, possibly because the original investors have no pre-emptive right to subscribe to the shares so the investor involved in the private placement wants to compensate them and, therefore, is willing to pay a premium. The information asymmetry reduces with increasing scale of issue and longer issuing-company history. Thus, the cost used to compensate investors for collecting the information is reduced and, so too, is the discount level, supporting Hypothesis 8.

For space considerations the Table of the Tobit model was omitted for most of which the results are the same as the results obtained by the OLS model. In the dimension of corporate governance, the significance increases for the following two variables: the percentage of shares held by directors and supervisors (*Gov4*) and the percentage of shares which are collateralized (*Gov5*). The abnormal provision for allowance for bad debts is significantly negative, indicating that the financial institution really exhibits window dressing of the financial statements and, therefore, the private equity placement sells at a discount, supporting Hypothesis 5. Regarding the perspective of investor identity, the interaction of the proportions of shares held by foreign investors and foreign investors (*Inv1*Inv2*) and insider participation (*Inv3*) becomes significant after initially being insignificant. The market structure measured using HHI was significantly negative, indicating that the possibility of a private placement selling at a premium increases with HHI, proving that financial institutions with larger market share are in a stronger negotiating position and, thus, the private equity placement sells at a premium, supporting Hypothesis 7.

Previous studies mostly focused on listed and OTC companies to examine the selling price of private placements. Their findings in the perspective of investor identity are the same as the financial institutions and private placements including insiders tended to sell at a discount, supporting the entrenchment hypothesis (Chen et al. (2009)). Furthermore, the higher the percentage shareholdings of insiders and the lower the level of collateralization, the better institutional corporate governance, leading the private

placement to sell at a premium, yielding identical results to those found for listed and OTC companies (Zhang (2007)). The results in the dimension of information asymmetry also support the information asymmetry hypothesis, meaning that discount on the selling price is used to compensate for the cost to the investor of information collection (Bajaj 2002; Zhang 2010). Therefore, although the regulation and organization structure of financial institutions differs significantly from other industries the results showed that the factors impacting the selling price of the private placement are mostly the same.

6. Robust Analysis

Besides using the previous five dimensions to investigate the factors that impact whether a private placement sells at a discount or premium, this study added additional factors to perform robust testing. The main variables include financial structure, macro-economic, market performance and whether the individual sample belongs to the financial holding system which is the unique variable of the financial service industry and, so, is specifically considered. To maintain consistency with the previous research model, this study continues to use OLS regression and the Tobit model for the empirical analysis.

Tables 3 and 4 listed the empirical results of the robust analysis, Models 1 and 2 presented the original two dimensions of corporate governance and information asymmetry and included the additional macro-economic variables. Furthermore, Models 3 and 4 included the additional variables of whether the financial institution belongs to the financial holding company. This study included the additional variables of market performance in Models 5 and 6 and included the variables of financial structures in Models 7 and 8.   The results of the variables are discussed below.

6.1   Macro-Economic Variables

To understand whether the macro-economic variables impact the selling price of a private placement, two variables of gross domestic product (GDP) and increasing rate of money supply (M2) were included and their measurement was described as the variable definition: if using data from the first half of the current year this study uses data from the end of the previous year and if using data from the latter half of the current year, this study uses semi-annual data from the current year and calculates a logarithm of GDP and the increasing rate of money supply presented by percentage. Table 3 shows that both these variables are significantly negative which reveals that the better the condition of the macro-economic, the more sufficient the fund flow in the market and, therefore, the easier private equity placements are to sell at a premium, as shown in Table 4.

6.2   Whether the Financial Institution Belong to the Financial Holding System

The Legislative Yuan passed the Financial Holding Company Act in 2001 and since then many financial institutions have joined financial holding companies (hereafter BHC). Numerous studies have examined the impact of companies joining BHC, with examples including the research of Xu and Zhang (2005) who noted that whether a bank joins a BHC has significant implications for its competitive advantage and performance. Liu (2009) also pointed out that banks joining BHCs could use other market channels to help cross-sell their products to increase revenue from commissions or retail finance and

enhance their performance. We examine whether financial institutions joining BHCs will impact the selling price of a private placements with dummy variable named BHC and, if the financial institutions join BHCs, the variable will be 1, while otherwise it will be 0. Table 3 shows that the results were significantly negative at 10%, representing that financial institutions belonging to BHC have better performance and lower business risk than those not belonging to BHCs.

6.3   Market Performance

Regarding the perspective of market performance, variables of rate of return of weighted average index of financial shares (*Freturn*) and rate of return of Taiwan weighted average index of overall shares (*Treturn*) were included and since the reference price of private placement relates to the closing price before the pricing day, the previous two variables were used to examine whether they impact the selling price of the private placement. (Table 3). This study shows that both variables are insignificant, but Table 4 showed that both Freturn and Treturn have increasing significance which presented that the higher the Freturn, the more financial institutions tend to sell private placements at a discount. The reason for these phenomena may relate to attracting investors to participate in private placements for financial institutions rather than for investment in other assets, leading them to offer discounted prices to attract investors.

6.4   Financial Structure

Besides the variables of corporate governance mentioned in the previous section, for robustness this study removes rate of return on assets and instead uses rate of share equity plus ratio of net worth (*ET*) for the testing. Table 3 shows that ratio of net worth is significantly positive and represented that private placement tends to be sold at a larger discount as ratio of net worth increases. Owing to the financial industry primarily being involved in the lending business, the ratio of net worth has little explanatory power in the financial industry. Table 4 shows that the rate of return on shareholder equity is significantly negative and that company performance tends to improve with increasing rate of return of shareholder equity and thus private placements tend to sell at a discount.

Table 3: The robust test of OLS regression results

Independent variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Intercept	60.3506*	61.0929*	59.1471*	55.3804*	62.1604*	57.4992*	96.1197**	88.6629**
Gov1	0.0020	0.0016	0.0023	0.0019	0.0023	0.0020	0.0021	0.0017
Gov3	-0.0035*		-0.0023		-0.0013		-0.0038	
Gov4		-0.0025						
Gov5		0.0033		0.0033		0.0026		0.0037
Gov6	-0.1471	-0.1277	-0.1862	-0.1632	-0.2205	-0.1845	-0.2153	-0.1882
ET							0.0023*	0.0022*
ROE							-0.0027	-0.0018
BHC			-0.1478	-0.2989*	-0.2566	-0.3273*	0.0533	-0.2130
Freturn					0.0004	0.0008	-0.0077	-0.0057
Treturn					0.0045	0.0032	0.0151	0.0125
GDP	-4.1622**	-4.2245**	-4.0968*	-3.8760*	-4.2938*	-4.0076*	-6.4557**	-5.9942**
M2	-0.1275**	-0.1378***	-0.1358**	-0.1373***	-0.1504**	-0.1450**	-0.1837***	-0.1814***
HHI	-0.0164	-0.0142	-0.0178	-0.0155	-0.0193	-0.0168	-0.0309	-0.0274
Info1	-0.1153	-0.1538	-0.1035	-0.1382	-0.0857	-0.1194	-0.0528	-0.0954
Info2	0.0096*	0.0103*	0.0094*	0.0097*	0.0091*	0.0093*	0.0074	0.0083
Info3	0.2000**	0.2457**	0.2042**	0.2627**	0.1846*	0.2363**	0.1257	0.1891*
Info4	0.2288*	0.1979	0.2431*	0.2060	0.2606*	0.2285	-0.1105	-0.1161
Adjusted R-square	0.4514	0.4389	0.4286	0.4715	0.4049	0.4365	0.4688	0.5025
F value	3.47***	3.13**	3.05**	3.43***	2.57**	2.79**	2.76**	3.02**

Footnotes:

a. ***, **, * indicate significance at the 0.01, 0.05 and 0.1 levels respectively。
b. Since the results of *Gov1* and *Gov2* are the same, for editing arrangement, we just present the results of *Gov1*.

Table 4: The robust test of Tobit regression results

Independent Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Intercept	7.1935	8.7398	4.6301	6.4740	-17.3848	-14.9892	10.5030	12.7722
Gov1	-0.0006	0.0001	-0.0000	0.0002	-0.0003	-0.0002	-0.0003	-0.0001
Gov3	-0.0020		0.0005		0.0029		0.0009	
Gov4		-0.0032						
Gov5		-0.0015		-0.0013		-0.0020		-0.0015
Gov6	0.0381	-0.0501	-0.0453	-0.0611	0.0642	0.0695	0.0492	0.0292
ET							0.0019*	0.0019*
ROE							-0.0041*	-0.0044
BHC			-0.3149	-0.2857	-0.4967	-0.2796	-0.2653	-0.2133
Freturn					0.0165***	0.0153**	0.0097	0.0094
Treturn					0.0135*	0.0122*	0.0053	0.0046
GDP	-0.5118	-0.6196	-0.3726	-0.4844	1.0838	0.9454	-0.7080	-0.8491
M2	-0.0981**	-0.1204**	-0.1157**	-0.1172**	-0.0724	-0.0669	-0.1045**	-0.1071**
HHI	-0.0117	-0.0156	-0.0148	-0.0158	-0.0092	-0.0101	-0.0195	-0.0208
Info1	-0.2140*	-0.1761	-0.1889*	-0.1743	-0.2295**	-0.2099*	-0.2039**	-0.1863*
Info2	0.0046	0.0040	0.0042	0.0041	0.0053	0.0048	0.0036	0.0034
Info3	0.2428**	0.2170**	0.2518***	0.2286**	0.2709***	0.2363**	0.2402**	0.2156**
Founding years (*Info4*)	0.2712**	0.3257**	0.3015**	0.3176**	0.4063***	0.4136***	0.1007	0.1186
Log likelihood	-5.7860	-5.1646	-5.3532	-5.2310	-2.1738	-2.2333	-0.4653	-0.3010
Wald value	13.5950	14.5875	15.0552	14.9943	16.0969	15.5680	13.7729	14.5400

a. ***, **, * indicate significance at the 0.01, 0.05 and 0.1 levels respectively。

b. We define the dependent variable of discount as reference price/ declaration price in Tobit model

7. Remarkable Conclusions

This study examines factors influencing the selling price of private placements. OLS and Tobit regression models were used to examine and consider the following five dimensions, investor identity, corporate governance, operating performance, market structure and information asymmetry. The findings and results are listed below.

1) In the dimension of investor identity, the ratio of foreign ownership (*Inv2*) is higher, improving financial institution operating system, thus making it easier to sell the private placement at a premium. Moreover, if the private placement involves insiders (*Inv3*), then according to the self-interest hypothesis, those insiders are probably purchasing the shares at a discount. However, if outsiders can receive a Board seat (*Inv4*), they become willing to pay a premium. The empirical results support Hypotheses 1 and 2.

2) In the dimension of corporate governance, the higher deviation of Votes-to-Rights (*Gov l*) and Director-Seat-to-Rights (*Gov 2*), the stronger the tendency of a private placement to sell at a premium, the empirical result meaning Hypothesis 3 is not significantly supported. Furthermore, the higher shareholding percentage by insiders (*Gov4*), the lower ratio of the shares held by insiders used for collateral (*Gov 5*), representing that when a financial institution has better corporate governance structure a private placement tends to sell at a premium, as is proved by the empirical test. As for the abnormal provision for allowance for bad debts (*Gov 6*), it is significantly negative and shows that if financial institutions provide abnormal allowances for bad debts as well as window-dressing in their financial statements, the private placement will tend to sell at a premium, supporting] Hypotheses 4 and 5.

3) In the dimension of operating performance, higher ratio of capital adequacy (*Per 1*) and rate of return on assets (*Per 2*) indicates better financial institution operating performance resulting in the private placement tending to sell at a premium, but operating performance reduces with higher cost-revenue ratio and, therefore, the private placement tends to sell at a discount. Only the cost-revenue ratio of this dimension is significant and supported by empirical testing, and thus hypothesis 6 is not supported.

4) Using the Herfindahl-Hirschman Index (*HHI*) to measure market structure, the greater the market power of the financial institution, the stronger its negotiating ability, therefore, private placements tend to sell at a premium and the result of the Tobit regression is significant at the 5% level, consistent with Hypothesis 7.

5) In the information asymmetry dimension, if the issuing scale is larger in the case of private placements (*Info l*), or if the financial institution itself is larger or, if it has a longer history, in which case the information asymmetry will be smaller, investors then receive less compensation, reducing the discount level. The empirical results are significantly negative for issuing scale, inconsistent with the Hypothesis, possibly because the issuing scale is larger. In this case, the equity of the original shareholders is diluted, so they may ask the investor to purchase the private placement at a premium. The issuing percentage (*Info 2*), size of the financial institution and founding years are all consistent with Hypothesis 8.

To summarize, this investigation found that the percentage of collateralized shares held by directors and supervisors (*Gov 5*), insiders participation (*Inv 3*), issuing percentage (*Info 2*), financial institution size (*Info 3*) and founding years (*Info 4*) are positively associated with

the private placement, meaning that the discount level of the private placement increases with the percentages of the previous variables and the remaining variables display an opposite association with the private placement.

In the robust test, the macro-economic variables include general domestic product (*GDP*) and the increasing ratio of money supply (*M2*). Both of these variables have a significant negative impact, meaning that private placements are more likely to sell at a premium when the macro-economic environment is positive. When financial institutions belong to a financial holding company(*BHC*), they out-perform institutions not belonging to the financial holding company, meaning business risk is reduced and therefore private placements tend to sell at a premium. Regarding market performance, the rate of return of the weighted index of the financial shares (*Freturn*) which significantly and positively impacts the private placement, shows that when the weighted index improves, the private placement tends to sell at a discount. From the perspective of financial structure, financial institution operating performance improves with increasing rate of return of shareholder equity and, therefore, private placements tend to sell at a premium.

Endnotes

[1]The literature of private placement in Taiwan generally discussing the private issue concerning listed and OTC firms, like Lv (2005) and Chen Jun He (2009) investigates the association between insider participation and private placement selling at a discount or premium.

[2]The literature in Taiwan concerning private placements mainly focus on the listed and OTC firms, like Xuhui Yun (2006), Lin Yushan (2008), Zhang Wan Yu et al (2010).

[3] This is the definition for the OLS model but in Tobit model its' definition is reference price/ declaration price.

[4]After application of Basel Ⅱ in 2007, this definition is used for capital adequacy ratio. If the sample period is before 2007,the definition is (Qualified capital-capital deductive items) / (credit risk weighted risky assets+ market risk and operating risk provided by capital *12.5) before 2006.

[5]Due to different business content and client of property and life insurance, we separate these two kinds of insurance to calculate the market share.

[6]In this study we try to use total assets of financial institution as the size proxy for financial institution scale, since the model appears a relative big auto-correlation and results a worse fitting, so we use total shareholders' equities instead.

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