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Investigation of The Optimal IPO Underwriting Contract

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Abstract

How to conclude a fair and reasonable underwrite price of initial public offering stocks is always a very important issue in the stock market. This article try to quote the adverse selection model to establish an optimal underwrite mechanism. Besides, we investigates the deadweight loss caused from asymmetric information and the affect of social welfare caused by the underwriting contract via the three-tier (The issuer/ The underwriters/ The retail investors participated in the IPO) hierarchical model of contract theory. Finally, we try to investigate the many phenomena caused by the optimal contract.

Keywords: underwrite, contract theory, asymmetric information, deadweight loss

1. Introduction

There are three main problems about the IPOs. Firstly is the irrational underwriting spreads. For example, Chen and Ritter(2000) document that in the U.S. at least 90% of deals raising between 20 and 80 million dollars have underwriting spreads exactly equal to 7% and relate this to the lack of competition between investment bankers. Secondly, How to allocate the IPO shares. Walter (1999) and Cornelli and Goldreich (2001) show that informed

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investors request more, and preferentially receive more allocations.

Finally is the underpricing of the IPOs prices. Since the lower the initial public offering price; the more the demand of investors and the more capital gain of shares purchased in the IPO. Under the consideration of selfish, underwriters wish to attract investors by concluding a lower level IPO price. In the mean time, they can avoid the risk that the underwritten shares could not be sold out. But in the long-term, this conduct must be disapproved by the rational issuers, and impacts the reputation of underwriters. Balvers, McDonald and Miller (1988), Tinic (1988), Carter and Manaster (1990) showed: The better the underwriter's reputation; the smaller undervalued rate of price of IPO stocks. Lin (1995) found: There exists no significant relation between underwriter's reputation and the price of the IPO stocks.

Hundreds of researches showed: Generally, the initial public offering prices are undervalued. Pricing too high might induce investors and issuers to fear a winner's curse (Rock (1986)) or a negative cascade (Welch (1992)). Baron (1982) finds: To induce the underwriter to put in the requisite effort to market shares, it is optimal for the issuer to permit some underpricing, because the issuer can't monitor the underwriter without cost. Habib and Ljungqvist (2001) also argue that underpricing is a substitute for costly marketing expenditures. Biais, Bossaerts and Rochet (2002) use the shares distributed to each one of retail investors, and the market valuation as variables to build an optimal mechanism. They found: In the optimal mechanism there is underpricing, reflecting and the information rents earned by the informed agents.

In Taiwan stock market, issuer often offers a proportion of IPO shares to be purchased by the underwriter. Therefore, according to the initial public offering (IPO) common stocks, the benefit of underwriters consists of : (i) The transfer from the issuer. (ii) The service charge from retail investors. (iii) The capital gain of shares purchased in the IPO from the issuer.

The theory of contracts, generally was called the "economics of information". Salanie (1998) classified the models of the theory of contracts into three important families:

In adverse selection models, the uninformed party is imperfectly informed of the characteristics of the informed party; the uninformed party moves first.

In signaling models, the informational situation is the same but the informed party moves first.

In moral hazard models, the uninformed party moves first and is imperfectly informed of the actions of the informed party.

As Baron (1982) , he offers an agency-based explanation for underpricing. His theory has the issuer less informed relative to its underwriter, not relative to investors. We also refer most underwrite cases to be adverse selection models because the issuers are imperfectly informed of the characteristics of the underwriters, but the firms offer the contracts.

The objective of this article is to identify our model of delegated underwriting with a adverse selection model developed by Salanie (1998) and Laffont (2000) and try to design an optimal contract. Since the study of bargaining under asymmetric information is very complex, so that there is presently no consensus among theorists on what equilibrium concept should be used. The adverse selection model is a simplifying device that avoids these difficulties by allocating all bargaining power to one of the parties. The principal will propose a "take it or leave it" contract and therefore request a "yes or no" answer.

Besides, we try to investigate the phenomena caused by the optimal contract.

In the next section, the model is presented. In the third section we take the social into account, discuss the deadweight loss caused by the asymmetric information. In the fourth section, we make extended discuss about more characters of the model. Concluding comments are in the last section.

2. Optimal Contract

In the adverse selection model, we consider the issuer as the principal, who offer a contract $\{(\underline{t},\underline{p}),(\bar{t},\bar{p})\}$ to the agents (underwriters), where t means the underwriting fees transferred from principal to agent and p is the price of IPO stocks. We assume there exist two styles of agents: the efficiency ones with proportion v and lower marginal cost $\underline{\theta}$; the inefficiency ones with proportion $(1-v)$ and higher marginal cost $\bar{\theta}$, $\underline{\theta}<\bar{\theta}\leq k$, k means the unit service charge from each retail investors. The total cost of underwriters is $C(\tilde{\theta},\tilde{q})$. Besides, we make assumptions as below to build the model：

- The issuer selling a fixed amount of shares N in the IPO. Without loss of generality N is normalized to 1, and the issuer offers a proportion n to be purchased by the underwriter with the same IPO price purchased by the retail investors. The aggregate demand of all retail investors are Q shares. We set $q=\frac{Q}{N(1-n)}$. In another words, q means the multiple that the total demand of the retail investors divided by the IPO shares distributed to the retail investors.

- The underwriters have the private information about the retail investors demand (because they collect the information through there network and from there customers) , and they can estimate market expected value V of the IPO stock. Thus the total payoff of agents: $U = kq + t - C(\theta, q) + n(V - p)$.

- All of the principal, agents, and retail investors are risk neutral.

Under these assumptions, the expected profit of principal is:

$\pi = v[s(\underline{p}) - \underline{t}] + (1 - v)[s(\bar{p}) - \bar{t}]$, so the objective of principal is:

$$\max_{\underline{p}, \bar{p}} \; v[s(\underline{p}) - \underline{t}] + (1 - v)[s(\bar{p}) - \bar{t}]$$

which $s(\bullet)$ means the revenue of principal in the IPO. In another words, $s(\tilde{p})$= (The IPO shares) × (The IPO price $\tilde{p}$) .

Under complete information about θ, the principal would give agents no surplus:

$$k\underline{q} + \underline{t} - C(\underline{\theta}, \underline{q}) + n(V - \underline{p}) = 0 \quad \text{(1A)}$$

and $$k\bar{q} + \bar{t} - C(\bar{\theta}, \bar{q}) + n(V - \bar{p}) = 0 \quad \text{(1B)}$$

Insert (1A) , (1B) into the principal's objective function : $\max_{\underline{p}, \bar{p}} v[s(\underline{p}) - \underline{t}] + (1 - v)[s(\bar{p}) - \bar{t}]$. By first order condition, the optimal prices in both states are respectively given as :

$$s^1(\underline{p}^*) = (\underline{\theta} - k)\frac{\partial \underline{q}}{\partial \underline{p}} + n \quad \text{(2A)}$$

$$s^1(\bar{p}^*) = (\bar{\theta} - k)\frac{\partial \bar{q}}{\partial \bar{p}} + n \quad \text{(2B)}$$

which are called the first-best solution.

But under asymmetric information, the principal has no information about θ. The optimal mechanism must be designed to satisfies:

$$k\underline{q}+\underline{t}-C(\underline{\theta},\underline{q})+n(V-\underline{p})\geq 0 \qquad \cdots\cdots (\underline{IR})$$

$$k\bar{q}+\bar{t}-C(\bar{\theta},\bar{q})+n(V-\bar{p})\geq 0 \qquad \cdots\cdots (\overline{IR})$$

$$k\underline{q}+\underline{t}-C(\underline{\theta},\underline{q})+n(V-\underline{p})\geq k\bar{q}+\bar{t}-C(\underline{\theta},\bar{q})+n(V-\bar{p}) \qquad \cdots\cdots (\underline{IC})$$

$$k\bar{q}+\bar{t}-C(\bar{\theta},\bar{q})+n(V-\bar{p})\geq k\underline{q}+\underline{t}-C(\bar{\theta},\underline{q})+n(V-\underline{p}) \qquad \cdots\cdots (\overline{IC})$$

Note the names of the constraints in this program：

1.The two (IC) constraints are the incentive compatibility constraints; they state that each agent prefers the contract that was designed for him.

2.The two (IR) constraints are the individual rationality, or participation constraints;

They guarantee that each type of agent accepts his designed contract.

If we define information rent：$U=kq+t-C(\theta,q)+n(V-p)$, then

$$\underline{U}=k\underline{q}+\underline{t}-C(\underline{\theta},\underline{q})+n(V-\underline{p}) \qquad \cdots\cdots (3A)$$

and $\bar{U}=k\bar{q}+\bar{t}-C(\bar{\theta},\bar{q})+n(V-p)$ $\qquad \cdots\cdots$(3B)

Insert (3A) and (3B) into the principal's objective function : $\max_{\underline{p},\bar{p}}.\ v[s(\underline{p})-\underline{t}]+(1-v)[s(\bar{p})-\bar{t}]$ The principal's objective rewrites:

$$\max_{\underline{p},\bar{p}} \left\{v[s\underline{p}-C(\underline{\theta},\underline{q})]+(1-v)[s(\bar{p})-C(\bar{\theta},\bar{q})]-[v\underline{U}+(1-v)\bar{U}]+[vk\underline{q}+(1-v)k\bar{q}]+n[V-v\underline{p}-(1-v)\bar{p}]\right\}$$

s.t. $\underline{U} \geq 0$ .... $(\underline{IR})$

$\overline{U} \geq 0$ .... $(\overline{IR})$

$\underline{U} \geq \overline{U} + C(\overline{\theta},\overline{q}) - C(\underline{\theta},\overline{q})$ .... $(\underline{IC})$

$\overline{U} \geq \underline{U} + C(\underline{\theta},\underline{q}) - C(\overline{\theta},\underline{q})$ .... $(\overline{IC})$

where $C(\overline{\theta},\bullet) - C(\underline{\theta},\bullet) > 0$.

($\overline{IR}$) and ($\underline{IC}$) must be binding, then ($\underline{IR}$) is trivial; similar to the Spence-Mirrlees condition[1] (also called the single-crossing condition) , if $\frac{\partial^2 U}{\partial p \partial \theta}(p,\theta) > 0$ holds, ($\overline{IC}$) will be redundant. The principal's objective:

$$\max_{\underline{p},\overline{p}} \{v[s(\underline{p}) - C(\underline{\theta},\underline{q})] + (1-v)[s(\overline{p}) - C(\overline{\theta},\overline{q})] - v[C(\overline{\theta},\overline{q}) - C(\underline{\theta},\overline{q})]$$

$$+ k[v\underline{q} + (1-v)\overline{q}] + n[V - v\underline{p} - (1-v)\overline{p}]\}$$

First order condition：

$$\frac{\partial \pi}{\partial \underline{p}} = 0 \Rightarrow s'(\underline{p}) = (\underline{\theta} - k)\frac{\partial \underline{q}}{\partial \underline{p}} + n \quad \text{...............................} \quad (4A)$$

$$\frac{\partial \pi}{\partial \overline{p}} = 0 \Rightarrow s'(\overline{p}) = (\overline{\theta} - k + \frac{v\Delta\theta}{1-v})\frac{\partial \overline{q}}{\partial \overline{p}} + n \quad \text{...............................} \quad (4B)$$

where $\Delta\theta = \overline{\theta} - \underline{\theta} \geq 0$. Which is called the second-best solution.

In (4A) and (4B), if we assume the aggregate market demand function of this IPO stock is linear. We obtain $\frac{\partial \underline{q}}{\partial \underline{p}} = \frac{\partial \overline{q}}{\partial \overline{p}}$. Compare the right hand side of (4A) and (4B) :

[1] Analysis of the incentive constraints, see Salanie(1998), pp.28-32

$(\bar{\theta}-k+\frac{v\Delta\theta}{1-v})\frac{\partial \bar{q}}{\partial \bar{p}}+n \geq (\underline{\theta}-k)\frac{\partial q}{\partial \underline{p}}+n$, which implies $s'(\bar{p}) \geq s'(\underline{p})$, by monotonicity conditions[2] yields $\bar{p} \geq \underline{p}$. Analyzed by the adverse selection model, the $\bar{\theta}$ type agents will not mimic to be $\underline{\theta}$ type agents and choose the contract $\{(\bar{t},\bar{p})\}$ and $\bar{p} \geq \underline{p}$. Which means the inefficiency (high marginal cost) agents caused the smaller rate of underpricing in an IPO.

3.Social Welfare

Comparing Eqs. (2B) and (4B) :

$$s'(\bar{p}^{*})-s'(\bar{p})=\frac{-v\Delta\theta}{1-v}\cdot\frac{\partial \bar{q}}{\partial \bar{p}}>0 \qquad (5)$$

the value of (5) comes from the asymmetric information. If principal offers a contract $\{(\bar{t},\bar{p})\}$ under asymmetric information, he can only obtain a fraction $(1-\lambda)$ of the revenue under complete information. We define the factor λ is the fraction of the deadweight loss:

$$\lambda=\frac{\frac{-v\Delta\theta}{1-v}\cdot\frac{\partial \bar{q}}{\partial \bar{p}}}{(\bar{\theta}-k)\frac{\partial \bar{q}}{\partial \bar{p}}+n} \qquad (6)$$

Proposition 1. To eliminate the fraction of the deadweight loss, each one of conditions as below must be satisfied:

- The proportion of efficiency agents approaches to zero.
- The difference of marginal cost between efficiency and inefficiency agents approaches to zero.
- The elasticity of demand approaches to zero.

Proof **:**

If we want to eliminate the fraction of the deadweight loss, must hold the

[2] See Laffont, J.J. and Martimort, D.(2002), p.56.

numerator of Eq. (6) approaches to zero. This means: (i) v, (ii) $\Delta\theta$, or (iii) $\frac{\partial \bar{q}}{\partial \bar{p}}$, approaches to zero.

Moreover, we consider the total expected profit of retail investors: $w = (1-n)(V-p) - kq$. Thus the social welfare is:

$$W = [s(p) - t] + [t + kq - C(\theta, q) + n(V-p)] + (1-n)(V-p) - kq \qquad (7)$$

The objective to maximize the expected social welfare:

$$\max_{\underline{p}, \bar{p}} v[s(\underline{p}) - C(\underline{\theta}, \underline{q}) + V - \underline{p}] + (1-v)[s(\bar{p}) - C(\bar{\theta}, \bar{q}) + V - \bar{p}]$$

$$\frac{\partial W}{\partial \underline{p}} = 0 \Rightarrow s'(\underline{p}) = \underline{\theta} \cdot \frac{\partial \underline{q}}{\partial \underline{p}} + 1 \qquad (8A)$$

$$\frac{\partial W}{\partial \bar{p}} = 0 \Rightarrow s'(\bar{p}) = \bar{\theta} \cdot \frac{\partial \bar{q}}{\partial \bar{p}} + 1 \qquad (8B)$$

Proposition 2. Under complete information about θ, if the total profit of retail investors: $w = n(E(S) - p) - kq = c$, where c is a non-negative constant. The contract which the principal offers to pursue maximum benefit also leads to the maximum social welfare.

Proof:

The participation constraint of total retail investors is: $w = (1-n)(V-p) - kq \geq 0$. In the condition that: $w = (1-n)(V-p) - kq = c$, where c is a non-negative constant. We can obtain: $\frac{\partial \tilde{q}}{\partial \tilde{p}} = \frac{n-1}{k}$. Then (2A) and (2B) equal to (8A) and (8B) respectively.

Then the contract which the principal offers to pursue maximum benefit also leads to the maximum social welfare.

4.Extended Discussion

Not loss generality, we take an example as described below:

Example. Consider a firm selling a fixed amount of shares N in an IPO. Without loss of generality N is normalized to 1. The revenue function of the firm is:

$$s(p) = p \qquad \cdots\ \cdots\cdots\cdots\cdots (9)$$

We assume retail investors are risk neutral and rational, and they can observe market expected value V of the IPO stock. So there exists demand of the IPO stock if and only if $V \geq p$. The market demand of the IPO stock can be expressed as : $Q = A + B(V - p)$. Normalized by N, we obtain the aggregate demand function of total retail investors is:

$$q = a + b(V - p),\ V \geq p \qquad \cdots\cdots\cdots\cdots (10)$$

In equation (10), b may be thought of as the demand elasticity of the IPO stock. It is trivial that b > 0. a is a constant that $a \geq 0$. The value of a may be affected by the issuer's reputation, prospect, and so on.

1.Since the underwriters are risk neutral, their utility functions are:

$$\tilde{U} = \tilde{t} + k\tilde{q} - C(\tilde{\theta},\tilde{q}) + n(V - \tilde{p}) = \tilde{t} + k[a + b(V - \tilde{p})] - C(\tilde{\theta},\tilde{q}) + n(V - \tilde{p}) \qquad \cdots (11)$$

(1) $\because \frac{\partial \tilde{U}}{\partial a} = k - \tilde{\theta} > 0$. If a increases, $\tilde{U}$ increases.

(2) $\because \frac{\partial \tilde{U}}{\partial b} = (V - \tilde{p})(k - \tilde{\theta}) > 0$. If b increases, $\tilde{U}$ increases.

2.Similarly, we assume the retail investors are risk neutral, so their aggregate utility function:

$$\tilde{w} = (1 - n)(V - \tilde{p}) - k\tilde{q} = (V - \tilde{p})(1 - n - kb) - ka \qquad \cdots\cdots\cdots\cdots (12)$$

(1) $\because \frac{\partial \widetilde{w}}{\partial a} = -k < 0$. If a increases, $\widetilde{w}$ decreases.

(2) $\because \frac{\partial \widetilde{w}}{\partial b} = -k(V - \widetilde{p}) < 0$. If b increases, $\widetilde{w}$ decreases.

3.The utility of social welfare:

$$\widetilde{W} = s(\widetilde{p}) - C(\widetilde{\theta}, \widetilde{q}) + (V - \widetilde{p}) \quad \cdots\cdots\cdots\cdots (13)$$

(1) $\because \frac{\partial \widetilde{W}}{\partial a} = -\widetilde{\theta} < 0$. If a increases, $\widetilde{W}$ decreases.

(2) $\because \frac{\partial \widetilde{W}}{\partial b} = -(V - \widetilde{p})\widetilde{\theta} < 0$. If b increases, $\widetilde{W}$ decreases.

4.Under asymmetric information, if the contract is executed as $\{(\underline{t}, \underline{p})\}$, solved by Eqs. (4A), (9) and (10), we obtain:

$$b = \frac{n-1}{\underline{\theta} - k} > 0 \quad \cdots\cdots\cdots\cdots (14)$$

thus we can obtain: $\frac{\partial \underline{U}}{\partial v}, \frac{\partial \underline{U}}{\partial \Delta\theta}, \frac{\partial \underline{w}}{\partial v}, \frac{\partial \underline{w}}{\partial \Delta\theta}, \frac{\partial \underline{W}}{\partial v}$ and $\frac{\partial \underline{W}}{\partial \Delta\theta}$ are all equal to zero. Which means that in this condition, the proportion of efficiency underwriters or the difference between marginal costs of efficiency and inefficiency underwriters doesn't affect the utilities of underwriters, retail investors, and social welfare.

Furthermore, the proportion of IPO shares distributed to retail investors affects the aggregate demand function of total retail investors. If the proportion is larger, the demand elasticity of price also becomes large.

5.Under asymmetric information, if the contract is executed as $\{(\bar{t},\bar{p})\}$, solved by Eqs. (4B), (9) and (10), we obtain:

$$\boldsymbol{b}=\frac{\boldsymbol{n}-\mathbf{1}}{\bar{\boldsymbol{\theta}}+\frac{\boldsymbol{v}\boldsymbol{\Delta}\boldsymbol{\theta}}{\mathbf{1}-\boldsymbol{v}}-\boldsymbol{k}} \qquad \cdots\cdots\cdots\cdots (15)$$

The denominator of the right hand side of (15):

$\bar{\theta}+\frac{v\Delta\theta}{1-v}-k=\frac{\bar{\theta}-v\underline{\theta}}{1-v}-k<\frac{\bar{\theta}-v\bar{\theta}}{1-v}-k=\bar{\theta}-k<0$. We can also obtain $b>0$, doesn't violate the theorem of demand.

By Eq. (15), we can find:

(1) $\frac{\partial b}{\partial v}=\frac{b^2\Delta\theta}{(1-v)^2(1-n)}>0$, If v increases, b increases.

(2) $\frac{\partial b}{\partial \Delta\theta}=\frac{b^2 v}{(1-n)(1-v)}>0$, If $\Delta\theta$ increases, b increases.

Therefore,

(3) $\frac{\partial \bar{U}}{\partial v}=\frac{b^2\Delta\theta(k-\bar{\theta})(V-\bar{p})}{(1-v)^2(1-n)}>0$, If v increases, $\bar{U}$ increases.

(4) $\frac{\partial \bar{U}}{\partial \Delta\theta}=\frac{b^2 v(k-\bar{\theta})(V-\bar{p})}{(1-v)(1-n)}>0$, If $\Delta\theta$ increases, $\bar{U}$ increases.

(5) $\frac{\partial \bar{w}}{\partial v}=\frac{-kb^2\Delta\theta(V-\bar{p})}{(1-v)^2(1-n)}<0$, If v increases, $\bar{w}$ decreases.

(6) $\frac{\partial \bar{w}}{\partial \Delta\theta}=\frac{-kb^2 v(V-\bar{p})}{(1-v)(1-n)}<0$, If $\Delta\theta$ increases, $\bar{w}$ decreases.

(7) $\frac{\partial \overline{W}}{\partial v} = \frac{-b^2\overline{\theta}\Delta\theta(V-\overline{P})}{(1-v)^2(1-n)} < 0$, If v increases, $\overline{W}$ decreases.

(8) $\frac{\partial \overline{W}}{\partial \Delta\theta} = \frac{-b^2 v\overline{\theta}(V-\overline{p})}{(1-v)(1-n)} < 0$, If $\Delta\theta$ increases, $\overline{W}$ decreases.

As described above, under asymmetric information, if the contract is executed as $\{(\bar{t},\overline{p})\}$, we obtain these results:

- The proportion of efficiency underwriters or the difference between marginal costs of efficiency and inefficiency underwriters increases, the utility of this IPO underwriter increases.
- The proportion of efficiency underwriters or the difference between marginal costs of efficiency and inefficiency underwriters increases, the utilities of total retail investors and social welfare decrease.

(For more examples, please see appendix.)

5.Conclusion

In this article we use the adverse selection model to establish an optimal mechanism in order to elicit information from privately informed agents, and investigate many phenomena caused by this optimal mechanism. We find that :

The contract which the principal offers to pursue maximum benefit also leads to the maximum social welfare.

- Underpricing arises, but it is not driven by the Rock (1986) winner's curse effect, rather it corresponds to the necessity to leave an informational rent of the intermediary.

- The inefficiency (high marginal cost) agents caused the smaller rate of underpricing in an IPO.

The adverse selection model just indicates how to design an optimal contract with respect to principal. But how to allocate the IPO shares is still a hard question. As mentioned by Welch and Ritter (2002), research into shares is the most promising area of research in IPOs at the moment. And they argue that asymmetric inform- ation is not the primary driver of many IPO phenomena. Instead, they believe future progress in the literature will come from non-rational and agency conflict explanations. Besides, we assume underwriters obtain the complete information. This assumption maybe too strong, perhaps researchers may relax this assumption in further research.

Appendix

Under asymmetric information, we assume：

The IPO shares：one million shares.

k= $ 0.03 per share

n=10%

V=50

$\underline{p}=25$

$\overline{p}=30$

$\underline{t}=1$

$\overline{t}=1.5$

By (15), $b=\dfrac{n-1}{\overline{\theta}+\dfrac{v\Delta\theta}{1-v}-k}$, yields：

TABLE 1

$\tilde{U}, \tilde{w}, \tilde{W}$ in different circumstances

a	b	v	1-v	$\underline{\theta}$	$\bar{\theta}$	$\underline{U}$	$\bar{U}$	$\underline{w}$	$\bar{w}$	$\underline{W}$	$\bar{W}$
20	108	0.7	0.3	0.005	0.01	71.5	47.1	-59.1	-47.4	36.4	28.2
20	72	0.6	0.4	0.005	0.01	49	32.7	-32.1	-25.8	40.9	35.4
10	108	0.7	0.3	0.005	0.01	71.25	46.9	-58.8	-47.1	36.45	28.3
10	72	0.6	0.4	0.005	0.01	48.75	32.5	-31.8	-25.5	40.95	35.5
10	60	0.7	0.3	0.005	0.008	41.25	30.12	-22.8	-18.3	42.45	40.32
10	51.5	0.6	0.4	0.005	0.008	35.9375	26.38	-16.425	-13.2	43.5125	41.68

For example, if $\underline{U}$=71.5, means that the agent's total payoff equals \$ (71.5 × 1,000,000 shares).

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股票上市最適承銷契約之探討

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摘要

新股上市的承銷價格如何公平且合理的訂定，一直是股票市場中一個相當重要的課題。本研究嘗試以契約理論中的逆選擇模型，建立一個最適的承銷契約機制。並透過契約的關係人：新股上市公司/承銷商/參與認購投資人三個層面，探討公開發行公司股票上市承銷時，由於訊息的不對稱所可能造成之無謂的損失及對整體社會福利的影響。此外，本研究並嘗試討論在此最適的契約條件之下，所可能產生的各種現象。

關鍵字：承銷、契約理論、訊息不對稱、無謂的損失

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