



Chapter 10

Regulation of financial analysts

Outline

- Problem and model assumptions
- Unregulated analysts
- Chinese Walls
- Disclosure of wages
- Summary

■ Problem and model assumptions

■ Unregulated analysts

■ Chinese Walls

■ Disclosure of wages

■ Summary

Types of financial analysts

- ▶ Buy-side financial analysts provide reports on companies aimed at investors
- ▶ Sell-side financial analysts work for companies on mergers and acquisitions and security offerings
- ▶ Traditionally financial switched between these roles, but this has been abolished by regulation
- ▶ The aim was to reduce the conflict of interest between the roles and improve the quality buy-side financial analyst reports

Regulatory aims

- ▶ Financial analysts are forecasting the future value of securities, using information (signals) they receive
- ▶ The more precise their signal, the better the forecast
- ▶ The aim would be to maximize the quality of such forecasts through regulation
- ▶ Regulatory interventions affect the remuneration of financial analysts as an incentive to improve the quality

Signals

- ▶ The true value of a stock is either high P_H with probability π or low $P_L < P_H$ otherwise
- ▶ Analysts obtain a signal s_i on this value
- ▶ The signal is correct with probability $Prob_i(H|P_H) = Prob_i(L|P_L) = \rho_i \geq \frac{1}{2}$
- ▶ We have strong analysts and weak analysts with $\rho_S > \rho_W$
- ▶ An analyst is strong with probability γ

Forecast error

- ▶ Financial analysts make a prediction \hat{P} based on their signal and the forecast error is $E \left[\left(\hat{P} - P_j \right)^2 \right]$
- ▶ If the prediction is wrong we have $(\hat{P} - P_j)^2 = (P_H - P_L)^2$ and $(\hat{P} - P_j)^2 = 0$ if the prediction is correct
- ▶ A prediction is wrong if the signal is wrong, it has probability $1 - \rho_i$
- ▶ Forecast error of an analyst is $(1 - \rho_i) (P_H - P_L)^2$
- ▶ Combining this for the strong and weak analyst we get
$$E \left[\left(\hat{P} - P_j \right)^2 \right] = (\gamma(1 - \rho_S) + (1 - \gamma)(1 - \rho_W)) (P_H - P_L)^2$$

Analyst profits

- ▶ Analyst is paid remuneration w_i , depending in its type
- ▶ Obtaining strong signals costs c_I
- ▶ Costs of forecast errors from loss of reputation are c_P
- ▶ Profits: $\Pi_A = \gamma w_S + (1 - \gamma) w_W - \frac{1}{2} c_I \gamma^2 - c_P E \left[\left(\hat{P} - P_j \right)^2 \right]$
- ▶ We assume financial analysts are competitive and $\Pi_A = 0$

Investment bank profits

- ▶ Investment banks obtain additional investment bank business V from the covered company if they forecast a high value P_H
- ▶ The high value is predicted if the value is high and the signal is correct or the value is low and the signal wrong, for each type of analyst
- ▶ $Prob(V_H) = \gamma (\rho_S \pi + (1 - \rho_S) (1 - \pi))$
 $+ (1 - \gamma) (\rho_W \pi + (1 - \rho_W) (1 - \pi))$
- ▶ Investment bank get this additional revenue if the forecast is high and pay the salaries of the analyst
- ▶ $\Pi_B = Prob(P_H)V - (\gamma w_S + (1 - \gamma) w_W)$

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Optimal fraction of strong analysts

- ▶ Analysts optimize over the likelihood of obtaining a precise signal, solving $\frac{\partial \Pi_A}{\partial \gamma} = 0$
- ▶ This gives $\gamma = \frac{w_S - w_W}{c_I} + \frac{c_P}{c_I} (\rho_S - \rho_W) (P_H - P_L)^2$
- ▶ Investment banks maximize their profits by setting wages w_i optimally, solving $\frac{\partial \Pi_B}{\partial w_i} = 0$ with $\Pi_A = 0$
- ▶ This gives $\gamma = \frac{2\pi - 1}{c_I} (\rho_S - \rho_W) V + \frac{c_P}{c_I} (\rho_S - \rho_W) (P_H - P_L)^2$
- ▶ Setting these equal, we get $w_S - w_W = (2\pi - 1) (\rho_S - \rho_W) V$
- ▶ And then $\gamma^* = \frac{\rho_S - \rho_W}{c_I} \left((2\pi - 1) V + c_P (P_H - P_L)^2 \right)$

Properties

- ▶ More uncertainty $P_H - P_L$ and loss to reputation c_P increases the strong analysts
- ▶ Larger difference in ability $\rho_S - \rho_W$ increases the strong analysts
- ▶ Larger additional business V increases the strong analysts
- ▶ Higher costs of becoming strong, reduces the strong analysts

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Remuneration

- ▶ Chinese walls refers to a situation where analysts cannot be rewarded for bringing in additional business, but only for the quality of their forecasts
- ▶ Suppose the remuneration is a base wage, adjusted by the forecast error
- ▶ $w_i = \frac{w_0}{E_i[(\hat{P} - P_j)^2]} = \frac{w_0}{(1 - \rho_i)(P_H - P_L)^2}$
- ▶ This gives $w_S - w_W = \frac{w_0}{(P_H - P_L)^2} \left(\frac{1}{1 - \rho_S} - \frac{1}{1 - \rho_W} \right)$
- ▶ Set $w_0 = (2\pi - 1)(1 - \rho_S)(1 - \rho_W)V(P_H - P_L)$, then $w_S - w_W = (2\pi - 1)(\rho_S - \rho_W)V$
- ▶ This gives $\gamma^{**} = \gamma^*$

Ineffective Chinese Walls

- ▶ With Chinese Walls the quality of analysts does not improve
- ▶ Investment banks recover their optimal solution by setting base wages accordingly
- ▶ The remuneration differences are the same as before and hence the incentives to analysts are identical

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Fraction of strong analysts

- ▶ We assume that investment banks and analysts know if the analyst is strong
- ▶ We also assume that the additional business is only attracted if the high forecast is made by a strong analyst
- ▶ As weak analysts do not add value, we set $w_W = 0$
- ▶ Analyst profits: $\Pi_A = \gamma w_S - \frac{1}{2}c_I\gamma^2 - c_P E \left[\left(\hat{P} - P_j \right)^2 \right]$
- ▶ This is maximized at $\gamma = \frac{w_S}{c_I} + \frac{c_P}{c_I} (\rho_S - \rho_W) (P_H - P_L)^2$

Optimal wages

- ▶ Investment bank only gets additional revenue if the analyst is strong and predicts the high value and wage is only paid to the strong analyst
- ▶ $\Pi_B = \gamma ((\rho_S (2\pi - 1) + (1 - \pi)) V - w_S)$
- ▶ The optimal wage gives us $\gamma^{***} = \frac{\rho_S(2\pi-1)+(1-\pi)}{c_I} V + \frac{c_P}{c_I} (\rho_S - \rho_W) (P_H - P_L)^2$
- ▶ We easily see that $\gamma^{***} > \gamma^{**}$

Increasing analyst quality

- ▶ Wages are disclosed
- ⇒ Companies can identify the type of analyst
- ⇒ Route additional business only to strong analysts
- ⇒ Erasing the value of weak analysts to the investment bank
- ⇒ Allowing it to set their wages to zero
- ⇒ Increasing the wage differential between weak and strong analysts
- ⇒ Increases the incentives to become strong

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Ineffectiveness of Chinese Walls

- ▶ Financial analysts can help to gain additional investment banking business by providing positive assessments of companies
- ▶ Regulation seeks to improve the quality of these assessments by focussing remuneration only on these assessments
- ▶ Chinese Walls can be circumvented by investment banks setting pay structures that give the same incentives to financial analysts
- ▶ Disclosing the wages and hence the quality of a financial analyst allows discrimination between them and can increase incentives to increase the quality

Effectiveness of regulation

- ▶ Measures to increase the quality of analyst coverage have focussed on the separation of analysts from other business lines
- ▶ These results suggest they are not effective as investment banks can adjust their remuneration schedules
- ▶ Disclosure of remuneration might be a more effective policy tool



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Andreas Krause
Department of Economics
University of Bath
Claverton Down
Bath BA2 7AY
United Kingdom

E-mail: mnsak@bath.ac.uk