Optimal Information Disclosure in Financial Markets

by

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Abstract

This paper studies the choice of costly disclosure precision by firms when public ownership has an additional order-flow signal, and shows that mandatory disclosure constraints make private ownership more valuable despite the informational benefits of trading under a public ownership. A continuum of investors independently decide whether to invest, relying on a noisy signal whose precision the firm controls at a cost. For a private firm, this voluntary disclosure signal is the sole source of information, whereas investors in a public firm additionally learn from an endogenous order-flow signal generated by market trading. The paper characterizes the unique monotone equilibrium for each ownership structure and derives closed-form expressions for the coordination-error probabilities and the resulting firm value as functions of disclosure noise σ_η. Three main results emerge. First, the optimal disclosure noise σ_η is interior and depends on the interaction between market order information and coordination externalities. Second, when public order-flow noise is sufficiently large, increased disclosure can raise effective volatility and reduce public-firm value. Third, mandatory minimum-disclosure requirements can generate parameter regions where private-firm value strictly exceeds public-firm value, providing an information-theoretic rationale for the observed rise in going-private transactions. The paper develops two extensions that strengthen the baseline framework, namely asymmetric priors and capital constraints. These findings contribute to the debate on mandatory reporting requirements, the social value of public information, and the comparative efficiency of public versus private ownership structures.

Contents

1 Introduction

The number of publicly listed firms in the United States has declined from over 8,000 in 1996 to roughly 4,000 by 2012 (Doidge et al., 2017). This trend reflects a growing preference among firms for private ownership, driven in part by the desire to escape the costs and constraints of mandatory public reporting. The standard explanations for going-private transactions emphasize agency cost reduction (Jensen, 1986) and relief from short-term market pressure (Stein, 1989). This paper offers a complementary, information-dependent explanation that the firms go private when the informational costs of being public outweighs the informational benefits of public trading.

To formalize this argument, the paper develops a model that integrates three elements. First, investors face a coordination problem where each investor's payoff from investing depends not only on the firm's underlying fundamentals but also on the aggregate investment behavior of other investors. This coordination friction captures real-world phenomena such as bank runs, debt rollover crises, and venture capital grouping, where investor confidence is self-reinforcing. Second, the firm can choose the quality of its financial reporting by selecting the noise level σ_η of its disclosure signal, trading off the benefits of more informative disclosure against the costs of producing it. Third, the paper distinguishes between private firms, where the firm's disclosure signal is the only information source, and public firms, where investors additionally observe a noisy order-flow signal generated by market trading.

The model builds on the global-games framework pioneered by Carlsson and van Damme (1993) and developed by Morris and Shin (1998) in the context of financial crises. The key addition relative to the existing literature is that the quality of the firm's disclosure is itself a strategic choice, and the firm's optimal reporting quality depends critically on whether it is public or private. In the canonical global-games setup, information precision is exogenous but in this paper, the firm optimally designs its information environment, and the interaction between this design choice and the endogenous information generated by market prices produces novel trade-offs that explain when and why firms prefer private ownership.

The paper establishes three central results.

Proposition 1 addresses the optimal level of disclosure for firms under different conditions. A firm facing investors with coordination concerns will choose an intermediate level of reporting quality. Reporting too imprecisely leaves investors uncertain and prone to coordination failures whereas reporting too precisely is costly. For a public firm, the optimal condition also depends on informativeness of market trading, more specifically, when market prices are highly informative, the firm produces less precise voluntary disclosure. The optimal quality is characterized by the noise level σ_η^*, which decreases in the spread between the good and the bad states and increases the cost of the reporting infrastructure. This can be tested by regressing the analyst forecast spread as a proxy for σ_η on measures of price informativeness and compliance costs.

Proposition 2 identifies a situation for a publicly traded firm in a noisy market where more precise reports can reduce the firm's value. This arises because, when market-generated signals are noisy, adding more precise voluntary disclosure changes the relative weighting of signals that amplify miscoordination. This situation is likely to arise for stocks with low trade volume and noisy markets. To test it, one can examine whether firms whose analyst forecast dispersion falls after a reporting mandate simultaneously experience higher stock price volatility.

Proposition 3 addresses the going-private question by showing that when mandatory reporting standards are strict enough, or when the firm's market is noisy enough, a private firm is worth strictly more than an otherwise identical public firm. The private firm's advantage comes from avoiding the cost of mandatory over-disclosure and avoiding the noise injected by public market trading. The model predicts that going-private transactions should be more common following tighter disclosure regulation,especially for firms in markets with high noise, and for firms with strong coordination externalities such as banks and insurance firms.

Furthermore, the paper develops two substantive extensions. First, the paper generalizes to *asymmetric priors* (Section 10), showing that pessimistic investor sentiment amplifies the cost of mandatory disclosure and predicts going-private waves during periods of negative sentiment. Second, the paper introduces *capital constraints* (Section 11), demonstrating that critical-mass failure thresholds amplify the private-ownership advantage.

The paper is organized as follows. Section 2 reviews the related literature. Section 3 presents the baseline model. Section 4 derives the equilibrium cutoff conditions and investor behavior. Section 5 analyzes the private-firm case. Section 6 analyzes the public-firm case. Section 7 states and proves the main propositions. Section 8 presents numerical illustrations. Section 9 discusses the results and their policy implications. Sections 10 and 11 develop the extensions. Section 12 concludes.

2 Related Literature

2.1 Global Games and Coordination

The global-games framework, introduced by Carlsson and van Damme (1993) and applied to financial crises by Morris and Shin (1998), provides the foundation for the coordination problem studied here. In the canonical setup, a continuum of agents with heterogeneous private information play a binary coordination game, and the introduction of private noise selects a unique equilibrium from the multiplicity that plagues complete-information coordination games. Morris and Shin (2010) extend this approach to general payoff structures, while Frankel et al. (2003) establish the robustness of equilibrium uniqueness under broad conditions.

The model in this paper departs from this literature by making the precision of the public signal an endogenous choice variable of the firm. In the standard global-games literature, information precision is either exogenous (Morris and Shin, 2010) or determined by market trading (Angeletos and Werning, 2006). Here, the firm strategically designs its information environment, creating interaction between disclosure choice and coordination outcomes.

2.2 Information Design and Bayesian Persuasion

Recent work on information design, surveyed by Bergemann and Morris (2019), studies how an informed sender optimally designs a signal structure to influence the behavior of receivers. Inostroza and Pavan (2025) apply information design to global games in the context of stress testing, studying how authorities optimally release information about bank quality. Quigley and Walther (2024) analyze inside and outside information, showing how disclosure by insiders affects market prices and information aggregation. My paper contributes to this literature by characterizing optimal information design when receivers face coordination problems and the firm is both, uninformed about fundamentals and exposed to the coordination outcome.

2.3 Social Value of Public Information

Another strand of literature of interest is the welfare effects of public information in coordination games. Morris and Shin (2002) demonstrate that, when agents face a beauty-contest coordination motive that is socially wasteful, more precise public information can *reduce* social welfare by encouraging excessive coordination on noisy public signals at the expense of more accurate private information. Svensson (2006) challenges this finding on quantitative grounds, arguing that for realistic parameter values, more transparency is welfare-improving. Angeletos and Pavan (2007) show that the direction of the welfare effect depends on whether coordination externalities are present at the social level.

My paper differs from this literature in two aspects. First, the paper studies firm value maximization rather than social welfare, which leads to different objective functions and implications. Second, the public information in this model has two components: the firm's voluntary disclosure and the endogenous order-flow signal. The paper also identifies a mechanism through which the combination of mandatory exogenous disclosure and noisy endogenous signals reduces value, distinct from the Morris-Shin mechanism of over-coordination.

2.4 Endogenous Public Information and Price Informativeness

Angeletos and Werning (2006) demonstrate that when a financial market generates endogenous public information through price formation, the precision of the endogenous signal depends on the precision of private signals. Ozdenoren and Yuan (2008) study feedback effects between asset prices and firm fundamentals in a global-games setting, showing that strong feedback leads to excess volatility. Goldstein et al. (2013) analyze the informational feedback of financial market prices, demonstrating how prices can both aggregate and distort information.

This paper shares the feature that order flow generates endogenous public information, but the key distinction is that the paper studies the firm's optimal response to this endogenous information. The firm's disclosure choice and the market's information are substitutes from the firm's perspective, and this substitution margin is the source of the different disclosure policies characterized.

2.5 Corporate Disclosure and Going Private

The voluntary disclosure literature, beginning with Grossman (1981), establishes the result that under certain conditions, firms optimally disclose all information. Subsequent work has identified conditions under which partial disclosure arises, including disclosure costs (Verrecchia, 1983), proprietary costs (Dye, 1985), and strategic interactions between firms (Jorgensen and Kirschenheiter, 2012).

The debate over public versus private ownership has a long history in corporate finance. The traditional arguments for going private emphasize agency cost reduction (Jensen, 1986), relief from short-term market pressure (Stein, 1989), and avoidance of regulatory compliance costs. More recently, Hinson and Piao (2024) document that when firms go private, peer firms' information environments deteriorate, leading to less accurate analyst forecasts and reduced liquidity for remaining public firms. Goldstein and Leitner (2018) analyze stress-test design and disclosure, showing how optimal information design for financial stability differs from firm value maximization.

My paper offers a complementary perspective on this debate. By formalizing the trade-off between the informational benefits of public trading and the flexibility of private disclosure, the paper shows that the relative advantage of private ownership depends on specific features of the information environment, particularly the noisiness of order flow and the strength of coordination externalities. This analysis provides new testable predictions about when going-private transactions are most likely to create value.

2.6 Mandatory Disclosure Regulation

The regulatory debate over mandatory disclosure for public firms has increased following the passage of the JOBS Act (2012), which relaxed reporting requirements for emerging growth companies, and amid ongoing debates about quarterly versus semiannual reporting. Goldstein and Yang (2017) survey the theoretical literature on disclosure regulation, highlighting the trade-off between the benefits of informed prices and the costs of reduced proprietary information. My paper contributes to this debate by showing that mandatory minimum-disclosure requirements can be counterproductive as it forces public firms to disclose beyond their optimal level and such requirements can reduce firm value and make private ownership more attractive.

2.7 Capital Constraints and Bank Runs

The capital-constraints extension connects to the large literature on bank runs and coordination failures with minimum participation thresholds. Goldstein and Pauzner (2005) apply global games to demand-deposit contracts and characterize the probability of bank runs as a function of the information environment. Rochet and Vives (2004) study coordination failures among banks with interbank lending and characterize the conditions under which a lender of last resort can prevent crises. These papers demonstrate that capital requirements and liquidity thresholds interact with information to determine coordination outcomes. My extension formalizes how the firm's disclosure choice responds to capital constraints and shows that the amplifying effect of such constraints expands the private-dominance region.

3 Model

3.1 Environment and Agents

Consider a firm that may operate under either public or private ownership. A continuum of risk-neutral investors, indexed by $i \in [0, 1]$, must independently decide whether to invest ($a_i = 1$) or withdraw ($a_i = 0$). Let

$$\ell \equiv \int_0^1 (1 - a_i)\, di \tag{1}$$

denote the fraction of non-investing (withdrawing) investors.

3.2 Fundamentals

The firm's fundamental quality is binary:

$$\theta \in \{H, L\}, \qquad \mathbb{P}(\theta = H) = \mathbb{P}(\theta = L) = \frac{1}{2}, \qquad H > 0 > L. \tag{2}$$

The assumption of equal priors is without loss of generality for the qualitative results and simplifies the analysis. Define the *loss ratio*

$$\gamma \equiv -\frac{L}{H} > 0, \tag{3}$$

which measures the magnitude of the downside relative to the upside.

3.3 Payoffs and Firm Value

An investing investor receives a payoff that depends on both the fundamental and the aggregate withdrawal rate:

$$u_i = \begin{cases} \theta - \delta H \ell, & \text{if } a_i = 1, \\ 0, & \text{if } a_i = 0, \end{cases} \qquad \delta \geq 0. \tag{4}$$

The parameter δ captures the strength of coordination externalities. When $\delta > 0$, an investing investor's payoff is decreasing in the fraction of investors who withdraw.

The firm's realized value is

$$v = (1 - \ell)(\theta - \delta H \ell). \tag{5}$$

3.4 Disclosure

At $t = 0$, before investors make their decisions, the firm chooses the quality of its financial reporting by selecting the noise level $\sigma_\eta > 0$ of its disclosure signal:

$$y = \theta + \eta, \qquad \eta \sim \mathcal{N}(0, \sigma_\eta^2). \tag{6}$$

Lower σ_η makes the signal more informative about the fundamental. The cost of achieving disclosure quality σ_η is

$$C(\sigma_\eta) = \frac{\alpha}{\sigma_\eta^2}, \qquad \alpha > 0, \tag{7}$$

where α is a cost-scaling parameter capturing the firm's reporting costs. This formulation has an empirical advantage over alternative parameterizations as the disclosure noise σ_η can be seen through observable measures such as analyst forecast dispersion around earnings announcements. The public firm here is bounded to choose σ_η such that it is below the noise ceiling given by $\sigma_\eta \leq \bar{\sigma}_{\min}$ when solving their optimal level of disclosure.

3.5 Investor Information

Each investor observes a private noisy version of the firm's signal:

$$y_i = y + \varepsilon_i, \qquad \varepsilon_i \sim \mathcal{N}(0, \sigma_\varepsilon^2), \tag{8}$$

The private noise σ_ε^2 serves the standard global-games purpose of preventing common knowledge and ensuring equilibrium uniqueness. Following the global-games literature, we focus on the limit $\sigma_\varepsilon \to 0$. The firm's choice of σ_η determines how informative this signal is where lower σ_η means each investor's observation y_i is a more precise indicator of the true fundamental θ.

Assumption 1 (Monotone Strategies)**.** *Investors play symmetric threshold strategies: investor i invests if and only if $y_i \geq y^*(\sigma_\eta)$ for some cutoff y^* that depends on the disclosure quality.*

This assumption is standard in the global-games literature and can be justified by iterated elimination of dominated strategies when σ_ε is sufficiently small relative to σ_η (Morris and Shin, 2010).

3.6 Timing

The timeline of the model is:

1. The firm chooses disclosure quality σ_η.
2. Get $\theta \in \{H, L\}$ with equal probability and the signal $y = \theta + \eta$ is realized.
3. Each investor i observes $y_i = y + \varepsilon_i$ (and, in the public case, additionally the order-flow signal q).
4. Investors simultaneously choose $a_i \in \{0, 1\}$.
5. Payoffs are realized.

4 Equilibrium Characterization

4.1 Indifference at the Cutoff

At the threshold $y_i = y^*$, an investor is indifferent between investing and withdrawing:

$$\mathbb{E}[\theta \mid y_i = y^*] - \delta H \cdot \mathbb{E}[\ell \mid y_i = y^*] = 0. \tag{9}$$

4.2 The Symmetry Property

We use the feature of global-games framework where the investor at the cutoff assigns equal probability to being above or below the median signal, implying

$$\mathbb{E}[\ell \mid y_i = y^*] = \frac{1}{2}. \tag{10}$$

Substituting (10) into (9) yields

$$\mathbb{E}[\theta \mid y_i = y^*] = \frac{\delta H}{2}. \tag{11}$$

4.3 Cutoff Posterior

Let $\beta^* \equiv \mathbb{P}(\theta = H \mid y_i = y^*)$ denote the posterior probability of the high state at the cutoff. Then

$$\mathbb{E}[\theta \mid y_i = y^*] = H\beta^* + L(1-\beta^*) = H\beta^* - \gamma H(1-\beta^*).$$

Setting this equal to $\delta H/2$:

$$H\beta^* - \gamma H(1-\beta^*) = \frac{\delta H}{2} \implies (1+\gamma)\beta^* = \frac{\delta}{2} + \gamma.$$

Hence the cutoff posterior is

$$\boxed{\beta^* = \frac{\delta/2 + \gamma}{1+\gamma}.} \tag{12}$$

Define the cutoff log-odds

$$\Lambda^* \equiv \log \frac{\beta^*}{1-\beta^*} = \log\left(\frac{\delta/2+\gamma}{1-\delta/2}\right). \tag{13}$$

For Λ^* to be well-defined and finite, we need $\delta < 2$ and $\gamma > 0$, which we assume throughout.

5 Private Firm

In the private case, investors observe only the disclosure signal y_i.

5.1 Posterior Beliefs and Cutoff Signal

With equal priors and a Gaussian signal $y = \theta + \eta$, the posterior log-odds ratio is

$$\log \frac{\mathbb{P}(H \mid y)}{\mathbb{P}(L \mid y)} = \log \frac{f(y \mid H)}{f(y \mid L)} = \frac{(H-L)}{\sigma_\eta^2}\left(y - \frac{(H+L)}{2}\right). \tag{14}$$

At the cutoff $y = y^*$, this must equal Λ^*:

$$y^* = \frac{(H+L)}{2} + \frac{\sigma_\eta^2}{(H-L)}\Lambda^*. \tag{15}$$

5.2 Coordination-Error Probabilities

The coordination errors are the central objects determining firm value:

$$\varepsilon_H(\sigma_\eta) \equiv \mathbb{P}(y < y^* \mid \theta = H) = \Phi\left(\frac{y^* - H}{\sigma_\eta}\right), \tag{16}$$

$$\varepsilon_L(\sigma_\eta) \equiv \mathbb{P}(y \geq y^* \mid \theta = L) = 1 - \Phi\left(\frac{y^* - L}{\sigma_\eta}\right). \tag{17}$$

To obtain a compact characterization, define the *informativeness* parameter

$$\tau \equiv \frac{(H-L)^2}{2\sigma_\eta^2}, \tag{18}$$

which is the signal-to-noise ratio of the disclosure signal (up to a constant). Note that τ is decreasing in σ_η: lower disclosure noise corresponds to higher informativeness. The cost of disclosure can be written in terms of τ as $C = \alpha/\sigma_\eta^2 = 2\alpha\tau/(H-L)^2$, confirming that cost is increasing in informativeness.

Lemma 1 (Error Probabilities for the Private Firm)**.** *The coordination-error probabilities for the* *private firm are*

$$\varepsilon_H(\sigma_\eta) = \Phi\left(\frac{\Lambda^* - \tau}{\sqrt{2\tau}}\right), \tag{19}$$

$$\varepsilon_L(\sigma_\eta) = 1 - \Phi\left(\frac{\Lambda^* + \tau}{\sqrt{2\tau}}\right) = \Phi\left(\frac{-\Lambda^* - \tau}{\sqrt{2\tau}}\right). \tag{20}$$

Proof. The standardized argument for ε_H is:

$$\begin{aligned}
\frac{y^* - H}{\sigma_\eta} &= \frac{1}{\sigma_\eta}\left[\frac{(H+L)}{2} - H + \frac{\sigma_\eta^2}{(H-L)}\Lambda^*\right] \\
&= -\frac{(H-L)}{2\sigma_\eta} + \frac{\sigma_\eta}{(H-L)}\Lambda^* \\
&= \frac{\Lambda^* - \frac{(H-L)^2}{2\sigma_\eta^2}}{\sqrt{\frac{(H-L)^2}{\sigma_\eta^2}}} = \frac{\Lambda^* - \tau}{\sqrt{2\tau}}.
\end{aligned}$$

We can calculate ε_L in a similar manner, replacing -H with -L in numerator that flips the τ sign. □

5.3 Private-Firm Value

Using the coordination-error probabilities, the ex ante expected firm value is:

$$V_{\text{priv}}(\sigma_\eta) = \frac{H}{2}[1 - \varepsilon_H(\sigma_\eta)] + \frac{L}{2}\varepsilon_L(\sigma_\eta) - \frac{\alpha}{\sigma_\eta^2}. \tag{21}$$

Substituting the expressions from Lemma 1:

$$\boxed{V_{\text{priv}}(\sigma_\eta) = \frac{H}{2}\left[1 - \Phi\left(\frac{\Lambda^* - \tau}{\sqrt{2\tau}}\right)\right] + \frac{L}{2}\Phi\left(\frac{-\Lambda^* - \tau}{\sqrt{2\tau}}\right) - \frac{\alpha}{\sigma_\eta^2},} \tag{22}$$

where $\tau = (H - L)^2/(2\sigma_\eta^2)$.

The first term captures the value created when the state is high and investors correctly invest. The second term (note $L < 0$) represents the value destroyed when the state is low and investors incorrectly invest. The third term is the direct cost of achieving disclosure quality σ_η. Lower σ_η

increases τ, which reduces both error probabilities, but also increases the cost α/σ_η^2.

6 Public Firm

6.1 Order-Flow Signal

For a public firm, investors observe an additional signal generated by market trading. Following Kyle (1985), the net order flow is informative about the fundamental value of the firm.

The net order flow q can be decomposed as

$$q = d(\theta) + n, \tag{23}$$

where $d(\theta)$ is the net informed demand as a function of the fundamental, and n is Gaussian noise from uninformed trading. For a binary fundamental:

$$q = d(\theta) + n, \quad \text{where} \quad d(H) = 1, \quad d(L) = -1, \quad n \sim \mathcal{N}(0, \sigma_q^2). \tag{24}$$

The noise variance σ_q^2 captures the volume of noise trading relative to total market depth. This order-flow signal aggregates the information revealed by trading activity.

6.2 Total Log-Likelihood Ratio

The log-likelihood ratio from the disclosure signal y is

$$\Lambda_y(y) = \frac{(H-L)}{\sigma_\eta^2}\left(y - \frac{(H+L)}{2}\right),$$

and the log-likelihood ratio from the order-flow signal q is

$$\Lambda_q(q) = \frac{(q+1)^2 - (q-1)^2}{2\sigma_q^2} = \frac{2}{\sigma_q^2}\, q.$$

Since y and q are conditionally independent given θ, the total log-likelihood ratio is additive:

$$T \equiv \Lambda_y(y) + \Lambda_q(q). \tag{25}$$

6.3 Distribution of the Total LLR

Under $\theta = H$, writing $y = H + \eta$ and $q = 1 + n$:

$$T \mid H = \frac{(H-L)}{\sigma_\eta^2}\left(H + \eta - \frac{(H+L)}{2}\right) + \frac{2}{\sigma_q^2}(1+n).$$

The mean is

$$\mu_T = \frac{(H-L)^2}{2\sigma_\eta^2} + \frac{2}{\sigma_q^2} = \tau + \rho, \tag{26}$$

where $\rho \equiv 2/\sigma_q^2$ is the informativeness of the order-flow signal, and the variance is

$$\sigma_T^2 = \frac{(H-L)^2}{\sigma_\eta^2} + \frac{4}{\sigma_q^2} = 2\tau + 2\rho. \tag{27}$$

By the symmetry of the Gaussian signal structure, $T \mid L \sim \mathcal{N}(-\mu_T, \sigma_T^2)$.

6.4 Public-Firm Error Probabilities

The cutoff in LLR space is $T^* = \Lambda^*$, so

$$\varepsilon_H^{\text{pub}}(\sigma_\eta) = \mathbb{P}(T < \Lambda^* \mid H) = \Phi\left(\frac{\Lambda^* - \mu_T}{\sigma_T}\right), \tag{28}$$

$$\varepsilon_L^{\text{pub}}(\sigma_\eta) = \mathbb{P}(T \geq \Lambda^* \mid L) = \Phi\left(\frac{-\Lambda^* - \mu_T}{\sigma_T}\right). \tag{29}$$

6.5 Public-Firm Value

$$\boxed{V_{\text{pub}}(\sigma_\eta) = \frac{H}{2}\left[1 - \Phi\left(\frac{\Lambda^* - \mu_T}{\sigma_T}\right)\right] + \frac{L}{2}\,\Phi\left(\frac{-\Lambda^* - \mu_T}{\sigma_T}\right) - \frac{\alpha}{\sigma_\eta^2}} \tag{30}$$

where μ_T and σ_T are as defined in (26)–(27), and there is a $\bar{\sigma}_{\min}$ which is the maximum disclosure noise permitted by mandatory reporting standards (i.e., a ceiling on noise, equivalently a floor on quality).

The cost term α/σ_η^2 reflects the cost faced, but the optimization problem the public firms face a ceiling on disclosure noise which means that even if the firm would optimally choose $\sigma_\eta > \bar{\sigma}_{\min}$, it must at least meet the regulatory quality standard and hence choose $\sigma_\eta \leq \bar{\sigma}_{\min}$ and bear the associated cost.

7 Results

This section states and proves the three main results, which together build the case for why and when firms go private. Recall the definitions $\tau = (H-L)^2/(2\sigma_\eta^2)$ and $\rho = 2/\sigma_q^2$ for the informativeness of the disclosure and order-flow signals, respectively.

The following section identifies empirical proxies that would allow evaluation of the model's predictions.

7.1 Optimal Reporting Quality

Proposition 1 (Optimal Reporting Quality)**.** *Every firm, whether public or private, chooses an interior optimal disclosure noise $\sigma_\eta^* \in (0, \infty)$. Furthermore:*

(i) σ_η^* is decreasing in the spread $(H-L)$ and increasing in the cost parameter α.

(ii) For public firms, σ_η^* is increasing in the informativeness of market trading $\rho = 2/\sigma_q^2$: more informative order flow crowds out voluntary disclosure.

(iii) For sufficiently large ρ, the private firm's optimal disclosure noise satisfies $\sigma_{\eta,priv}^* < \sigma_{\eta,pub}^*$.

Proof. Part (i). Consider the private-firm value in (22). The marginal benefit of reducing σ_η (increasing τ) operates through the informativeness $\tau = (H-L)^2/(2\sigma_\eta^2)$. We have $\partial\tau/\partial\sigma_\eta = -(H-L)^2/\sigma_\eta^3 < 0$, so reducing σ_η increases τ. The magnitude of this effect is increasing in $H-L$.

Since V_{priv} is increasing in τ (higher τ reduces both error probabilities), and the marginal cost of reducing σ_η is $2\alpha/\sigma_\eta^3$, the optimal σ_η^* is decreasing in $H - L$ and increasing in α.

Part (ii). For the public firm, the total informativeness is $\mu_T = \tau + \rho$. The marginal value-benefit of reducing σ_η (increasing τ) depends on the current level of total informativeness. When ρ is large (order flow is very informative), the total informativeness is already high, and the marginal reduction in error probabilities from increasing τ is smaller (since Φ is concave for large arguments). Hence the optimal $\sigma_{\eta,\text{pub}}^*$ is higher (noisier) when ρ is higher.

Part (iii). By Part (ii), when ρ is large, $\sigma_{\eta,\text{pub}}^*$ is high. By Part (i), $\sigma_{\eta,\text{priv}}^*$ does not depend on ρ. Hence for sufficiently informative order flow, $\sigma_{\eta,\text{priv}}^* < \sigma_{\eta,\text{pub}}^*$. □

7.2 Disclosure in noisy markets

Proposition 2 (Disclosure in noisy markets)**.** *There exists a threshold level of market trading noise $\bar{\sigma}_q^2$ such that for $\sigma_q^2 > \bar{\sigma}_q^2$, the public firm's value is locally decreasing in disclosure quality:*

$$\frac{\partial V_{pub}}{\partial \sigma_\eta} > 0 \quad \textit{for } \sigma_q^2 > \bar{\sigma}_q^2, \tag{31}$$

meaning the firm would benefit from noisier *reporting. The threshold $\bar{\sigma}_q^2$ depends on Λ^*, H, L, and α.*

Proof. Consider the standardized argument in $\varepsilon_H^{\text{pub}}$:

$$z_H(\sigma_\eta) = \frac{\Lambda^* - \mu_T}{\sigma_T} = \frac{\Lambda^* - \tau - \rho}{\sqrt{2\tau + 2\rho}},$$

where $\tau = (H - L)^2/(2\sigma_\eta^2)$. Differentiating with respect to τ:

$$\frac{\partial z_H}{\partial \tau} = \frac{-(2\tau + 2\rho) - (\Lambda^* - \tau - \rho)}{(2\tau + 2\rho)^{3/2}} = \frac{-\tau - \rho - \Lambda^*}{(2\tau + 2\rho)^{3/2}} < 0.$$

This derivative is always negative, so z_H is decreasing in τ, and $\varepsilon_H^{\text{pub}} = \Phi(z_H)$ is decreasing in τ, which tends to increase firm value.

However, the effect on the low-state error probability is more subtle. We have $z_L = (-\Lambda^* - \mu_T)/\sigma_T$, and:

$$\frac{\partial z_L}{\partial \tau} = \frac{-(2\tau + 2\rho) + (\Lambda^* + \tau + \rho)}{(2\tau + 2\rho)^{3/2}}.$$

When ρ is small (noisy order flow), the variance $\sigma_T^2 = 2\tau + 2\rho \approx 2\tau$ is dominated by the disclosure term. Reducing σ_η simultaneously increases the mean separation μ_T and the total noise σ_T at comparable rates. This interaction can create a regime where the variance increases faster than the mean separation, leading to $\partial z_L/\partial \tau > 0$ for some τ values.

The firm value change with respect to σ_η involves (using $\partial \tau/\partial \sigma_\eta = -(H - L)^2/\sigma_\eta^3 < 0$):

$$\frac{\partial V_{\text{pub}}}{\partial \sigma_\eta} = \left[\frac{H}{2}\phi(z_H)\frac{\partial z_H}{\partial \tau} + \frac{L}{2}\phi(z_L)\frac{\partial z_L}{\partial \tau}\right]\frac{\partial \tau}{\partial \sigma_\eta} + \frac{2\alpha}{\sigma_\eta^3}.$$

The bracketed term (times $\partial \tau/\partial \sigma_\eta < 0$) captures the informational benefit of reducing noise. The last term $2\alpha/\sigma_\eta^3 > 0$ captures the marginal cost saving from increasing noise. When σ_q^2 is large, the informational benefit of reducing σ_η is diminished by the noise interaction, and the cost term dominates, making $\partial V_{\text{pub}}/\partial \sigma_\eta > 0$. □

7.3 When Private Dominates Public

Proposition 3 (Private Value Can Exceed Public Value)**.** *For any coordination strength $\delta \in (0, 2)$ and loss ratio $\gamma > 0$, there exist configurations of reporting costs (α), market noise (σ_q^2), and regulatory stringency ($\bar{\sigma}_{\min}$) such that $V_{priv}(\sigma^*_{\eta,priv}) > V_{pub}(\sigma^*_{\eta,pub})$. Specifically:*

(i) When $\bar{\sigma}_{\min} < \sigma^*_{\eta,pub}$, the public firm is forced to bear excess compliance costs with little or no offsetting informational benefit.

(ii) When σ_q^2 is sufficiently large, the order-flow signal adds more noise than information, degrading the public firm's information environment below that of a private firm.

Proof. Part (i). When $\bar{\sigma}_{\min} < \sigma^*_{\eta,\text{pub}}$, the public firm is forced to achieve noise level $\sigma_\eta = \bar{\sigma}_{\min}$ and bears cost $\alpha/\bar{\sigma}_{\min}^2 > \alpha/(\sigma^*_{\eta,\text{pub}})^2$. The private firm, unconstrained by this regulation, optimally sets $\sigma_\eta = \sigma^*_{\eta,\text{priv}}$ and bears cost $\alpha/(\sigma^*_{\eta,\text{priv}})^2$. The excess cost borne by the public firm is $\alpha/\bar{\sigma}^2_{\min} - \alpha/(\sigma^*_{\eta,\text{pub}})^2$, while the informational benefit of the lower noise may be small or negative (by Proposition 2).

To show dominance, compare:

$$\Delta V(\bar{\sigma}_{\min}) = V_{\text{priv}}(\sigma^*_{\eta,\text{priv}}) - V_{\text{pub}}(\bar{\sigma}_{\min}).$$

Define $V^{\text{uncons}}_{\text{pub}}(\sigma^*_{\eta,\text{pub}})$ as the unconstrained optimum for the public firm. Then:

$$\Delta V \geq V_{\text{priv}}(\sigma^*_{\eta,\text{priv}}) - V^{\text{uncons}}_{\text{pub}}(\sigma^*_{\eta,\text{pub}}) + [V^{\text{uncons}}_{\text{pub}}(\sigma^*_{\eta,\text{pub}}) - V_{\text{pub}}(\bar{\sigma}_{\min})].$$

The last term is positive (excess cost of over-disclosure). When $\bar{\sigma}_{\min}$ is sufficiently small relative to $\sigma^*_{\eta,\text{pub}}$, this term dominates.

Part (ii). As $\sigma_q^2 \to \infty$ ($\rho \to 0$), the order-flow signal becomes pure noise:

$$\mu_T = \tau + \frac{2}{\sigma_q^2}, \quad \sigma_T = \sqrt{2\tau + \frac{4}{\sigma_q^2}}.$$

As $\sigma_q^2 \to \infty$:

$$z_H = \frac{\Lambda^* - \tau - 2/\sigma_q^2}{\sqrt{2\tau + 4/\sigma_q^2}} \to \frac{\Lambda^* - \tau}{\sqrt{2\tau}},$$

Thus:

$$\lim_{\sigma_q^2 \to \infty} V_{\text{pub}}(\bar{\sigma}_{\min}) = V_{\text{priv}}(\bar{\sigma}_{\min}).$$

Since $V_{\text{priv}}(\sigma^*_{\eta,\text{priv}}) \geq V_{\text{priv}}(\bar{\sigma}_{\min})$ by optimality:

$$\lim_{\sigma_q^2 \to \infty} [V_{\text{priv}}(\sigma^*_{\eta,\text{priv}}) - V_{\text{pub}}(\bar{\sigma}_{\min})] \geq 0.$$

For finite but large σ_q^2, continuity ensures $V_{\text{priv}}(\sigma^*_{\eta,\text{priv}}) > V_{\text{pub}}(\bar{\sigma}_{\min})$ when σ_q^2 is sufficiently large and $\bar{\sigma}_{\min} < \sigma^*_{\eta,\text{priv}}$. □

Corollary 1 (Comparative Statics of the Going-Private). $\Delta V \equiv V_{priv}(\sigma^*_{\eta,priv}) - V_{pub}(\sigma^*_{\eta,pub})$ *is increasing in regulatory stringency* ($1/\bar{\sigma}^2_{\min}$)*, market noise* (σ^2_q)*, and coordination intensity* (δ)*.*

8 Numerical Illustrations

To illustrate the theoretical results, I compute optimal disclosure quality and firm values across a range of parameter configurations. The baseline parameters are: $H = 1$, $L = -0.5$ (so $\gamma = 0.5$), $\delta = 0.5$, $\alpha = 0.1$. The firm's choice variable is σ_η, and the key comparison is between private-firm value $V_{\text{priv}}(\sigma^*_\eta)$ and public-firm value $V_{\text{pub}}(\sigma^*_\eta)$ across different market environments.

8.1 Public vs. Private Regions in (σ_q, σ_η) Space

Figure 1 plots the frontier $\Delta V = V^*_{\text{pub}} - V^*_{\text{priv}} = 0$ in the $(\sigma_q, \sigma_{\eta_{min}})$ plane. The region represents parameter configurations where the public firm or private firm has higher value. As order-flow noise σ_q increases, the private firm's advantage grows, consistent with Proposition 3. The graph shows that for a strict mandatory disclosure quality, private firm dominates. This domination region grows as the order flow becomes more noisy.

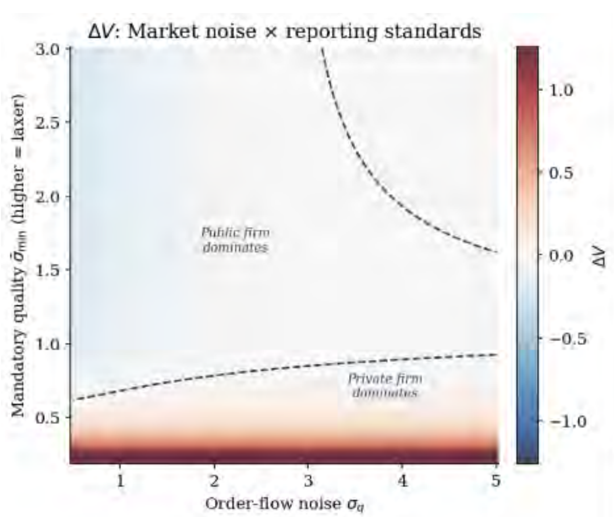

Figure 1: Public vs. private value regions in (σ_q, σ_η) space.

8.2 Public vs. Private Regions in (δ, γ) Space

Figure 2 plots the frontier in the (δ, γ) plane, holding noise parameters fixed at $\sigma_q = 2$. The frontier provides regions where private firm dominates without a minimum mandatory disclosure requirement.

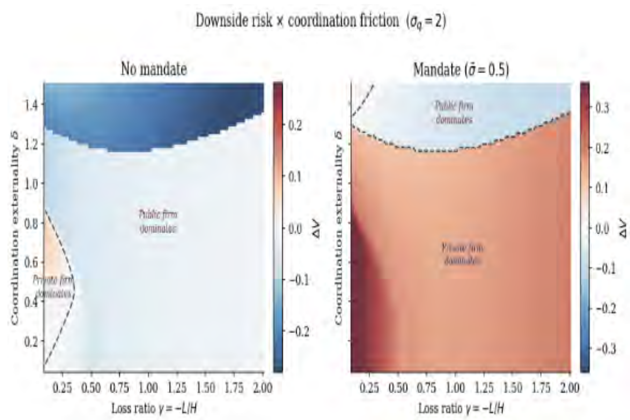

Figure 2: Public vs. private value regions in (δ, γ) space.

9 Discussion

9.1 The Informational Cost of Being Public

The analysis reveals that public ownership carries an informational cost as well as an informational benefit. The benefit, price discovery through order flow, is well understood. The cost has two components. First, mandatory disclosure requirements may force public firms to disclose beyond their value-maximizing level. Second, the noisy order-flow signal, while providing some information, also introduces additional variance into investors' total information set. When order-flow noise is high, this variance cost can outweigh the informational benefit.

This perspective complements the traditional agency-cost explanation for going-private transactions (Jensen, 1986). While agency theory focuses on the conflict between managers and dispersed shareholders, my model highlights a purely information mechanism where firms may prefer private ownership because it allows them to optimize their disclosure policy without the constraints and noise associated with public markets.

9.2 Policy Implications for Disclosure Regulation

The results carry several implications for disclosure regulation. First, Proposition 3 suggests that policymakers should consider the possibility that stricter disclosure requirements may be counterproductive. By raising the cost of being public, such requirements may push firms toward private ownership, reducing the total amount of information available to the market. This creates a paradoxical situation where regulations designed to increase transparency can, in equilibrium, decrease it by driving firms out of the public domain.

Second, Proposition 2 suggests that the optimal disclosure level is not independent of market microstructure. In markets with high noise trading (e.g., retail-investor-dominated markets with significant uninformed order flow), the informational value of prices is low, and the impact of noise on disclosure is high. This suggests that disclosure requirements should be calibrated to market characteristics rather than applied uniformly.

Third, the crowding-out effect identified in Proposition 1(ii) suggests a complementary role for policies that improve price informativeness, for instance by reducing barriers to informed trading or improving market microstructure, as an alternative to mandating higher disclosure levels.

9.3 Implications for the Going-Private Decision

The model generates several testable predictions about going-private transactions.

First, firms with higher coordination frictions, such as firms in industries where investor confidence is critical (banking, insurance, platform businesses), should find the value difference between private and public ownership more sensitive to disclosure regulation. Second, firms trading in markets with high noise should be more likely to go private, all else equal. Third, increases in mandatory disclosure requirements should be followed by increases in going-private activity, particularly among firms in noisy markets.

9.4 Connection to the Morris-Shin Debate

The results connect to the broader debate about the social value of public information initiated by Morris and Shin (2002). While Morris and Shin show that public information can reduce welfare in beauty-contest settings, my paper identifies a different mechanism: not because agents overreact to public information, but because the combination of mandatory public disclosure and noisy endogenous signals creates an unfavorable information environment. The key distinction is that in my model, the public signal's precision is endogenous and costly, creating a direct trade-off between information quality and resource costs that is absent in the Morris-Shin framework.

While the Morris-Shin result depends on coordination being socially wasteful, my result holds even when coordination is socially valuable.

9.5 Robustness and Extensions

The two extensions developed in Sections 10 and 11 establish that the baseline results are robust. The asymmetric-priors extension shows that investor sentiment introduces an effect that amplifies the policy-relevant implications where mandatory disclosure floors have higher negative effect during periods of pessimism, when firms most need flexibility. The capital-constraints extension demonstrates that aggregate resource scarcity strengthens the coordination friction and magnifies the value of precise disclosure, connecting the model to the bank-run literature and suggesting that disclosure regulation in financial industries should account for the amplifying role of capital thresholds.

10 Extension I: Assymetric Prior information

The baseline model assumes $\mathbb{P}(\theta = H) = 1/2$. In practice, investors may hold heterogeneous baseline beliefs, or public information (e.g., credit ratings, analyst consensus) may shift the prior away from symmetry. This section generalizes the model to arbitrary priors and shows that asymmetric beliefs introduces a effect that amplifies the sensitivity of optimal disclosure to investor sentiment.

10.1 Setup with General Priors

Let $\mathbb{P}(\theta = H) = p \in (0, 1)$, with $p \neq 1/2$ in general. The prior log-odds are

$$\Lambda_0 \equiv \log \frac{p}{1-p}. \tag{32}$$

The indifference condition at the cutoff is unchanged: the cutoff posterior remains

$$\beta^* = \frac{\delta/2 + \gamma}{1 + \gamma},$$

since this is pinned down by the payoff structure and the Laplacian property. However, the cutoff signal y^* now must generate a posterior that accounts for the asymmetric prior. The log-likelihood ratio at the cutoff must satisfy

$$\Lambda^*(p) \equiv \log \frac{\beta^*}{1-\beta^*} - \Lambda_0 = \log\left(\frac{\delta/2 + \gamma}{1 - \delta/2}\right) - \log \frac{p}{1-p}. \tag{33}$$

10.2 Modified Error Probabilities

For the private firm, the cutoff signal becomes

$$y^*(p) = \frac{(H+L)}{2} + \frac{\sigma_\eta^2}{(H-L)} \Lambda^*(p), \tag{34}$$

and the coordination-error probabilities are

$$\varepsilon_H(\sigma_\eta; p) = \Phi\left(\frac{\Lambda^*(p) - \tau}{\sqrt{2\tau}}\right), \tag{35}$$

$$\varepsilon_L(\sigma_\eta; p) = \Phi\left(\frac{-\Lambda^*(p) - \tau}{\sqrt{2\tau}}\right). \tag{36}$$

The firm value under asymmetric priors is

$$V_{\text{priv}}(\sigma_\eta; p) = p \cdot H \left[1 - \varepsilon_H(\sigma_\eta; p)\right] + (1-p) \cdot L \cdot \varepsilon_L(\sigma_\eta; p) - \frac{\alpha}{\sigma_\eta^2}. \tag{37}$$

Proposition 4 (Prior-Leverage Effect)**.** *Let $\sigma_\eta^*(p)$ denote the optimal disclosure quality for the private firm under prior p.*

(i) $\sigma_\eta^*(p)$ is minimized (highest quality) when $p = \beta^*$. For $p < \beta^*$ (pessimistic prior), optimal disclosure quality is lower (higher σ_η^*); for $p > \beta^*$ (optimistic prior), optimal disclosure quality is also lower.

(ii) For $p > \beta^*$ (optimistic priors), the value gap between private and public firms narrows: $\Delta V(p) < \Delta V(1/2)$ when $p > 1/2 > \beta^*$.

(iii) For $p < \beta^*$ (pessimistic priors), mandatory disclosure requirements become more distortionary: the welfare loss from $\bar{\sigma}_{\min}$ is increasing in $|\Lambda^*(p)|$.

Proof. Part (i). The first-order condition for $\sigma_\eta^*(p)$ is obtained by differentiating $V_{\text{priv}}(\sigma_\eta; p)$ with respect to σ_η and setting it to zero. Through $\tau = (H-L)^2/(2\sigma_\eta^2)$, the marginal benefit of reducing σ_η depends on how the error probabilities respond:

$$p \cdot H \cdot \phi\left(\frac{\Lambda^*(p) - \tau}{\sqrt{2\tau}}\right) \cdot \frac{\partial}{\partial \sigma_\eta}\left(\frac{\tau - \Lambda^*(p)}{\sqrt{2\tau}}\right) + (1-p) \cdot |L| \cdot \phi\left(\frac{-\Lambda^*(p) - \tau}{\sqrt{2\tau}}\right) \cdot \frac{\partial}{\partial \sigma_\eta}\left(\frac{\tau + \Lambda^*(p)}{\sqrt{2\tau}}\right) = -\frac{2\alpha}{\sigma_\eta^3}.$$

The key observation is that $\Lambda^*(p)$ is decreasing in p. When $p = \beta^*$, we have $\Lambda^*(p) = 0$, and the two error-probability arguments become symmetric: $(\Lambda^*(p) - \tau)/\sqrt{2\tau} = -\tau/\sqrt{2\tau}$ and $(-\Lambda^*(p) - \tau)/\sqrt{2\tau} = -\tau/\sqrt{2\tau}$.

When $p < \beta^*$, $\Lambda^*(p) > 0$, and the ε_H channel is strong but the ε_L channel places ϕ far from its peak. The converse holds for $p > \beta^*$. In either case, the total marginal benefit is lower than at $p = \beta^*$ because the mass of ϕ is suboptimally distributed across the two error channels.

Define $g(p) \equiv \partial V_{\text{priv}}/\partial \sigma_\eta|_{\sigma_\eta = \sigma_\eta^*(p)}$. At the optimum, $g(p) = 2\alpha/\sigma_\eta^{*3}(p)$. Differentiating the marginal benefit with respect to p and evaluating at $p = \beta^*$ shows that $\partial g/\partial p|_{p=\beta^*} = 0$ by symmetry, and the second derivative $\partial^2 g/\partial p^2 < 0$ at this point, confirming a unique maximum.

Part (ii). When $p > \beta^*$ (optimistic priors), the type-H error ε_H is already small even at high σ_η because optimistic priors predispose investors toward investing. The public firm's additional order-flow signal provides a smaller marginal benefit in this regime. Hence the informational advantage of being public is smaller, and so is ΔV.

Part (iii). When $p < \beta^*$, $\Lambda^*(p)$ is large and positive, meaning the signal must overcome significant prior pessimism for investors to invest. Forcing $\sigma_\eta = \bar{\sigma}_{\min}$ that does not account for this pessimism leads to a larger gap between the forced and optimal disclosure levels. By the envelope theorem, the welfare loss is approximately $\frac{1}{2}\frac{\partial^2 V_{\text{priv}}}{\partial \sigma_\eta^2}(\bar{\sigma}_{\min} - \sigma_\eta^*)^2$, and this gap scales with $|\Lambda^*(p)|$. □

Corollary 2 (Sentiment and Going-Private Timing)**.** *In periods of market pessimism (p significantly below β^*), the value advantage of private ownership increases because (a) the mandatory disclosure floor becomes more distortionary, and (b) private firms can optimally reduce disclosure in response to pessimistic priors.*

11 Extension II: Capital Requirements

The baseline model assumes that the continuum of investors faces no aggregate resource constraint. In practice, capital is scarce and total funds available for investment are bounded, and this scarcity introduces an additional coordination friction. This section formalizes the capital-constrained version of the model.

11.1 Setup

Maintain the baseline structure but impose an aggregate capital constraint. Each investor $i \in [0, 1]$ has capital endowment $w > 0$, and the firm requires a minimum total investment of $K > 0$ to operate. The aggregate investment is

$$I = w \int_0^1 a_i \, di = w(1 - \ell). \tag{38}$$

The firm operates successfully only if $I \geq K$. If $I < K$, the project fails and all investors receive zero. The failure threshold in terms of the withdrawal rate is

$$\bar{\ell} \equiv 1 - \frac{K}{w}. \tag{39}$$

We assume $K < w$ (i.e., $\bar{\ell} > 0$) so that the project is feasible if enough investors participate.

The modified payoff for investor i is:

$$u_i = \begin{cases} \theta - \delta H \ell, & \text{if } a_i = 1 \text{ and } \ell \leq \bar{\ell}, \\ -c, & \text{if } a_i = 1 \text{ and } \ell > \bar{\ell}, \\ 0, & \text{if } a_i = 0, \end{cases} \tag{40}$$

where $c > 0$ is the cost borne by an investing investor when the project fails (sunk costs, illiquidity).

11.2 Equilibrium under Capital Constraints

With the failure threshold, the indifference condition at the cutoff y^* becomes:

$$\mathbb{E}\Big[(\theta - \delta H \ell)\mathbf{1}\{\ell \leq \bar{\ell}\} - c \cdot \mathbf{1}\{\ell > \bar{\ell}\} \;\Big|\; y_i = y^*\Big] = 0. \tag{41}$$

Lemma 2 (Modified Cutoff under Capital Constraints)**.** *In the limit $\sigma_\varepsilon \to 0$, the equilibrium cutoff satisfies*

$$\mathbb{E}[\theta \mid y_i = y^*] = \frac{\delta H}{2} + c \cdot \mathbb{P}(\ell > \bar{\ell} \mid y_i = y^*). \tag{42}$$

When $\bar{\ell} \geq 1/2$ (weak capital constraint), $\mathbb{P}(\ell > \bar{\ell} \mid y_i = y^*) \approx 0$ in the noise-vanishing limit, and the cutoff reduces to the baseline. When $\bar{\ell} < 1/2$ (strong capital constraint), the failure probability *is positive and the cutoff is shifted upward.*

Proof. At the cutoff $y_i = y^*$, we have $\mathbb{E}[\ell \mid y_i = y^*] = 1/2$. In the vanishing-noise limit, ℓ is random variable at $1/2$. When $\bar{\ell} \geq 1/2$, the event $\{\ell > \bar{\ell}\}$ has probability zero at the cutoff, and we recover the baseline condition $\mathbb{E}[\theta \mid y^*] = \delta H/2$.

When $\bar{\ell} < 1/2$, the capital constraint binds with positive probability at the cutoff. With private noise $\sigma_\varepsilon > 0$ before taking a limit, conditional on $y_i = y^*$, the distribution of ℓ depends on the realization of the common noise η. By a law-of-large-numbers argument:

$$\ell \approx \Phi\left(\frac{y^* - y}{\sigma_\varepsilon}\right) = \Phi\left(\frac{-\varepsilon_i}{\sigma_\varepsilon}\right) = \Phi(0) = \frac{1}{2},$$

where the last equality uses $\varepsilon_i/\sigma_\varepsilon \to 0$ at the cutoff. For finite σ_ε, the distribution of ℓ has variance of order $\sigma_\varepsilon/\sigma_\eta$, and the probability $\mathbb{P}(\ell > \bar{\ell})$ is positive when $\bar{\ell} < 1/2$. The failure probability term thus contributes additively to the cutoff condition. □

Proposition 5 (Capital Constraints Amplify Disclosure Value)**.** *Let $\sigma^*_{\eta,K}$ denote the optimal disclosure quality under capital constraints with threshold $\bar{\ell}$.*

(i) When $\bar{\ell} < 1/2$ (binding capital constraint), $\sigma^*_{\eta,K} < \sigma^*_\eta$: capital-constrained firms optimally produce higher-quality reports.

(ii) The value loss from capital constraints, $V^*(\sigma^*_\eta) - V^*_K(\sigma^*_{\eta,K})$, is increasing in the failure cost c and decreasing in $\bar{\ell}$.

(iii) The region in parameter space where private ownership dominates public ownership expands *under capital constraints: for any fixed $(\sigma^2_\eta, \sigma^2_q)$, the critical $\bar{\sigma}_{\min}$ above which private dominates is lower when capital constraints bind.*

Proof. Part (i). Under capital constraints, the effective cutoff posterior increases due to the additional failure-cost term, raising Λ^*_K above Λ^*. Higher Λ^*_K increases the type-H error probability $\varepsilon_H = \Phi((\Lambda^*_K - \tau)/\sqrt{2\tau})$ for any given τ. Since higher Λ^*_K shifts the argument away from negative values where ϕ is small, the marginal benefit of increasing τ (reducing σ_η) is higher. With the marginal cost structure unchanged, the optimal $\sigma^*_{\eta,K}$ is lower.

Part (ii). The failure cost c directly reduces firm value through the loss term $-c \cdot \mathbb{P}(\ell > \bar{\ell})$, which appears in both the value function and the equilibrium condition. Lower $\bar{\ell}$ increases $\mathbb{P}(\ell > \bar{\ell})$, amplifying the effect.

Part (iii). Capital constraints raise the effective coordination threshold Λ^*_K, making the informational environment more critical. Since the public firm's information is noisier than the private firm's, the public firm's errors are more sensitive to the higher threshold. The advantage of private ownership is amplified when capital constraints bind. □

12 Conclusion

This paper provides an information-theoretic explanation for the rising trend of firms going private. By modeling the firm's disclosure quality choice through the directly testable noise level σ_η in a global-games framework with coordination frictions, the analysis reveals three central insights. First, the optimal reporting quality is interior and depends on whether market trading already provides information (Proposition 1). Second, a paradoxical situation arises in noisy markets where forced transparency reduces firm value (Proposition 2). Third, mandatory reporting standards can make private ownership strictly superior by forcing costly over-disclosure and compounding coordination failures (Proposition 3).

The two extensions demonstrate the robustness of these results and generate additional testable predictions. Investor sentiment predicts going-private waves during pessimism. Capital constraints amplify coordination frictions and the value of precise disclosure, expanding the parameter region where private ownership dominates.

From a policy perspective, the analysis suggests that stricter mandatory disclosure requirements can be counterproductive, driving firms toward private ownership and reducing overall market transparency. Disclosure regulation should account for market microstructure and firm-level characteristics. The results complement the traditional agency-cost rationale for going private by identifying a purely informational channel through which private ownership can dominate.

Future research might extend the model to endogenize the firm's real investment decisions, study the welfare implications of disclosure regulation from the perspective of investors and society, or incorporate strategic disclosure choices by multiple firms where disclosure decisions have spillover effects. The model could also be generalized to continuous fundamentals or dynamic multi-period settings to examine robustness and generate additional predictions.

References

Acharya, V. V., DeMarzo, P. M., and Kremer, I. (2011). Endogenous Information Flows and the Clustering of Announcements. *American Economic Review*, 101(7), 2955–2979.

Angeletos, G.-M., and Werning, I. (2006). Crises and Prices: Information Aggregation, Multiplicity, and Volatility. *American Economic Review*, 96(5), 1720–1736.

Angeletos, G., and Pavan, A. (2007). Efficient Use of Information and Social Value of Information. *Econometrica*, 75(4), 1103–1142.

Bergemann, D., and Morris, S. (2019). Information Design: A Unified Perspective. *Journal of Economic Literature*, 57(1), 44–95.

Carlsson, H., and van Damme, E. (1993). Global Games and Equilibrium Selection. *Econometrica*, 61(5), 989.

Cornand, C., and Heinemann, F. (2009). Speculative Attacks with Multiple Sources of Public Information. *Scandinavian Journal of Economics*, 111(1), 73–102.

Diamond, D. W., and Dybvig, P. H. (1983). Bank Runs, Deposit Insurance, and Liquidity. *Journal of Political Economy*, 91(3), 401–419.

Doidge, C., Karolyi, G. A., and Stulz, R. M. (2017). The U.S. Listing Gap. *Journal of Financial Economics*, 123(3), 464–487.

Duffie, D., and Lando, D. (2001). Term Structures of Credit Spreads with Incomplete Accounting Information. *Econometrica*, 69(3), 633–664.

Dye, R. (1985). Disclosure of Nonproprietary Information. *Journal of Accounting Research*, 23(1), 123.

Frankel, D. M., Morris, S., and Pauzner, A. (2003). Equilibrium Selection in Global Games with Strategic Complementarities. *Journal of Economic Theory*, 108(1), 1–44.

Gao, P., and Liang, P. J. (2013). Informational Feedback, Adverse Selection, and Optimal Disclosure Policy. *Journal of Accounting Research*, 51(5), 1133–1158.

Goldstein, I., and Leitner, Y. (2018). Stress Tests and Information Disclosure. *Journal of Economic Theory*, 177, 34–69.

Goldstein, I., and Pauzner, A. (2005). Demand-Deposit Contracts and the Probability of Bank Runs. *Journal of Finance*, 60(3), 1293–1327.

Goldstein, I., and Yang, L. (2017). Information Disclosure in Financial Markets. *Annual Review of Financial Economics*, 9, 101–125.

Goldstein, I., Ozdenoren, E., and Yuan, K. (2013). Trading Frenzies and Their Impact on Real Investment. *Journal of Financial Economics*, 109(2), 566–582.

Grossman, S. J. (1981). The Informational Role of Warranties and Private Disclosure about Product Quality. *Journal of Law and Economics*, 24(3), 461–483.

Hellwig, C. (2002). Public Information, Private Information, and the Multiplicity of Equilibria in Coordination Games. *Journal of Economic Theory*, 107(2), 191–222.

Hinson, L. A., and Piao, Z. (2024). Disclosure Spillover from Going-Private Activity. *Contemporary Accounting Research*, 42(1), 247–284.

Inostroza, N., and Pavan, A. (2025). Adversarial Coordination and Public Information Design. *Theoretical Economics*, 20, 763–813.

Jensen, M. C. (1986). Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers. *American Economic Review*, 76(2), 323–329.

Jorgensen, B. N., and Kirschenheiter, M. T. (2012). Interactive Discretionary Disclosures. *Contemporary Accounting Research*, 29(2), 382–397.

Kamenica, E., and Gentzkow, M. (2011). Bayesian Persuasion. *American Economic Review*, 101(6), 2590–2615.

Kyle, A. S. (1985). Continuous Auctions and Insider Trading. *Econometrica*, 53(6), 1315.

Morris, S., and Shin, H. S. (1998). Unique Equilibrium in a Model of Self-Fulfilling Currency Attacks. *American Economic Review*, 88(3), 587–597.

Morris, S., and Shin, H. S. (2002). Social Value of Public Information. *American Economic Review*, 92(5), 1521–1534.

Morris, S., and Shin, H. S. (2010). Global Games: Theory and Applications. In *Cambridge University Press eBooks*, 56–114

Ozdenoren, E., and Yuan, K. (2008). Feedback Effects and Asset Prices. *Journal of Finance*, 63(4), 1939–1975.

Quigley, B., and Walther, B. (2024). Inside and Outside Information. *Journal of Finance*, 79(4), 2667–2714.

Rochet, J.-C., and Vives, X. (2004). Coordination Failures and the Lender of Last Resort: Was Bagehot Right After All? *Journal of the European Economic Association*, 2(6), 1116–1147.

Stein, J. C. (1989). Efficient Capital Markets, Inefficient Firms: A Model of Myopic Corporate Behavior. *Quarterly Journal of Economics*, 104(4), 655–669.

Svensson, L. E. O. (2006). Social Value of Public Information: Is It Always Good to Know More? *American Economic Review*, 96(1), 448–451.

Verrecchia, R. E. (1983). Discretionary Disclosure. *Journal of Accounting and Economics*, 5, 179–194.

A Derivation of the Threshold Rule

This appendix derives the property $\mathbb{E}[\ell \mid y_i = y^*] = 1/2$ used in equation (10). Recall that $y_i = y + \varepsilon_i$ where $y = \theta + \eta$ and $\varepsilon_i \overset{\text{iid}}{\sim} \mathcal{N}(0, \sigma_\varepsilon^2)$.

Given a cutoff y^*, the law of large numbers gives the withdrawal rate as a function of the common signal:

$$\ell(y) = \mathbb{P}(y_i < y^* \mid y) = \Phi\left(\frac{y^* - y}{\sigma_\varepsilon}\right).$$

Conditional on $y_i = y^*$, we have $y = y^* - \varepsilon_i$, so

$$\ell = \Phi\left(\frac{y^* - (y^* - \varepsilon_i)}{\sigma_\varepsilon}\right) = \Phi\left(\frac{\varepsilon_i}{\sigma_\varepsilon}\right) = \Phi(U), \qquad U \equiv \frac{\varepsilon_i}{\sigma_\varepsilon} \sim \mathcal{N}(0, 1).$$

Since Φ is the standard normal CDF, for any $z \in [0, 1]$:

$$\mathbb{P}(\ell \le z \mid y_i = y^*) = \mathbb{P}(\Phi(U) \le z) = \mathbb{P}(U \le \Phi^{-1}(z)) = z,$$

so $\ell \mid (y_i = y^*) \sim \text{Uniform}(0, 1)$. Therefore

$$\mathbb{E}[\ell \mid y_i = y^*] = \frac{1}{2}.$$