Internet Appendix (Not for Publication) to "Speculation with Information Disclosure"

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IA-I Disclosure When the Speculator Has Imperfect Knowledge about Fundamentals

In this section, we consider the case where the speculator does not perfectly observe the fundamental value v, but instead only receives a noisy signal T about it. We show that this assumption does not affect the model and its implications. In other words, assuming that the speculator has perfect knowledge about v is without loss of generality. Intuitively, given that the MM and noise traders are uninformed about the fundamental value v, the speculator's signal T, albeit imperfect, constitutes all available information the economy has about v. As a result, any discrepancy between v and T is perceived by all parties as an independent noise, which is irrelevant to their decision making under risk neutrality. We derive this irrelevancy more formally below.

To restate the assumptions, let v be the asset's fundamental value, let e be the speculator's initial endowment, and let T be a signal about v. The speculator observes e and T but not v. Consider the general case where the triple, (v,e,T), follows a multi-variate normal distribution with mean μ and variance-covariance matrix Σ.

Upon observing T, the speculator perceives v as following a normal distribution with mean v' given by

$$v' = \mathrm{E}(v|e,T) = \mathrm{E}(v) + \Sigma_{12}\Sigma_{22}^{-1}\begin{pmatrix} e-\mu_2 \\ T-\mu_3 \end{pmatrix},$$

where $\Sigma_{22} = \mathrm{Var}\left[\begin{pmatrix} e \\ T \end{pmatrix}\right]$ and $\Sigma_{12} = \mathrm{Cov}\left[v, \begin{pmatrix} e \\ T \end{pmatrix}\right]$. v' is a sufficient statistics about v. Specifically, if we define $\varepsilon = v - S$, then there is

$$\mathrm{E}(\varepsilon) = \mathrm{Cov}(\varepsilon, e) = \mathrm{Cov}(\varepsilon, v') = 0.$$

One can therefore think of v' as the "effective" fundamental value in the following sense. In the long run, the stock price converges to the true fundamental value v after all agents in the model have taken their actions, but one can, without loss of generality, assume that the price first moves to v' and then moves again by an amount of ε to reach v. Because ε is orthogonal to both v' and e, given risk-neutrality, the second movement in price does not change the expected payoff to either the speculator, the MM, or noise traders. In other words, it is as if the price stays at v' and all agents behave as if v' is the true fundamental value, about which the speculator has a perfect knowledge.

Note that given the signal T, the conditional covariance between v' and e is generally nonzero, which deviates from our assumption in Pasquariello and Wang (2022, Section II.A) that the fundamental value and the speculator's initial position are uncorrelated. We address this case in Section IA-II next.

IA-II Disclosure When $\mathrm{Cov}(v,e) > 0$

In Pasquariello and Wang (2022, Section II.A), it is assumed that the asset fundamental v and the speculator's initial endowment e are uncorrelated. In this section, we consider the more general case where there exists a non-negative correlation ρ between v and e, which we denote by $\rho = \mathrm{Corr}(v,e) \in [0,1]$. We proceed in two steps. In Section IA-II.A, we show that in an equilibrium where the speculator can only achieve her short-term goal with trading but not disclosing, a positive correlation between v and e does not affect the model outcome. The intuition is that a positive ρ, *ceteris paribus*, increases both the variance of the order flow and the proportion of its information content about v. The former tends to make it less informative while the latter has the opposite effect. Under the normality and linear signal assumptions, these two effect exactly cancel out in equilibrium, leaving the model solution unchanged.

Next, in Section IA-II.B, we consider the case where the speculator can both trade and disclose. We provide a sufficient condition under which the disclosure still makes the speculator better off. This condition states that either the speculator has a sufficiently strong short-term incentive in the form of a "large" γ or σ_e, or the correlation ρ is not "too high". Intuitively, with a higher ρ, the signal becomes increasingly informative about v, which changes the trade-off between short-term and long-term gains. Specifically, the signal reduces the speculator's informational advantage and hence her ability to generate long-term profits from trading and the more informative the signal, the larger the reduction. As a result, unless there is large amounts to gain in the short term (high γ or σ_e), the speculator would prefer to refrain from disclosing and preserve her informational advantage when ρ is large. Accordingly, our numerical analysis shows that disclosure is always accompanied by an improvement in market liquidity, as when $\mathrm{Cov}(v,e) = 0$ in Pasquariello and Wang (2022, Corollary 1), unless ρ is large.

IA-II.A PBT with $\mathrm{Cov}(v,e) \geq 0$

As in Pasquariello and Wang (2022, equation (1)), the speculator's objective function is given by (see also Bhattacharyya and Nanda 2013)

$$W = \mathrm{E}\left[\gamma e(P_1 - P_0) + (1-\gamma)x(v - P_1)|e,v\right], \tag{IA-1}$$

and the MM observes

$$\omega = x + z,$$

with the noise trader demand given by $z \sim N(0, \sigma_z^2) \perp (v, e)$. The new assumption is that v and e follow a binomial normal distribution with correlation $\rho \in [0,1]$, i.e.,[1]

$$\begin{pmatrix} v \\ e \end{pmatrix} \sim N\left[\begin{pmatrix} P_0 \\ \bar{e} \end{pmatrix}, \begin{pmatrix} \sigma_v^2 & \rho\sigma_v\sigma_e \\ \rho\sigma_v\sigma_e & \sigma_e^2 \end{pmatrix}\right].$$

To solve for the linear equilibrium, conjecture the speculator's demand strategy as

$$x = \kappa_0 + \kappa_v v + \kappa_e e, \tag{IA-2}$$

and the MM's pricing rule as

$$P_1 = \lambda_0 + \lambda\omega. \tag{IA-3}$$

The equilibrium is found by jointly solving the conditions that (1) given the MM's pricing rule equation (IA-3), equation (IA-2) maximizes the speculator's objective function W, and (2) given the speculator's demand strategy equation (IA-2), the MM prices the asset at its expected value given the order flow ω. To solve for this fixed point, note first that equation (IA-2) implies

$$\begin{pmatrix} v \\ \omega \end{pmatrix} \sim N\left[\begin{pmatrix} P_0 \\ \bar{x} \end{pmatrix}, \begin{pmatrix} \sigma_v^2 & \kappa_v\sigma_v^2 + \rho\kappa_e\sigma_v\sigma_e \\ \kappa_v\sigma_v^2 + \rho\kappa_e\sigma_v\sigma_e & \kappa_v^2\sigma_v^2 + \kappa_e^2\sigma_e^2 + 2\kappa_v\kappa_e\rho\sigma_v\sigma_e + \sigma_z^2 \end{pmatrix}\right],$$

where $\bar{x} = \kappa_0 + \kappa_v P_0 + \kappa_e \bar{e}$. Hence the MM infers from ω that

$$\mathrm{E}\left(v|\omega\right) = P_0 + \lambda(\omega - \bar{x}),$$

where

$$\lambda = \frac{\kappa_v\sigma_v^2 + \rho\kappa_e\sigma_v\sigma_e}{\kappa_v^2\sigma_v^2 + \kappa_e^2\sigma_e^2 + 2\kappa_v\kappa_e\rho\sigma_v\sigma_e + \sigma_z^2}. \tag{IA-4}$$

Consider now the speculator's problem. Substituting equation (IA-4) into the objective function equation (IA-1), there is

$$W = \gamma e\lambda(x - \bar{x}) + (1-\gamma)x\Big[v - P_0 - \lambda(x - \bar{x})\Big].$$

[1] This specification is general enough to encompass many alternative sources of positive comovement between v and e, e.g., when stemming from $e = v + \eta$, $\eta \sim N(0, \sigma_\eta^2)$, and $\mathrm{Cov}(v,\eta) = \mathrm{Cov}(z,\eta) = 0$ such that $\mathrm{Cov}(z,e) = 0$ and $\rho = \frac{\sigma_v}{\sqrt{\sigma_v^2 + \sigma_\eta^2}} > 0$ would depend on the relative magnitude of fundamental uncertainty and endowment noise.

The optimal trading x^* is given by

$$x^* = \frac{v - P_0}{2\lambda} + \frac{\bar{x}}{2} + \frac{\beta}{2} e.$$

where $\beta = \frac{\gamma}{1-\gamma}$. Subtracting both sides by their expected values, we get

$$x^* = \frac{v - P_0}{2\lambda} + \frac{\beta}{2}(e + \bar{e}). \tag{IA-5}$$

Finally, combining equation (IA-2), equation (IA-4), and equation (IA-5), one gets an equation for λ:

$$\lambda = \frac{\frac{\sigma_v^2}{2\lambda} + \frac{\rho\beta}{2}\sigma_v\sigma_e}{\frac{1}{4\lambda^2}\sigma_v^2 + \frac{\beta^2}{4}\sigma_e^2 + \frac{\beta}{2\lambda}\rho\sigma_v\sigma_e + \sigma_z^2}.$$

Note that the two terms containing ρ in this equation exactly cancel out with each other as one solves for λ. The final expression for λ is given by

$$\lambda^* = \frac{\sigma_v}{2\left(\frac{\beta^2}{4}\sigma_e^2 + \sigma_z^2\right)^{\frac{1}{2}}}, \tag{IA-6}$$

which does not depend on ρ.

Intuitively, increasing ρ generates two opposite effects. First, the variance of the order flow increases, which reduces the MM's ability to make inference about v. Second, a larger fraction of the order flow carries information content about v (i.e., both $\frac{v-P_0}{2\lambda}$ and $\frac{\beta}{2}(e+\bar{e})$ are correlated with v instead of just the former). Under the normality and linear signal assumptions, these two effects offset each other completely, leaving the model solution unaffected by ρ.

IA-II.B PBD with $\text{Cov}(v,e) \geq 0$

We turn next to the PBD equilibrium. The ensuing mathematical complexity of the model when $\rho > 0$ prevents an analytical derivation of its equilibrium properties. Hence, we begin by presenting two results from the numerical analysis of Proposition 2 in Pasquariello and Wang (2022) when $\text{Cov}(v,e) > 0$. First, we show that the key result of Corollary 1, that market liquidity improves when the speculator opts to disclose, continues to hold. Second, we further show that there does not, however, always exist a signal weight δ such that the speculator is better off by disclosing when the correlation between e and v is high. We then present a sufficient condition under which such a signal weight exists. The condition states that either ρ is "not too high", or the gains to disclose are sufficiently high.

We start with our numerical analysis. First, Figure IA-1 plots, for a number of short-term weights (γ), the speculator's objective function with and without signal disclosure as a function of δ. In each panel, the objective function is shown for two correlation levels, "low" ($\rho = 0.1$) and "high" ($\rho = 0.8$), respectively. The shaded area corresponds to signal weights δ such that the speculator is at least as well-off from disclosing. Figure IA-1 shows that there does not always exists a shaded area when ρ is high, particularly at low γ levels. Hence, unlike the model without correlation, when $\rho > 0$ is large, there may not exist a signal weight such that the speculator would opt to disclose. Intuitively, as discussed in Pasquariello and Wang (2022, Section II.B), the signal improves the speculator's short-term portfolio value at the expense of deteriorated long-term gains as it compromises the speculator's fundamental information advantage relative to the market. When ρ is high, information leakage becomes increasingly severe because both components of the signal δe and $(1-\delta)v$ are informative about the fundamental value v. At some point, the long-term information loss outweighs the short-term benefit, rendering it no longer optimal to disclose. Correspondingly, the shaded areas disappear first when the importance of the short-term value is low relative to the long-term gains (small γ).

Second, Figure IA-2 plots, for the same set of parameters as in Figure IA-1, the corresponding equilibrium price impact in the models with (solid line) and without signal disclosure (dashed lines). Figure IA-2 shows that the solid lines are always below the dashed horizontal lines in the shaded areas. In other words, when the speculator prefers to disclose the signal, the resulting market liquidity improves relative to when the speculator does not disclose. We find that the same pattern holds in unreported tests consisting of several alternative parameter specifications.

Next, we present a sufficient condition under which there exists a signal weight $\hat{\delta}$ such that the speculator is at least as well off from disclosing. This is derived by considering the "uninformative" signal, or a signal that provides no additional information about v given that the MM already observes the order flow ω. Correspondingly, the MM prices the asset based solely on the order flow with the pricing rule

$$P_1 = P_0 + \lambda^*(\omega - \bar{\omega}),$$

where λ^* is given by equation (IA-6), and

$$\omega - \bar{\omega} = \frac{1}{2\lambda^*}(v - P_0) + \frac{\beta}{2}(e - \bar{e}) + z.$$

It's helpful to decompose $e - \bar{e}$ as its projection on $v - P_0$ and the residual, i.e.,

$$e - \bar{e} = \rho \frac{\sigma_e}{\sigma_v}(v - P_0) + \varepsilon,$$

where $\text{Cov}(\varepsilon, v - P_0) = 0$. Hence the order flow can be expressed as

$$\omega - \bar{\omega} = \Big[\frac{1}{2\lambda^*} + \frac{\beta}{2}\rho\frac{\sigma_e}{\sigma_v}\Big](v - P_0) + \frac{\beta}{2}\varepsilon + z.$$

Under the uninformative signal weight $\hat{\delta}$, the signal s can be viewed as the order flow plus some independent noise term, or,

$$s = \hat{\delta}e + (1-\hat{\delta})v \propto \omega - \bar{\omega} + \eta,$$

where

$$\text{E}(\eta) = \text{Cov}(\eta, v - P_0) = \text{Cov}(\eta, \frac{\beta}{2}\varepsilon + z) = 0.$$

It can be shown that $\hat{\delta}$, if exists, takes the form $\frac{k_e}{k_e + k_v}$, where $k_e = \frac{\beta}{2} + \frac{\sigma_z^2}{\frac{\beta}{2}(1-\rho^2)\sigma_e^2}$ and $k_v = \frac{1}{2\lambda^*} - \frac{\rho\sigma_z^2}{\frac{\beta}{2}(1-\rho^2)\sigma_e\sigma_v}$. It follows that, since $\hat{\delta} \in [0,1]$, the uninformative signal exists when the following condition holds:

$$\text{(IA-7)} \qquad \frac{\rho}{1-\rho^2} \leq \frac{\gamma\sigma_e}{2(1-\gamma)\sigma_z}\sqrt{\Big(\frac{\gamma\sigma_e}{2(1-\gamma)\sigma_z}\Big)^2 + 1}.$$

Notice that the left-hand side of this inequality is an increasing function of ρ while the right-hand side is an increasing function of γ and $\frac{\sigma_e}{\sigma_z}$. This condition can thus be viewed either as an upper bound on ρ or a lower bound on γ or $\frac{\sigma_e}{\sigma_z}$. The condition echoes the intuition we discussed earlier that with a "high" correlation ρ, disclosure is only preferable when there is material amounts to be gained in the short-term, because of "high" speculative short-termism (γ, in equation (IA-1)), "large" endowment uncertainty (σ_e) relative to noise trading (σ_z), or both.

IA-III Further Discussions of Model Assumptions

As noted in Section II.D of Pasquariello and Wang (2022), the PBD equilibrium of Proposition 2 is derived under two crucial assumptions: (1) the speculator is committed to her optimal disclosure strategy δ^*, as devised at $t = -1$, regardless of the realizations of v and e at $t = 0$; and (2) given the optimal set at $t = -1$, the disclosed signal is always the ensuing convex combination of v and e of equation (6), i.e., $s = \delta^* e + (1-\delta^*)v$.

On the theoretical side, most existing models in the information transmission literature rely on some public commitment by the sender. For instance, Grossman and Stiglitz (1980) and Verrecchia (1982), when modeling economies in which market participants endogenously become informed by acquiring a signal, abstract from the information producer's problem in that each of them not only takes as a given that such a signal is the true fundamental up to an independent noise term but also does not observe it until after making the decision to acquire it, while all market participants know the extent of equilibrium information production in the economy. Admati and Pfleiderer (1988) study how an informed party may openly sell information to the rest of the market if risk averse, in a model in which the seller can choose signal precision but not signal form and is bounded away from manipulation; Van Bommel (2003) allows a risk-neutral speculator to anonymously disclose discrete but imprecise signals to an audience of followers in order to induce price overshooting and so enhance the profits of her camouflaged multi-period trading. Our model resembles those settings in that a risk neutral informed agent not only transfers her private information—albeit non-anonymously—if displaying short-termism but also trades on her own account. Our theory is also related to Kamenica and Gentzkow (2011), in which an information sender is granted the ability to commit to both the form of the signal and truthful revelation of the signal. Kamenica and Gentzkow (2011) derive in their setting the optimal signal that would induce the receiver to take the most favorable actions to the sender. Our model adds to their setting an additional level of complication in that the speculator (the sender) can not only communicate information (disclose a signal) but also take action herself (trade directly on information).

On the empirical side, we note that, in financial markets, *ex post* deviation often entails large penalties. As we argue, either one of the following costs may serve as a commitment device to deter deviation. The first one is reputation cost. Although our model is a static one, a real-world speculator—be it a fund manager, venture capitalist, or specialist company—is most likely a repeated player. As reputation is generally believed to be of vital importance for any type of financial institution, the gains from "deviation" must be traded-off against the cost of reputation damage when the speculator decides what signal to provide (e.g., see Benabou and Laroque 1992; Van Bommel 2003). Therefore, insofar as those gains are not unbounded, reputation concerns arguably constrain the extent to which the speculator may deviate from the committed (agreed-upon) signal disclosure process.[2] Accordingly, Ljungqvist and Qian (2016) find that disclosures by hedge funds with better reputation (e.g., as acquired via prior such disclosures) have a greater impact on the prices of the disclosed stocks.

A second commitment device is financial regulation. Regulators often impose and enforce stringent rules regarding disclosure made by fund managers and other key market participants. For instance, in regulating disclosure of financial asset fundamentals, the U.S. Investment Advisor Act

[2]For instance, one could apply the Folk Theorem to a repeated version of our model where (1) on the equilibrium path, the signaling equilibrium is reached in every stage and (2) once mis-reporting is detected at any time, the players switch to the baseline equilibrium in all subsequent stages. There is only one caveat: In our model, the one-shot gain from deviating could be arbitrarily large. Therefore, one must modify the stage equilibrium to fit in the Folk Theorem framework. One possible modification is as follows. Let $\underline{s}$ and $\bar{s}$ be two threshold values of the signal. If the signal is realized such that $\underline{s} \leq s \leq \bar{s}$ the same equilibrium is reached in the ensuing subgame as before. On the other hand, if s is realized such that $s < \underline{s}$ or $s > \bar{s}$, then the MM will suspect that manipulation is in play and refuse to update his beliefs. Therefore, the ensuing continuation game proceeds with the same common prior as the original one.

of 1940 requires that an advisor has an obligation of "full and fair disclosure of all facts material to the client's engagement of the advisor to its clients, as well as a duty to avoid misleading them." In addition, the SEC prohibits any advisor from "using any advertisement that contains any untrue statement of material fact or is otherwise misleading" (Rule 206(4)-1(a)(5) under the Investment Advisers Act of 1940). Similarly, in regulating any disclosure about a speculator's holdings, the SEC mandates that investment advisors with discretion over \$100 million must file a Form 13(F) on a quarterly basis containing her positions in detail. Although the SEC gives hedge funds the option of delaying reporting on the basis of confidentiality, this confidential treatment is neither trivial nor guaranteed (Agarwal, Jiang, Tang and Yang 2013).

Since violating these regulations may entail significant punishment (ranging from steep fines to imprisonment) possibly exceeding any short-term gain from *ex-post* deviation, regulations leave the fund manager with little flexibility in her choice of disclosure. In the context of our model, this means the signal weight δ is effectively imposed (or restricted) by the regulators. If the speculator optimally chooses to disclose, she is constrained by regulation to stick to pre-specified signal weights. Interestingly, this also implies that under some regulatorily imposed signal weights, a speculator may not find it optimal to disclose. Regulation in effect puts the speculators through a screening process; only those who happen to have the right σ_v^2 and σ_e^2 choose to be vocal. To illustrate this observation, Figure IA-3 plots the speculator's value function in the signaling (solid line) and baseline (dashed line) equilibria as functions of signal weight δ. Figure IA-3 shows that, although for the optimal δ releasing a signal is always better than staying silent, there is only a narrow range of δ for which the speculator prefers the signaling equilibrium to the baseline equilibrium. For some speculators, the regulatorily imposed δ may be out of that range.

IA-IV Proof that $\lambda_2 > 0$ for *Ex Ante* Optimal δ

First, we show that λ_2 always exists. In equation (10) of Pasquariello and Wang (2022), we showed that λ_2 takes the form

$$\lambda_2 = -\frac{\lambda_1}{\delta}\left(\beta - \frac{4\lambda_1\sigma_z^2}{(\frac{1}{\alpha} - \beta\lambda_1)\sigma_e^2}\right),$$

where λ_1 is given by equation (9) as

$$\lambda_1 = \frac{1}{\sqrt{\alpha^2\beta^2 + 4\frac{\sigma_z^2}{\sigma_v^2} + 4\alpha^2\frac{\sigma_z^2}{\sigma_e^2}}}.$$

Substituting in the expression for λ_1, we can rewrite the denominator in equation (10) as

$$\frac{1}{\alpha}-\beta\lambda_1=\frac{1}{\alpha}\left[1-\frac{1}{\sqrt{1+4\frac{1}{\alpha^2\beta^2}\frac{\sigma_z^2}{\sigma_v^2}+4\frac{1}{\beta^2}\frac{\sigma_z^2}{\sigma_e^2}}}\right]>0.$$

In addition, note that both $\alpha=\frac{1-\delta}{\delta}>0$ and $\beta=\frac{\gamma}{1-\gamma}>0$ since both $0<\delta<1$ and $\gamma<1$. As shown in Proposition 3 of Pasquariello and Wang (2022), setting either $\delta=0$ or $\delta=1$ is suboptimal for the speculator since the resulting signal would either give away the entirety of the speculator's information advantage ($s=v$) or be uninformative about asset payoff v and thus rationally dismissed by the MM ($s=e$). Additionally, $\gamma=1$ (the speculator cares only about her short-term portfolio value and disregards long-term profit entirely) is an uninteresting edge case; accordingly, as in Bhattacharyya and Nanda (2013), we assume in Section II.A of Pasquariello and Wang (2022) that $\gamma\in[0,1)$. Therefore, λ_2 is well-defined.

Next, to see the sign of λ_2, consider the terms in the parentheses, i.e., $\beta-\frac{4\lambda_1\sigma_z^2}{(\frac{1}{\alpha}-\beta\lambda_1)\sigma_e^2}$. Rearranging terms and substituting in the expression for λ_1, there is

$$\beta-\frac{4\lambda_1\sigma_z^2}{(\frac{1}{\alpha}-\beta\lambda_1)\sigma_e^2}=\beta-\frac{4\sigma_z^2}{\sigma_e^2}\frac{1}{\frac{1}{\alpha\lambda_1}-\beta}=\beta-\frac{4\sigma_z^2}{\sigma_e^2}\frac{1}{\sqrt{\beta^2+4\frac{\sigma_z^2}{\sigma_e^2}+4\frac{\sigma_z^2}{\sigma_v^2}\frac{1}{\alpha^2}}-\beta}.$$

The term α only shows up in one place in this expression and it can be seen that the expression as a whole is a decreasing function of α.

Note that we have shown in the proof of Corollary 1 that a necessary condition for the speculator to opt to disclose is that $\delta\leq\hat{\delta}$, or equivalently, $\alpha\geq\hat{\alpha}=\frac{1-\hat{\delta}}{\hat{\delta}}$, and the inequality is strict if the speculator strictly prefers disclosure. The expression for $\hat{\alpha}$ is given by equation (A-17) of the Appendix as

$$\hat{\alpha}=\beta\sqrt{\frac{\sigma_v^2}{\beta^2\sigma_e^2+4\sigma_z^2}\frac{\sigma_e^2}{\sigma_v^2}}.$$

Evaluating λ_2 at $\hat{\alpha}$ and simplifying, there is

$$\lambda_2|_{\alpha=\hat{\alpha}}=0.$$

Unsurprisingly, given that $\hat{\delta}$ is the "uninformative" signal weight (see Footnote 14 of Pasquariello and Wang 2022), the MM rationally dismiss the signal by setting $\lambda_2=0$. Since $\beta-\frac{4\lambda_1\sigma_z^2}{(\frac{1}{\alpha}-\beta\lambda_1)\sigma_e^2}$ decreases in α, it follows that, for $\alpha\geq(>)\hat{\alpha}$, there is $\beta-\frac{4\lambda_1\sigma_z^2}{(\frac{1}{\alpha}-\beta\lambda_1)\sigma_e^2}\leq(<)0$ and $\lambda_2\geq(>)0$. Taken together, we have shown the sign of λ_2 is non-negative (positive) for the range of signal weights such that the speculator (strictly) prefers signal disclosure.

IA-V Disclosure with Noisy Linear Signals about Asset Endowment e and/or Asset Payoff v

We show that, in linear equilibria, the speculator is always worse-off by committing to disclosing a signal of the form $s = v + \varepsilon$, $s = e + \varepsilon$, or $s = (v + \varepsilon_v, e + \varepsilon_e)$, where $\varepsilon_v \perp \varepsilon_e$.

First, let *SE* be the set of linear equilibria defined by (1) the speculator's risky asset demand:

$$x = k_0 + k_v v + k_e e + k_s \cdot s, \tag{IA-8}$$

and (2) the MM's pricing rule:

$$P_1 = l_0 + l_\omega(x + z) + l_s \cdot s, \tag{IA-9}$$

such that given the common prior and conditioning on observing the information contained in the signal (s) and the aggregate order flow $(x+z)$, the MM make zero profit in expectation, and the speculator—knowing the MM's pricing rule—chooses her market order x to maximize the objective function:

$$\mathrm{E}(W|D=1) = \mathrm{E}\left[\gamma e(P_1 - P_0) + (1-\gamma)(v - P_1)\right].$$

In equations (IA-8) and (IA-9), the operator "$\cdot$" represents scalar multiplication when s is one-dimensional and inner product when s is a vector. k_0, k_v, k_e, l_0, l_w, and l_s are undetermined coefficients (k_s and l_s are vectors when s is a vector).

Second, let *PBE* be the set of equilibria that are linear in v and e conditioning on each realization of s, i.e., the set of Benchmark Equilibrium with the common prior given by the conditional distribution of v and e (given s). Specifically, each equilibrium is defined by (1) The speculator's (conditional) risky asset demand:

$$x(s) = k_0(s) + k_v(s)v + k_e(s)e,$$

and (2) the MM's (conditional) pricing rule:

$$P_1(s) = l_0(s) + l_w(s)(x + z),$$

such that the MM make zero expected profit and the speculator optimizes with respect to her objective function:

$$\mathrm{E}\left(W(s)|s\right) = \mathrm{E}\left[\gamma e(P_1 - \mathrm{E}(v|s)) + (1-\gamma)x(v - P_1)|s\right].$$

Clearly, $SE \subset PBE$. Furthermore, $SE = PBE$ are singletons. This equality can be shown by observing that (1) the equilibrium defined by *PBE* is unique (see Bhattacharyya and Nanda 2013), and (2) this equilibrium also belongs to *SE*. Therefore, we can restrict attention to the unique equilibrium in *PBE* without loss of generality, which is characterized by (see Proposition 1 or Bhattacharyya and Nanda 2013)

$$x^* = \beta\tilde{e} + \frac{v-\tilde{v}}{2\tilde{\lambda}} + \frac{\beta}{2}(e-\tilde{e}),$$

$$P_1 = \tilde{v} + \tilde{\lambda}(x^* + z - \beta\tilde{e}),$$

and

$$\tilde{\lambda} = \frac{\tilde{\sigma}_v}{2\left(\beta^2\frac{\tilde{\sigma}_e^2}{4} + \sigma_z^2\right)^{\frac{1}{2}}},$$

where

$$\tilde{v} = \mathrm{E}(v|s),\ \tilde{e} = \mathrm{E}(e|s),\ \tilde{\sigma}_v^2 = \mathrm{Var}(v|s),\ \tilde{\sigma}_e^2 = \mathrm{Var}(e|s).$$

In particular, the speculator's expected objective function value is (see Proposition 3)

$$\begin{aligned}\mathrm{E}\left(W(s)|s\right) &= \mathrm{E}\left[\gamma e(P_1-\tilde{v}) + (1-\gamma)x(v-P_1)|s\right] \\ &= \frac{1-\gamma}{4\tilde{\lambda}}(\tilde{\sigma}_v^2 + \beta^2\tilde{\lambda}^2\tilde{\sigma}_e^2).\end{aligned}$$

This further implies that the speculator's *ex ante* expected objective function value in the equilibrium defined by SE is given by

$$\begin{aligned}\mathrm{E}(W|D=1) &= \mathrm{E}\left[\gamma e(P_1-P_0) + (1-\gamma)(v-P_1)\right] \\ &= \mathrm{E}\left[\gamma e(\tilde{v}-P_0)\right] + \mathrm{E}\left[\mathrm{E}\left(\gamma e(P_1-\tilde{v}) + (1-\gamma)x(v-P_1)|s\right)\right] \\ &= \mathrm{E}\left[\gamma e(\tilde{v}-P_0)\right] + \frac{1-\gamma}{4\tilde{\lambda}}(\tilde{\sigma}_v^2 + \beta^2\tilde{\lambda}^2\tilde{\sigma}_e^2) \\ &= \frac{1-\gamma}{4\tilde{\lambda}}(\tilde{\sigma}_v^2 + \beta^2\tilde{\lambda}^2\tilde{\sigma}_e^2),\end{aligned}$$

where the second equality follows from the law of iterated expectations and the third equality follows from the fact that if $s = v+\varepsilon$, $s = e+\varepsilon$ or $s = (e+\varepsilon_e, v+\varepsilon_v)$ with $\varepsilon_e \perp \varepsilon_v$, then e and $\tilde{v}-P_0$ are independent.[3] On the other hand, the speculator's objective function value in the absence of

[3] If $s = v+\varepsilon$, then $\tilde{v}-P_0 = \frac{\sigma_v^2}{\sigma_v^2+\mathrm{Var}(\varepsilon)}(s-P_0) = \frac{\sigma_v^2}{\sigma_v^2+\mathrm{Var}(\varepsilon)}(v+\varepsilon-P_0) \perp e$. Similarly, if $s = (e+\varepsilon_e, v+\varepsilon_v)$ with $\varepsilon_e \perp \varepsilon_v$, then $\tilde{v}-P_0 = \frac{\sigma_v^2}{\sigma_v^2+\mathrm{Var}(\varepsilon_v)}(v+\varepsilon_v-P_0) \perp e$. Finally, if $s = e+\varepsilon$, then $\tilde{v}-P_0 = 0 \perp e$.

disclosure is given by

$$\mathrm{E}(W|D=0) = \frac{1-\gamma}{4\lambda}(\sigma_v^2 + \beta^2\lambda^2\sigma_e^2),$$

where λ is given by equation (4) of Pasquariello and Wang (2022).

Substituting λ and $\tilde{\lambda}$ by model primitives, one can rewrite the objective functions as

$$\mathrm{E}(W|D=0) = \frac{1-\gamma}{4}\sigma_v\left[2\left(\beta^2\sigma_e^2+4\sigma_z^2\right)^{\frac{1}{2}} - \frac{4\sigma_z^2}{\left(\beta^2\sigma_e^2+4\sigma_z^2\right)^{\frac{1}{2}}}\right],$$

and

$$\mathrm{E}(W|D=1) = \frac{1-\gamma}{4}\tilde{\sigma}_v\left[2\left(\beta^2\tilde{\sigma}_e^2+4\sigma_z^2\right)^{\frac{1}{2}} - \frac{4\sigma_z^2}{\left(\beta^2\tilde{\sigma}_e^2+4\sigma_z^2\right)^{\frac{1}{2}}}\right].$$

By observing that $\tilde{\sigma}_v^2 < \sigma_v^2$ and $\tilde{\sigma}_e^2 < \sigma_e^2$, it follows immediately that $\mathrm{E}(W|D=1) < \mathrm{E}(W|D=0)$. In conclusion, the speculator is hurt by committing to disclosure in the form of $v+\varepsilon$, $e+\varepsilon$, or $(e+\varepsilon_e, v+\varepsilon_v)$ with $\varepsilon_e \perp \varepsilon_v$. In particular, in the limiting case where $\mathrm{Var}(\varepsilon)=0$, we have shown that it is suboptimal for the speculator to disclose either $s=e$ or $s=v$.

IA-VI A Two Stage Formulation of the Model

In order to achieve her short-term objective, the speculator may trade "excessively" in the direction of her initial endowment (PBT) and/or disclose a mixed signal (PBD). Our discussion in Section II of Pasquariello and Wang (2022) suggests that the speculator optimally uses both tools in equilibrium. In this section, we isolate the two tools and examine separately their effect on the speculator's short-term and long-term objectives (W_1 and W_2, respectively).

To that end, it is useful to take a closer look at the process by which information is used by the MM and the speculator. In the signaling equilibrium of Proposition 2 of Pasquariello and Wang (2022), the MM receive the signal and the order flow simultaneously (equation (8)). Alternatively, one could think of the MM as separately absorbing the information in two steps. First, the MM observe the signal and update their priors about v and e. Second, the MM observe the order flow and, together with their updated priors, set the price. One could also think of the speculator as acting in two steps. First, she observes v and e, discloses the signal according to equation (6), and forms belief about the MM's updated priors. Second, she trades in the updated information environment. While both approaches yield the same equilibrium outcomes, the two-step approach allows for a more intuitive interpretation: The first step involves no trading and the second step represents a baseline equilibrium without disclosure. This helps isolate the effects of PBT and PBD.

IA-VI.A A Two-step Formulation of the Signaling Equilibrium

We begin by formally describing an alternative approach to construct the signaling equilibrium of Proposition 2 of Pasquariello and Wang (2022). Consider a two-stage game. In the first stage, the speculator privately observes v and e and then announces her signal s of equation (6) at a predetermined weight δ. In the second stage, trading takes place at the realized market clearing price P_1 (as the baseline equilibrium).

We consider the Perfect Bayesian Equilibrium of this two-stage game. Note that with the *ex ante* commitment to disclose and a predetermined signal weight, no optional action occurs in the first step: Nature draws v and e, publicly reports s, the speculator observes v and e directly and the MM update their priors about v and e according to s. Thus we only need to study the equilibrium in the second step. We start with the information environment in the continuation game after Nature's draw—the common prior in the second step. Since the speculator is fully informed, the updated common prior is the MM's perceived distribution of (v,e) conditional on s:

(IA-10) $$\begin{pmatrix} v \\ e \end{pmatrix} | s \sim N\left[\begin{pmatrix} \tilde{v} \\ \tilde{e} \end{pmatrix}, \begin{pmatrix} \tilde{\sigma}_v^2 & -\tilde{\sigma}_v\tilde{\sigma}_e \\ -\tilde{\sigma}_v\tilde{\sigma}_e & \tilde{\sigma}_e^2 \end{pmatrix}\right],$$

where

(IA-11) $$\tilde{v}(v,e) = P_0 + \frac{(1-\delta)\sigma_v^2}{\delta^2\sigma_e^2 + (1-\delta)^2\sigma_v^2}(s-\bar{s}),$$

(IA-12) $$\tilde{e}(v,e) = \bar{e} + \frac{\delta\sigma_e^2}{\delta^2\sigma_e^2 + (1-\delta)^2\sigma_v^2}(s-\bar{s}),$$

(IA-13) $$\tilde{\sigma}_v^2(v,e) = \frac{\delta^2\sigma_v^2\sigma_e^2}{\delta^2\sigma_e^2 + (1-\delta)^2\sigma_v^2},$$

and

(IA-14) $$\tilde{\sigma}_e^2(v,e) = \frac{(1-\delta)^2\sigma_v^2\sigma_e^2}{\delta^2\sigma_e^2 + (1-\delta)^2\sigma_v^2}.$$

Proposition 1 of Pasquariello and Wang (2022) can be applied to fully characterize the second stage equilibrium by replacing the prior distribution with the updated posteriors of equations (IA-10) to (IA-14). The entire game is therefore a set of baseline equilibria, one for each realization of (v,e). Our next result shows that this two-stage approach yields the same equilibrium outcome as the single-stage signaling equilibrium.

Proposition IA-1 (Equivalence) *The Perfect Bayesian Equilibrium of the two-step game is identical to the single-step signaling equilibrium: For any realization of v, e, and z, the speculator submits the same market order, and the MM set the same price.*

Proof. For some realization (v,e,z), denote by $x^*(v,e,z)$ and $x^{**}(v,e,z)$ the speculator's trading strategies in the signaling equilibrium of the one-step game (SE) and the Perfect Bayesian Equilibrium of the two-step game (PBE), respectively. Additionally, denote by $P_1^*(v,e,z)$ and $P_1^{**}(v,e,z)$ the MM's corresponding pricing rules. The two equilibria are equivalent if and only if (1) $x^*(v,e,z) = x^{**}(v,e,z)$ and (2) $P_1^*(v,e,z) = P_1^{**}(v,e,z)$.

Proof of (1) By construction, the speculator's trading strategy in PBE is the baseline trading strategy with the MM's information set updated to reflect the information content of the signal. Thus equation (2) implies

(IA-15) $$x^{**} = \frac{\beta}{2}(e+\tilde{e}) + \frac{v-\tilde{v}}{2\tilde{\lambda}},$$

where $\tilde{\lambda} = \sqrt{\frac{\tilde{\sigma}_v^2}{\beta^2\tilde{\sigma}_e^2+4\sigma_z^2}}$ is the price impact derived from equation (4). By substituting equation (IA-13) and (IA-14) for $\tilde{\sigma}_v^2$ and $\tilde{\sigma}_e^2$ in equation (IA-15), we get

$$\tilde{\lambda} = \lambda_1.$$

Intuitively, for SE and PBE to be equivalent, they must induce the same price impact.

Finally, in equation (IA-15), replace $\tilde{v}$ and $\tilde{e}$ by the right hand sides of equation (IA-11) and (IA-12), respectively, and use the fact that $\tilde{\lambda} = \lambda_1$. There is

$$x^{**}(v,e,z) = \frac{v-P_0}{2\lambda_1} + \frac{\beta}{2}(e+\bar{e}) + \frac{1}{2\delta}[\beta - \frac{4\lambda_1}{\frac{1}{\alpha}-\lambda_1\beta}\frac{\sigma_z^2}{\sigma_e^2}](s-\bar{s}) = x^*(v,e,z).$$

The last equality follows from equation (2) and the fact that $\frac{1}{2\delta}[\beta - \frac{4\lambda_1}{\frac{1}{\alpha}-\lambda_1\beta}\frac{\sigma_z^2}{\sigma_e^2}] = -\frac{\lambda_2}{2\lambda_1}$, as implied by equation (10).

Proof of (2) The equilibrium pricing rule in PBE is the baseline pricing rule, where the MM's information set is updated to reflect the information content of the signal. By equation (3), there is

$$P_1^{**}(v,e,z) = \tilde{v} + \tilde{\lambda}(\omega - \tilde{\omega}),$$

where $\tilde{\omega} = \tilde{x} = \beta\tilde{e}$. Substituting equations (IA-11) and (IA-12) for $\tilde{v}$ and $\tilde{e}$, respectively, and using the fact that $\lambda_1 = \tilde{\lambda}$, there is

$$P_1^{**}(v,e,z) = P_0 + \lambda_1(\omega - \bar{\omega}) - \frac{\lambda_1}{\delta}[\beta - \frac{4\lambda_1}{\frac{1}{\alpha}-\lambda_1\beta}\frac{\sigma_z^2}{\sigma_e^2}](s-\bar{s}).$$

Lastly, substituting in equation (10) yields $P_1^{**}(v,e,z) = P_1^*(v,e,z)$. ■

This two-step approach emphasizes the role of disclosure as reshaping the information environment before market clearing. Effectively, the price is formed in two steps: First, information in the disclosed signal is incorporated in the form of the MM's updated posteriors about v and e; second, information in the order flow is incorporated when the market clears. This is a convenient result as it allows to separate the effects of PBT and PBD on the equilibrium.

IA-VI.B Decomposing the Effects of PBD

Following the two-step approach, we decompose the speculator's *ex ante* expected value function in equilibrium as:

(IA-16)

$$\mathrm{E}\left[W|D=1,\delta\right]=\underbrace{\mathrm{E}\left[\overbrace{\gamma e(\tilde{v}-P_0)}^{\text{Short-term}}|D=1,\delta\right]}_{\text{Signaling (first stage)}}+\underbrace{\mathrm{E}\left[\overbrace{\gamma e(P_1-\tilde{v})}^{\text{Short-term}}+\overbrace{(1-\gamma)x(v-P_1)}^{\text{Long-term}}\Big|s,D=1,\delta\right]}_{\text{Trading (second stage)}}$$

(see also equation (A-11) in the Appendix of Pasquariello and Wang 2022).[4] Only trading can generate long-term profit, whereas both disclosure and trading serve to the speculator's short-term objective. The signal firstly shifts the price via updating the MM's inference of v; then this inference (and the market clearing price) is further affected by the speculator's trading in the aggregate order flow. The effect of the signal persists through the trading stage, as it shifts the prior mean of the MM's valuation. By construction, the signal positively depends on both v and e. The first dependence means that the MM adjust their inference ($\tilde{v}$) of v upward upon seeing a positive signal, whereas the second dependence means that a positive endowment shock e leads to a positive signal. This feature serves to the speculator's short-term objective as it implies a positive correlation between e and $\tilde{v}$ ($\mathrm{Cov}\left(\tilde{v},e\right)=\frac{(1-\delta)\delta\sigma_v^2\sigma_e^2}{\delta^2\sigma_e^2+(1-\delta)^2\sigma_v^2}$).

Table IA-1 decomposes the speculator's *ex ante* expected value function by PBT and PBD and their contributions to her long-term and short-term objectives. Comparing each component of the value function under disclosure ($D=1$) versus no disclosure ($D=0$) reveals that: (1) The direct effect (first step) of PBD is a boost to the speculator's short-term objective ($\frac{1}{2}\gamma\tilde{\sigma}_v\tilde{\sigma}_e$) but there is no direct effect on the long-term objective; (2) PBD allows the speculator to optimally cut back on her PBT such that the effect of PBT on her short-term objective is reduced ($\frac{\gamma\beta}{2}\lambda^*\sigma_e^2>\frac{\gamma\beta}{2}\lambda_1\tilde{\sigma}_e{}^2$ since $\lambda_1<\lambda^*$ in equilibrium as shown in Corollary 1 of Pasquariello and Wang 2022); (3) PBD has two

[4] In particular, the speculator's *ex ante* expectation of W, i.e., given her date $t=-1$ information set, is given by

$$\begin{aligned}&\mathrm{E}\left[W|D=1,\delta\right]\\=&\mathrm{E}\left\{\mathrm{E}\left[W|s,D=1,\delta\right]\big|D=1,\delta\right\}\\=&\mathrm{E}\left\{\mathrm{E}\left[\gamma e(\tilde{v}-P_0)|s,D=1,\delta\right]\big|D=1,\delta\right\}+\mathrm{E}\left\{\mathrm{E}\left[\gamma e(P_1-\tilde{v})+(1-\gamma)x(v-P_1)\big|s,D=1,\delta\right]\big|D=1,\delta\right\},\end{aligned}$$

where, in the last line, the inner expectation in the first term drops because of the law of iterated expectations while the outer expectation in the second term drops because the expected value function conditional on the information set $(s,D=1,\delta)$ is independent of s.

opposing effects on the speculator's long-term objective: First, her signal gives away part of the speculator's private information about v; second, less PBT means less information leakage about v by the order flow; the net effect is a loss in long-term profit, as reflected by the aforementioned reduction in equilibrium price impact ($(1-\gamma)\lambda_1\sigma_z^2 < (1-\gamma)\lambda^*\sigma_z^2$).[5]

Proposition 3 shows that, after aggregating these effects, the speculator's value function is improved by PBD.

IA-VII Price Informativeness

We show that the equilibrium price is more informative in the presence of PBD than in the baseline economy of Section II.A of Pasquariello and Wang (2022), i.e., that P_1 of Proposition 2 (with both PBT and PBD; equation (8)) is more informative than P_1 of Proposition 1 (with PBT alone; equation (3)). Intuitively, to the extent that the signal conveys information regarding asset fundamentals, one would expect that a greater proportion of the speculator's private information will be incorporated into prices; this is indeed the case when a signal is optimally disclosed, as summarized in the following corollary.

Corollary IA-1 *Denote by* $\mathrm{Var}\left(v|P_1, D=0\right)$ *the portion of the speculator's private information that is not incorporated into prices in the baseline PBT equilibrium of Proposition 1, and by* $\mathrm{Var}\left(v|P_1, D=1, s(\delta)\right)$ *the portion of unincorporated information when the speculator sends a signal with weight* δ. *(1)* $\mathrm{Var}\left(v|P_1, D=0\right) = \frac{1}{2}\sigma_v^2$. *(2) In the second step, less than half of the speculator's remaining private fundamental information is impounded into the price:* $\mathrm{Var}\left(v|P_1, D=1, s(\delta)\right) > \frac{1}{2}\tilde{\sigma}_v^2$. *(3) If* δ *is such that the speculator ex ante prefers disclosure to no disclosure, then* $\mathrm{Var}\left(v|P_1, D=1, s(\delta)\right)$ *increases with* δ. *(4)* $\mathrm{Var}\left(v|P_1, D=1, s(\delta)\right) \le (<) \frac{1}{2}\sigma_v^2$ *if* δ *is such that the speculator ex ante (strictly) prefers disclosure to no disclosure, or equivalently, if* $\mathrm{E}\left[W|D=1,\delta\right] \ge (>) \mathrm{E}\left[W|D=0\right]$.

[5] Propositions 1 and 2 of Pasquariello and Wang (2022) imply that since the equilibrium price set by competitive dealership is semi-strong form efficient, the speculator's expected long-term profit consists entirely of noise traders' loss, and therefore depends solely on equilibrium price impact λ per given noise trading intensity (as in Kyle 1985; see also the discussion in Bhattacharyya and Nanda 2013). Using equations (IA-10) to (IA-14), the expression for equilibrium price impact with disclosure (λ_1 in equation (9)) can be rewritten as:

$$\lambda_1 = \frac{\tilde{\sigma}_v}{2\sqrt{(\frac{\beta}{2})^2\tilde{\sigma}_e^2 + \sigma_z^2}}.$$

Intuitively, the numerators and denominators of both the above expression and the one for price impact without disclosure (λ^* of equation (4) of Pasquariello and Wang 2022) reflect the amount of information and non-information-based trading, respectively. With PBD, there is less information-based trading as the signal compromises the speculator's informational advantage, improving the price impact and reducing the speculator's profit. However, with PBD, non-information-based trading (PBT) is also reduced; this leads to the opposite effects on price impact and long-term profit. The net effect is that the speculator loses long-term profit.

Proof. Define ϕ as the fraction of the speculator's private information that gets impounded into the price:

$$\text{Var}\left(v|P_1\right) = (1-\phi^2)\sigma_v^2.$$

Relax the assumption that v and e are independent and let ρ be their correlation coefficient—$\rho = \text{Corr}\left(v,e\right)$. In a baseline equilibrium, there is

$$\text{Var}\left(v|P_1\right) = \frac{\left(\frac{1}{2\lambda}\sigma_v + \frac{\beta}{2}\rho\sigma_e\right)^2}{\frac{1}{4\lambda^2}\sigma_v^2 + \frac{\beta^2}{4}\sigma_e^2 + \frac{\beta}{2\lambda}\rho\sigma_v\sigma_e + \sigma_z^2}.$$

Proof of Part 1 In a baseline game with $\rho = 0$, there is

$$\phi^2 = \frac{\frac{1}{4\lambda^2}\sigma_v^2}{\frac{1}{4\lambda^2}\sigma_v^2 + \frac{\beta^2}{4}\sigma_e^2 + \sigma_z^2} = \frac{1}{2}. \tag{IA-17}$$

The second equality follows from equation (4).

Proof of Part 2 After the revelation of a signal, define $\tilde{\rho}$ as the fraction of the speculator's remaining private fundamental information that gets impounded into the price, i.e.,

$$\text{Var}\left(v|P_1,s\right) = (1-\tilde{\phi}^2)\tilde{\sigma}_v^2. \tag{IA-18}$$

An expression of $\tilde{\phi}$ can be obtained by replacing σ_v^2 and σ_e^2 by $\tilde{\sigma}_v^2$ and $\tilde{\sigma}_e^2$, respectively, in equation (IA-17) and setting $\rho = -1$ (conditional on observing $s = \delta e + (1-\delta)v$, the MM can back out either e or v from knowing the other, implying a perfect correlation between the two). Some simplification leads to

$$1-\tilde{\phi}^2 = \frac{1}{\left(\sqrt{\frac{\beta^2}{4}\frac{\tilde{\sigma}_e^2}{\sigma_z^2}+1} - \frac{\beta}{2}\frac{\tilde{\sigma}_e}{\sigma_z}\right)^2 + 1}. \tag{IA-19}$$

Since

$$\sqrt{\frac{\beta^2}{4}\frac{\tilde{\sigma}_e^2}{\sigma_z^2}+1} - \frac{\beta}{2}\frac{\tilde{\sigma}_e}{\sigma_z} = \frac{1}{\sqrt{\frac{\beta^2}{4}\frac{\tilde{\sigma}_e^2}{\sigma_z^2}+1} + \frac{\beta}{2}\frac{\tilde{\sigma}_e}{\sigma_z}} < 1,$$

there is $1-\tilde{\phi}^2 > \frac{1}{2}$—the equilibrium price only incorporates less than half of the speculator's remaining private fundamental information.

Proof of Part 3 From equations (IA-18) and (IA-19), there is

$$\text{Var}\left(v|P_1,s\right) = \frac{\tilde{\sigma}_v^2}{\left(\sqrt{\frac{\beta^2}{4}\frac{\tilde{\sigma}_e^2}{\sigma_z^2}+1} - \frac{\beta}{2}\frac{\tilde{\sigma}_e}{\sigma_z}\right)^2 + 1}. \tag{IA-20}$$

Taking derivative and noting that $\tilde{\sigma}_v^2 = \sigma_v^2(1-\frac{\tilde{\sigma}_e^2}{\sigma_e^2})$, there is

$$\frac{\partial\,\text{Var}\left(v|P_1,s\right)}{\partial(\frac{\tilde{\sigma}_e}{\sigma_e})} = 2\sigma_v^2 \frac{\frac{\beta\sigma_e}{2\sigma_z} + \frac{\beta\sigma_e}{2\sigma_z}(1+\frac{2\beta^2\sigma_e^2}{4\sigma_z^2})\frac{\tilde{\sigma}_e^2}{\sigma_e^2} - 2\frac{\tilde{\sigma}_e}{\sigma_e}\sqrt{1+\frac{\beta^2\sigma_e^2}{4\sigma_z^2}\frac{\tilde{\sigma}_e^2}{\sigma_e^2}}(1+\frac{\beta^2\sigma_e^2}{4\sigma_z^2})}{\sqrt{1+\frac{\beta^2\sigma_e^2}{4\sigma_z^2}\frac{\tilde{\sigma}_e^2}{\sigma_e^2}}\left[\left(\sqrt{\frac{\beta^2}{4}\frac{\tilde{\sigma}_e^2}{\sigma_z^2}+1} - \frac{\beta}{2}\frac{\tilde{\sigma}_e}{\sigma_z}\right)^2+1\right]^2}. \tag{IA-21}$$

Note that since the denominator in the right hand side of the above expression is always positive, the numerator determines the sign of $\frac{\partial \operatorname{Var}\left(v|P_1,s\right)}{\partial(\frac{\tilde{\sigma}_e}{\sigma_e})}$. Let $N = \frac{\beta\sigma_e}{2\sigma_z} + \frac{\beta\sigma_e}{2\sigma_z}(1+\frac{2\beta^2\sigma_e^2}{4\sigma_z^2})\frac{\tilde{\sigma}_e^2}{\sigma_e^2} - 2\frac{\tilde{\sigma}_e}{\sigma_e}\sqrt{1+\frac{\beta^2\sigma_e^2}{4\sigma_z^2}\frac{\tilde{\sigma}_e^2}{\sigma_e^2}}(1+\frac{\beta^2\sigma_e^2}{4\sigma_z^2})$. Taking derivative again, there is

$$\begin{aligned}
\frac{\partial \mathrm{N}}{\partial(\frac{\tilde{\sigma}_e}{\sigma_e})} &= 2\frac{\beta\sigma_e}{2\sigma_z}(1+\frac{2\beta^2\sigma_e^2}{4\sigma_z^2})\frac{\tilde{\sigma}_e}{\sigma_e} - 2(1+\frac{\beta^2\sigma_e^2}{4\sigma_z^2})\frac{1+\frac{2\beta^2\sigma_e^2}{4\sigma_z^2}\frac{\tilde{\sigma}_e^2}{\sigma_e^2}}{\sqrt{1+\frac{\beta^2\sigma_e^2}{4\sigma_z^2}\frac{\tilde{\sigma}_e^2}{\sigma_e^2}}} \\
&< 2(1+\frac{\beta^2\sigma_e^2}{4\sigma_z^2})\Big[2\frac{\beta\sigma_e}{2\sigma_z}\frac{\tilde{\sigma}_e}{\sigma_e} - \frac{1+\frac{2\beta^2\sigma_e^2}{4\sigma_z^2}\frac{\tilde{\sigma}_e^2}{\sigma_e^2}}{\sqrt{1+\frac{\beta^2\sigma_e^2}{4\sigma_z^2}\frac{\tilde{\sigma}_e^2}{\sigma_e^2}}}\Big] \\
&= -\frac{2(1+\frac{\beta^2\sigma_e^2}{4\sigma_z^2})}{\sqrt{1+\frac{\beta^2\sigma_e^2}{4\sigma_z^2}\frac{\tilde{\sigma}_e^2}{\sigma_e^2}}}\Big(\sqrt{1+\frac{\beta^2\sigma_e^2}{4\sigma_z^2}\frac{\tilde{\sigma}_e^2}{\sigma_e^2}} - 2\frac{\beta\sigma_e}{2\sigma_z}\frac{\tilde{\sigma}_e}{\sigma_e}\Big)^2 \le 0
\end{aligned}$$

Hence $\frac{\partial \operatorname{Var}\left(v|P_1,s\right)}{\partial(\frac{\tilde{\sigma}_e}{\sigma_e})}$ is always decreasing in $\frac{\tilde{\sigma}_e}{\sigma_e}$. Consider next the sign of $\frac{\partial \operatorname{Var}\left(v|P_1,s\right)}{\partial(\frac{\tilde{\sigma}_e}{\sigma_e})}$ at $\delta = \hat{\delta}$, where $\hat{\delta}$ is defined in equation (A-16) in the Appendix of Pasquariello and Wang (2022). It suffices to consider the sign of N at $\delta = \hat{\delta}$, which takes the following expression:

$$N|_{\delta=\hat{\delta}} = -\frac{\beta\sigma_e}{2\sigma_z}\frac{1}{(2\beta^2\sigma_e^2+4\sigma_z^2)4\sigma_z^2}\left[4\sigma_z^2(\beta^2\sigma_e^2+4\sigma_z^2)\right] \le 0.$$

As shown in the proof of Corollary 1, a necessary condition for the speculator to benefit from a signal disclosure is that $\delta \le \hat{\delta}$. Since, $\frac{\tilde{\sigma}_e}{\sigma_e}$ monotonically decreases in δ, $\delta \le \hat{\delta}$ implies $\frac{\tilde{\sigma}_e}{\sigma_e} \ge \frac{\tilde{\sigma}_e}{\sigma_e}|_{\delta=\hat{\delta}}$. Furthermore, as $\frac{\partial \operatorname{Var}\left(v|P_1,s\right)}{\partial(\frac{\tilde{\sigma}_e}{\sigma_e})}$ decreases in $\frac{\tilde{\sigma}_e}{\sigma_e}$, there is $\frac{\partial \operatorname{Var}\left(v|P_1,s\right)}{\partial(\frac{\tilde{\sigma}_e}{\sigma_e})} \le \frac{\partial \operatorname{Var}\left(v|P_1,s\right)}{\partial(\frac{\tilde{\sigma}_e}{\sigma_e})}|_{\delta=\hat{\delta}} \le 0$. It then follows immediately that $\frac{\partial \operatorname{Var}\left(v|P_1,s\right)}{\partial\delta} = \frac{\partial \operatorname{Var}\left(v|P_1,s\right)}{\partial(\frac{\tilde{\sigma}_e}{\sigma_e})} \times \frac{\partial(\frac{\tilde{\sigma}_e}{\sigma_e})}{\partial\delta} \ge 0$, provided that $\delta \le \hat{\delta}$.

Proof of Part 4 Evaluating equation (IA-20) at $\delta = \hat{\delta}$ (as defined in equation (A-16)) leads to

$$\operatorname{Var}\left(v|P_1,s\right)\big|_{\delta=\hat{\delta}} = \frac{1}{2}\sigma_v^2.$$

From the proof of Corollary 1, for the speculator to be better-off from disclosure, it must be that $\delta < \hat{\delta}$. Under the same condition, $\operatorname{Var}\left(v|P_1,s\right)$ also increases in δ, as shown in Part 3 above. This implies $\operatorname{Var}\left(v|P_1,s\right) < \frac{1}{2}\sigma_v^2$ when the signal is voluntarily disclosed. ■

Corollary IA-1 implies that, in the presence of PBD, the equilibrium price incorporates more of the speculator's private information, despite her more cautious trading activity (and less informative order flow). In Kyle (1985), there is an equivalence between the volatility of price and the amount of private information being impounded.[6] This equivalence is preserved under both the

[6] To see this, note that $\sigma_v^2 = \operatorname{Var}\left(\mathrm{E}\left[v|P_1,D\right]\right) + \mathrm{E}\left[\operatorname{Var}\left(v|P_1,D\right)\right]$, where we can drop the outer expectation because $\operatorname{Var}\left(v|P_1,D\right)$ is constant across all realization of P_1 and s, and $\mathrm{E}\left[v|P_1,D\right] = P_1$ because the equilibrium price is semi-strong form efficient.

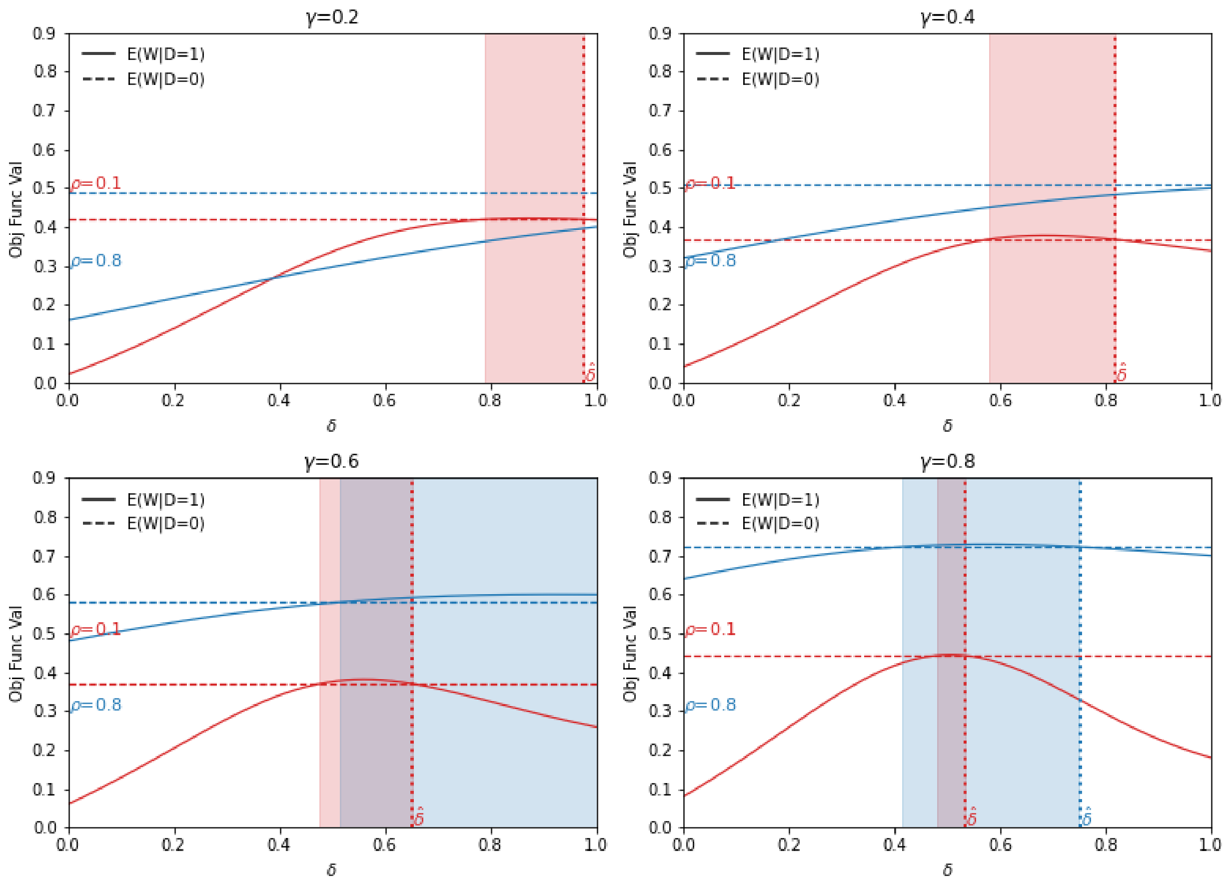
PBT and PBD equilibriums:.

$$\mathrm{Var}\left(P_1|D\right) = \sigma_v^2 - \mathrm{Var}\left(v|P_1, D\right),$$

where $\sigma_v^2 - \mathrm{Var}\left(v|P_1, D\right)$ measures the amount of information incorporated into the price. Therefore optimal PBD implies both greater price informativeness and greater price volatility.

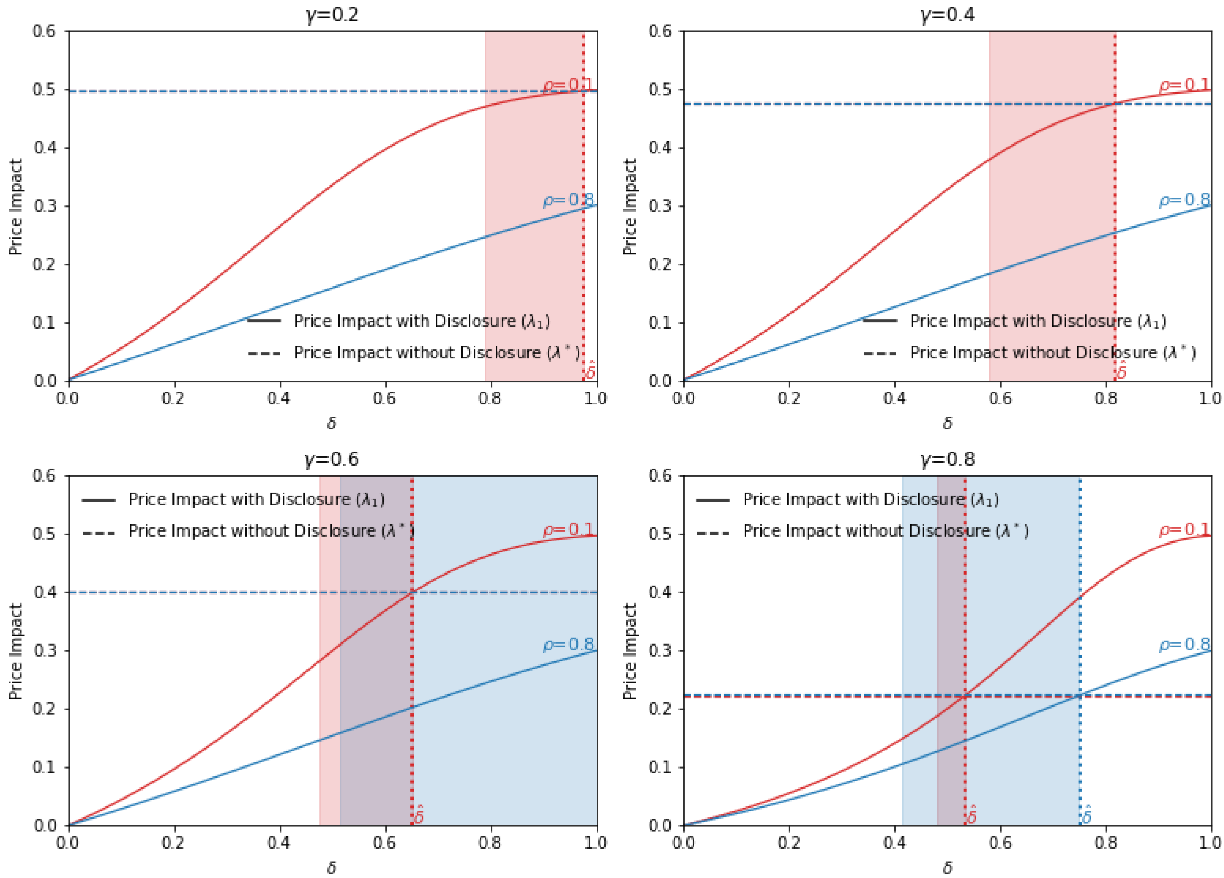
Additional Figures and Tables

Figure IA-1: The Speculator's Objective Function under Positive ρ



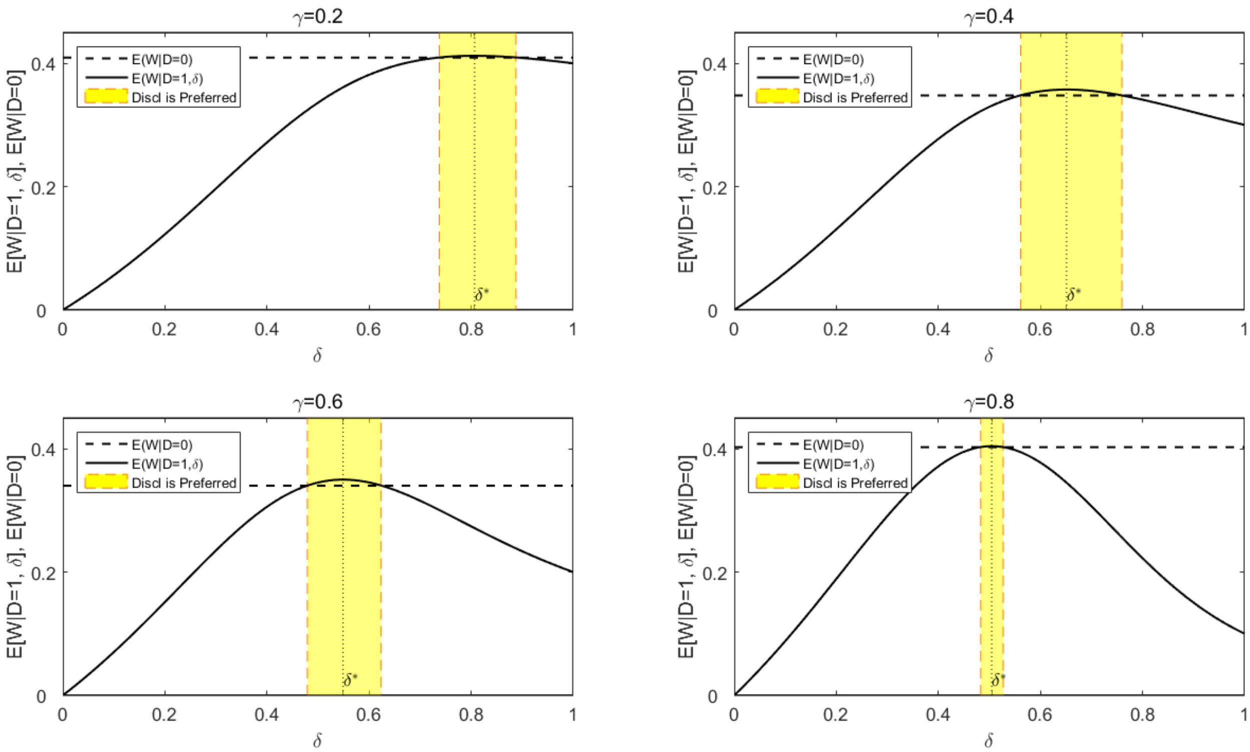
This figure plots, for four different values of γ, the speculator's *ex ante* expected value function as a function of the speculator's signal weight δ, when $\sigma_v^2 = 1$, $\sigma_e^2 = 1$, and $\sigma_z^2 = 1$. In each graph, the solid line and the horizontal dashed line represent the speculator's *ex ante* expected value function in the signaling equilibrium ($\mathrm{E}\left[W|D=1,\delta\right]$) and baseline equilibrium ($\mathrm{E}\left[W|D=0\right]$), respectively. The vertical dotted line marks the uninformative signal weight $\hat{\delta}$, and the shaded area marks the range where disclosure is preferred to no disclosure. Equilibria under $\rho = 0.1$ and $\rho = 0.8$ are represented by the colors red and blue, respectively.

Figure IA-2: Price Impact under Positive ρ



This figure plots, for four different values of γ, the equilibrium price impact as a function of the speculator's signal weight δ, when $\sigma_v^2 = 1$, $\sigma_e^2 = 1$, and $\sigma_z^2 = 1$. In each graph, the solid line and the horizontal dashed line represent the price impact in the signaling equilibrium (λ_1) and baseline equilibrium (λ^*), respectively. The vertical dotted line marks the uninformative signal weight $\hat{\delta}$, and the shaded area marks the range where disclosure is preferred to no disclosure. Equilibria under $\rho = 0.1$ and $\rho = 0.8$ are represented by the colors red and blue, respectively.

Figure IA-3: Gains from PBT and PBD



This figure plots, for four different values of γ, the speculator's *ex ante* expected value function as a function of the speculator's signal weight δ, when $\sigma_v^2 = 1$, $\sigma_e^2 = 1$, and $\sigma_z^2 = 1$. In each graph, the solid line and the horizontal dashed line represent the speculator's *ex ante* expected value function in the signaling equilibrium ($\mathrm{E}\left[W|D=1,\delta\right]$) and baseline equilibrium ($\mathrm{E}\left[W|D=0\right]$), respectively. The vertical dotted line marks the optimal signal weight δ^*, and the shaded area marks the range where disclosure is preferred to no disclosure.

Table IA-1: Decomposition of Speculator's *Ex Ante* Expected Value Function

This table decomposes the speculator's *ex ante* expected value function of Eq. (IA-16) by the contribution of PBT and PBD to her short-term and long-term objectives in stages 1 and 2 of the Perfect Bayesian game described in Section IA-VI.

	Actions	**Short-term Objective** D=0	**Short-term Objective** D=1	**Long-term Objective** D=0	**Long-term Objective** D=1
Stage 1	PBD	0	$\frac{1}{2}\gamma\tilde{\sigma}_v\tilde{\sigma}_e$	0	0
Stage 2	PBT	$\frac{\gamma\beta}{2}\lambda^*\sigma_e^2$	$\frac{\gamma\beta}{2}\lambda_1\tilde{\sigma}_e{}^2$	$(1-\gamma)\lambda^*\sigma_z^2$	$(1-\gamma)\lambda_1\sigma_z^2$

Table IA-2: Strategic Disclosure and Short-termism (First Principal Component)

We report Table 6 with $\hat{\gamma}$ measured as the first principal component of individual short-termismism proxies.

	1	2	3	4	5	6	7	8
LHS Var.	$\text{DISCL}_{i,j,t}$							
	$\hat{\gamma}$ at firm-fund-quarter level				*$\hat{\gamma}$ at fund-quarter level*			
$\hat{\gamma}$	-0.004	-0.002	-0.006*	-0.003	0.078***	0.079***	0.077***	0.077***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)
$\text{SUIT}_{i,t}$		-0.026***	-0.006**	-0.012***		0.037***	0.021***	0.017***
		(0.003)	(0.003)	(0.003)		(0.005)	(0.004)	(0.004)
$\hat{\gamma}\times\text{SUIT}_{i,t}$		0.007***	0.003	0.005*		0.034***	0.020***	0.017***
		(0.003)	(0.002)	(0.003)		(0.004)	(0.003)	(0.003)
$\text{DISCL}_{-i,j,t}$	0.146***	0.147***	0.150***	0.146***	0.189***	0.185***	0.186***	0.185***
	(0.005)	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)	(0.006)	(0.005)
$\text{DISCL}_{i,-j,t}$	0.052***	0.049***	0.056***	0.051***	0.048***	0.040***	0.040***	0.035***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)	(0.006)	(0.005)
Observations	109,705	109,705	99,444	109,705	133,398	132,802	120,328	132,777
R-squared	0.040	0.041	0.042	0.040	0.046	0.047	0.046	0.045
$\text{SUIT}_{i,t}=$		$1/\text{SIZE}_{i,t}$	$\text{INACCU}_{i,t}$	$\text{STDEV\_RET}_{i,t}$		$1/\text{SIZE}_{i,t}$	$\text{INACCU}_{i,t}$	$\text{STDEV\_RET}_{i,t}$

Table IA-3: Strategic Disclosure and Short-termism (Flow-Performance Sensitivity)

We report Table 6 with $\hat{\gamma}$ measured as flow-performance sensitivity.

	1	2	3	4	5	6	7	8
LHS Var.	$\text{DISCL}_{i,j,t}$							
	$\hat{\gamma}$ at firm-fund-quarter level				*$\hat{\gamma}$ at fund-quarter level*			
$\hat{\gamma}$	0.002	0.004*	0.004	0.003	0.368***	0.346***	0.364***	0.366***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.006)	(0.006)	(0.006)	(0.006)
$\text{SUIT}_{i,t}$		-0.023***	-0.006**	-0.012***		-0.037***	-0.018***	-0.029***
		(0.003)	(0.003)	(0.003)		(0.003)	(0.003)	(0.003)
$\hat{\gamma} \times \text{SUIT}_{i,t}$		0.006	0.003	0.001		0.084***	0.033***	0.037***
		(0.004)	(0.003)	(0.003)		(0.003)	(0.004)	(0.004)
$\text{DISCL}_{-i,j,t}$	0.146***	0.146***	0.149***	0.146***	0.170***	0.169***	0.173***	0.170***
	(0.005)	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)	(0.006)	(0.005)
$\text{DISCL}_{i,-j,t}$	0.054***	0.050***	0.057***	0.053***	0.054***	0.050***	0.058***	0.051***
	(0.005)	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)	(0.006)	(0.005)
Observations	116,706	116,373	105,634	116,349	137,718	137,358	124,621	137,333
R-squared	0.040	0.041	0.042	0.040	0.180	0.193	0.179	0.182
$\text{SUIT}_{i,t} =$		$1/\text{SIZE}_{i,t}$	$\text{INACCU}_{i,t}$	$\text{STDEV\_RET}_{i,t}$		$1/\text{SIZE}_{i,t}$	$\text{INACCU}_{i,t}$	$\text{STDEV\_RET}_{i,t}$

Table IA-4: Strategic Disclosure and Short-termism (Position Pivotalness)

We report Table 6 with $\hat{\gamma}$ measured as position pivotalness.

	1	2	3	4	5	6	7	8
LHS Var.	$DISCL_{i,j,t}$							
	$\hat{\gamma}$ at firm-fund-quarter level				*$\hat{\gamma}$ at fund-quarter level*			
$\hat{\gamma}$	0.308***	0.293***	0.296***	0.305***	0.106***	0.113***	0.105***	0.107***
	(0.006)	(0.006)	(0.007)	(0.006)	(0.004)	(0.004)	(0.004)	(0.004)
$SUIT_{i,t}$		-0.014***	-0.006**	-0.008***		0.069***	0.030***	0.029***
		(0.003)	(0.003)	(0.003)		(0.006)	(0.004)	(0.004)
$\hat{\gamma} \times SUIT_{i,t}$		0.084***	0.012***	0.029***		0.073***	0.030***	0.030***
		(0.005)	(0.004)	(0.005)		(0.005)	(0.004)	(0.003)
$DISCL_{-i,j,t}$	0.158***	0.158***	0.160***	0.158***	0.200***	0.196***	0.197***	0.197***
	(0.005)	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)	(0.006)	(0.005)
$DISCL_{i,-j,t}$	0.042***	0.042***	0.046***	0.041***	0.042***	0.039***	0.034***	0.030***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)
Observations	144,185	144,185	130,247	144,159	144,808	144,185	130,661	144,159
R-squared	0.142	0.153	0.136	0.143	0.050	0.056	0.050	0.050
$SUIT_{i,t} =$		$1/SIZE_{i,t}$	$INACCU_{i,t}$	$STDEV\_RET_{i,t}$		$1/SIZE_{i,t}$	$INACCU_{i,t}$	$STDEV\_RET_{i,t}$

Table IA-5: Strategic Disclosure and Short-termism (Churn Rate)

We report Table 6 with $\hat{\gamma}$ measured as portfolio churn rate.

	1	2	3	4	5	6	7	8
LHS Var.				$\text{DISCL}_{i,j,t}$				
	$\hat{\gamma}$ at firm-fund-quarter level				*$\hat{\gamma}$ at fund-quarter level*			
$\hat{\gamma}$	0.038***	0.039***	0.036***	0.039***	0.094***	0.094***	0.092***	0.093***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.005)	(0.004)	(0.005)	(0.004)
$\text{SUIT}_{i,t}$		-0.017***	-0.002	-0.009***		0.040***	0.020***	0.018***
		(0.003)	(0.003)	(0.003)		(0.006)	(0.003)	(0.004)
$\hat{\gamma} \times \text{SUIT}_{i,t}$		0.008***	0.006**	0.002		0.027***	0.015***	0.011***
		(0.003)	(0.003)	(0.003)		(0.005)	(0.004)	(0.004)
$\text{DISCL}_{-i,j,t}$	0.169***	0.169***	0.172***	0.169***	0.190***	0.186***	0.187***	0.186***
	(0.005)	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)	(0.006)	(0.005)
$\text{DISCL}_{i,-j,t}$	0.048***	0.046***	0.053***	0.047***	0.049***	0.041***	0.040***	0.036***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)
Observations	139,562	139,460	126,251	139,434	145,435	144,793	131,199	144,767
R-squared	0.043	0.044	0.044	0.043	0.046	0.046	0.045	0.044
$\text{SUIT}_{i,t} =$		$1/\text{SIZE}_{i,t}$	$\text{INACCU}_{i,t}$	$\text{STDEV\_RET}_{i,t}$		$1/\text{SIZE}_{i,t}$	$\text{INACCU}_{i,t}$	$\text{STDEV\_RET}_{i,t}$

Table IA-6: Strategic Disclosure and Short-termism (Turnover Rate)

We report Table 6 with $\hat{\gamma}$ measured as portfolio turnover rate.

	1	2	3	4	5	6	7	8
LHS Var.	$DISCL_{i,j,t}$							
	$\hat{\gamma}$ at firm-fund-quarter level				*$\hat{\gamma}$ at fund-quarter level*			
$\hat{\gamma}$	0.000	0.000	-0.028	0.001	0.005	0.005	0.006	0.004
	(0.000)	(0.002)	(0.038)	(0.001)	(0.004)	(0.004)	(0.004)	(0.004)
$SUIT_{i,t}$		-0.013***	0.001	-0.004		0.039***	0.018***	0.016***
		(0.003)	(0.003)	(0.003)		(0.006)	(0.003)	(0.004)
$\hat{\gamma} \times SUIT_{i,t}$		-0.000	0.006	0.001		-0.003	0.006*	-0.000
		(0.004)	(0.008)	(0.001)		(0.004)	(0.004)	(0.003)
$DISCL_{-i,j,t}$	0.168***	0.168***	0.171***	0.168***	0.189***	0.185***	0.186***	0.186***
	(0.005)	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)	(0.006)	(0.005)
$DISCL_{i,-j,t}$	0.046***	0.044***	0.051***	0.046***	0.051***	0.042***	0.042***	0.037***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)
Observations	139,468	139,366	126,169	139,341	145,435	144,793	131,199	144,767
R-squared	0.041	0.042	0.043	0.041	0.039	0.039	0.038	0.038
$SUIT_{i,t} =$		$1/SIZE_{i,t}$	$INACCU_{i,t}$	$STDEV\_RET_{i,t}$		$1/SIZE_{i,t}$	$INACCU_{i,t}$	$STDEV\_RET_{i,t}$

Table IA-7: Strategic Disclosure and Short-termism (Inverse Holding Period)

We report Table 6 with $\hat{\gamma}$ measured as inverse stock holding period.

	1	2	3	4	5	6	7	8
LHS Var.	$\text{DISCL}_{i,j,t}$							
	$\hat{\gamma}$ at firm-fund-quarter level				*$\hat{\gamma}$ at fund-quarter level*			
$\hat{\gamma}$	-0.012***	-0.011***	-0.013***	-0.012***	0.035***	0.035***	0.033***	0.035***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.004)	(0.003)
$\text{SUIT}_{i,t}$		-0.021***	-0.003	-0.009***		0.033***	0.018***	0.016***
		(0.003)	(0.003)	(0.003)		(0.005)	(0.003)	(0.004)
$\hat{\gamma} \times \text{SUIT}_{i,t}$		0.000	0.002	0.001		0.017***	0.010***	0.011***
		(0.002)	(0.002)	(0.002)		(0.004)	(0.003)	(0.003)
$\text{DISCL}_{-i,j,t}$	0.153***	0.154***	0.157***	0.154***	0.184***	0.180***	0.181***	0.180***
	(0.005)	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)	(0.006)	(0.005)
$\text{DISCL}_{i,-j,t}$	0.050***	0.047***	0.054***	0.049***	0.051***	0.042***	0.042***	0.038***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)
Observations	133,996	133,641	121,462	133,641	144,156	143,529	130,070	143,503
R-squared	0.040	0.040	0.041	0.040	0.040	0.039	0.039	0.038
$\text{SUIT}_{i,t} =$		$1/\text{SIZE}_{i,t}$	$\text{INACCU}_{i,t}$	$\text{STDEV\_RET}_{i,t}$		$1/\text{SIZE}_{i,t}$	$\text{INACCU}_{i,t}$	$\text{STDEV\_RET}_{i,t}$

Table IA-8: PBT, PBD and Market Liquidity (First Principal Component)

We report Table 7 with $\hat{\gamma}$ measured as the first principal component of individual short-termism proxies.

	1	2	3	4	5
LHS Var.			ΔAMIHUD		
$\hat{\gamma}$			0.007	0.007	0.007
			(0.006)	(0.006)	(0.006)
ΔDISCL	-0.006**		-0.006***		-0.006***
	(0.002)		(0.002)		(0.002)
ΔDISCL × $\hat{\gamma}$			-0.003		-0.003
			(0.003)		(0.003)
ΔPCTTRD		0.017***		-0.008	-0.008
		(0.004)		(0.005)	(0.005)
ΔPCTTRD × $\hat{\gamma}$				-0.002	-0.002
				(0.006)	(0.006)
Observations	41,901	41,901	35,232	35,232	35,232
R-squared	0.226	0.227	0.248	0.248	0.248

	6	7	8	9	10	11	12	13	14
LHS Var.					ΔAMIHUD				
$\hat{\gamma}$	-0.015***	0.004	0.003	-0.015***	0.004	0.003	-0.015***	0.004	0.003
	(0.004)	(0.006)	(0.006)	(0.004)	(0.006)	(0.006)	(0.004)	(0.006)	(0.006)
SUIT	0.095***	0.022***	0.029***	0.096***	0.022***	0.028***	0.096***	0.022***	0.028***
	(0.011)	(0.007)	(0.007)	(0.011)	(0.007)	(0.007)	(0.011)	(0.007)	(0.007)
$\hat{\gamma}$ × SUIT	0.014	0.008	-0.004	0.014	0.008	-0.005	0.014	0.008	-0.004
	(0.009)	(0.007)	(0.008)	(0.009)	(0.007)	(0.008)	(0.009)	(0.007)	(0.008)
ΔDISCL	-0.019	-0.006**	-0.005*				-0.019	-0.006**	-0.005*
	(0.013)	(0.002)	(0.003)				(0.013)	(0.002)	(0.003)
ΔDISCL×$\hat{\gamma}$	-0.000	-0.003	-0.004				-0.000	-0.003	-0.004
	(0.009)	(0.003)	(0.004)				(0.009)	(0.003)	(0.004)
ΔDISCL×Suit	-0.029	-0.001	-0.003				-0.028	-0.001	-0.002
	(0.023)	(0.003)	(0.004)				(0.022)	(0.003)	(0.004)
ΔDISCL×$\hat{\gamma}$ × SUIT	-0.003	-0.002	-0.009				-0.003	-0.003	-0.009
	(0.016)	(0.004)	(0.006)				(0.016)	(0.004)	(0.006)
ΔPCTTRD				-0.009	-0.008	-0.009**	-0.009	-0.008	-0.009*
				(0.006)	(0.005)	(0.005)	(0.006)	(0.005)	(0.005)
ΔPCTTRD × $\hat{\gamma}$				-0.001	-0.003	-0.003	-0.001	-0.003	-0.003
				(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
ΔPCTTRD × SUIT				-0.007	0.006	0.007	-0.006	0.006	0.007
				(0.018)	(0.007)	(0.007)	(0.018)	(0.007)	(0.007)
ΔPCTTRD × $\hat{\gamma}$ × SUIT				-0.001	-0.000	0.003	-0.001	-0.000	0.003
				(0.014)	(0.009)	(0.008)	(0.014)	(0.009)	(0.008)
Observations	35,232	35,232	35,232	35,232	35,232	35,232	35,232	35,232	35,232
R-squared	0.257	0.248	0.249	0.257	0.248	0.249	0.257	0.249	0.249
$SUIT_{i,t}$ =	$1/SIZE_{i,t}$	$INACCU_{i,t}$	$STDEV\_RET_{i,t}$	$1/SIZE_{i,t}$	$INACCU_{i,t}$	$STDEV\_RET_{i,t}$	$1/SIZE_{i,t}$	$INACCU_{i,t}$	$STDEV\_RET_{i,t}$

Table IA-9: PBT, PBD and Market Liquidity (Flow-Performance Sensitivity)

We report Table 7 with $\hat{\gamma}$ measured as flow-performance sensitivity.

	1	2	3	4	5
LHS Var.			ΔAMIHUD		
$\hat{\gamma}$			-0.008***	-0.008***	-0.008***
			(0.003)	(0.003)	(0.003)
ΔDISCL	-0.006**		-0.007***		-0.007***
	(0.002)		(0.002)		(0.002)
ΔDISCL $\times\,\hat{\gamma}$			0.002**		0.002**
			(0.001)		(0.001)
ΔPCTTRD		0.017***		-0.008	-0.008
		(0.004)		(0.005)	(0.005)
ΔPCTTRD $\times\,\hat{\gamma}$				-0.001	-0.001
				(0.003)	(0.003)
Observations	41,901	41,901	35,924	35,924	35,924
R-squared	0.226	0.227	0.246	0.246	0.246

	6	7	8	9	10	11	12	13	14
LHS Var.					ΔAMIHUD				
$\hat{\gamma}$	-0.001	-0.007**	-0.013***	-0.001	-0.007**	-0.013***	-0.000	-0.007**	-0.013***
	(0.007)	(0.003)	(0.004)	(0.007)	(0.003)	(0.004)	(0.007)	(0.003)	(0.004)
SUIT	0.101***	0.026***	0.029***	0.102***	0.026***	0.029***	0.101***	0.026***	0.029***
	(0.010)	(0.007)	(0.007)	(0.010)	(0.007)	(0.007)	(0.010)	(0.007)	(0.007)
$\hat{\gamma}\times$ SUIT	0.006	0.002	-0.016**	0.006	0.002	-0.016**	0.007	0.002	-0.016**
	(0.015)	(0.006)	(0.006)	(0.015)	(0.006)	(0.006)	(0.015)	(0.006)	(0.007)
ΔDISCL	-0.031**	-0.008***	-0.009***				-0.030**	-0.008***	-0.009***
	(0.014)	(0.003)	(0.003)				(0.014)	(0.003)	(0.003)
ΔDISCL$\times\hat{\gamma}$	0.020*	0.002*	0.005**				0.020*	0.002*	0.005**
	(0.011)	(0.001)	(0.002)				(0.011)	(0.001)	(0.002)
ΔDISCL$\times$SUIT	-0.049**	-0.004	-0.006				-0.048**	-0.004	-0.005
	(0.024)	(0.004)	(0.004)				(0.024)	(0.004)	(0.004)
ΔDISCL$\times\hat{\gamma}\times$ SUIT	0.030*	0.001	0.005**				0.030*	0.001	0.005**
	(0.017)	(0.002)	(0.003)				(0.017)	(0.002)	(0.003)
ΔPCTTRD				-0.010**	-0.008*	-0.009**	-0.010*	-0.008*	-0.009**
				(0.005)	(0.005)	(0.004)	(0.005)	(0.005)	(0.004)
ΔPCTTRD $\times\,\hat{\gamma}$				-0.003	-0.001	-0.002	-0.003	-0.001	-0.002
				(0.008)	(0.004)	(0.004)	(0.008)	(0.004)	(0.004)
ΔPCTTRD $\times$ SUIT				-0.009	0.005	0.007	-0.008	0.005	0.007
				(0.015)	(0.007)	(0.006)	(0.015)	(0.007)	(0.006)
ΔPCTTRD $\times\,\hat{\gamma}\times$ SUIT				-0.003	0.002	-0.003	-0.003	0.003	-0.003
				(0.020)	(0.007)	(0.006)	(0.020)	(0.007)	(0.006)
Observations	35,924	35,924	35,924	35,924	35,924	35,924	35,924	35,924	35,924
R-squared	0.257	0.247	0.247	0.256	0.247	0.247	0.257	0.247	0.247
$SUIT_{i,t}$ =	$1/SIZE_{i,t}$	$INACCU_{i,t}$	$STDEV\_RET_{i,t}$	$1/SIZE_{i,t}$	$INACCU_{i,t}$	$STDEV\_RET_{i,t}$	$1/SIZE_{i,t}$	$INACCU_{i,t}$	$STDEV\_RET_{i,t}$

Table IA-10: PBT, PBD and Market Liquidity (Position Pivotalness)

We report Table 7 with $\hat{\gamma}$ measured as position pivotalness.

	1	2	3	4	5
LHS Var.			ΔAMIHUD		
$\hat{\gamma}$			0.021***	0.021***	0.021***
			(0.007)	(0.007)	(0.007)
ΔDISCL	-0.006**		-0.008***		-0.008***
	(0.002)		(0.003)		(0.003)
ΔDISCL $\times\hat{\gamma}$			-0.016*		-0.016*
			(0.009)		(0.009)
ΔPCTTRD		0.017***		0.019***	0.019***
		(0.004)		(0.006)	(0.006)
ΔPCTTRD $\times\hat{\gamma}$				0.018	0.018
				(0.017)	(0.017)
Observations	41,901	41,901	39,996	39,996	39,996
R-squared	0.226	0.227	0.225	0.225	0.225

	6	7	8	9	10	11	12	13	14
LHS Var.					ΔAMIHUD				
$\hat{\gamma}$	-0.006	0.016**	0.014**	-0.006	0.016**	0.014**	-0.006	0.016**	0.014**
	(0.004)	(0.006)	(0.006)	(0.004)	(0.006)	(0.006)	(0.004)	(0.006)	(0.006)
SUIT	0.096***	0.026***	0.030***	0.096***	0.026***	0.029***	0.095***	0.026***	0.029***
	(0.009)	(0.007)	(0.006)	(0.009)	(0.007)	(0.006)	(0.009)	(0.007)	(0.006)
$\hat{\gamma}\times$ SUIT	0.020***	0.009	0.025***	0.020***	0.009	0.022***	0.021***	0.009	0.023***
	(0.007)	(0.007)	(0.008)	(0.007)	(0.007)	(0.008)	(0.007)	(0.007)	(0.008)
ΔDISCL	-0.021	-0.008***	-0.009***				-0.022	-0.008***	-0.009***
	(0.014)	(0.003)	(0.003)				(0.014)	(0.003)	(0.003)
ΔDISCL$\times\hat{\gamma}$	-0.018***	-0.015*	-0.017**				-0.018***	-0.015*	-0.018**
	(0.005)	(0.008)	(0.009)				(0.006)	(0.008)	(0.009)
ΔDISCL$\times$SUIT	-0.034	-0.002	-0.006				-0.036	-0.002	-0.006
	(0.023)	(0.003)	(0.004)				(0.024)	(0.003)	(0.004)
ΔDISCL$\times\hat{\gamma}\times$ SUIT	-0.038***	-0.005	-0.016**				-0.038***	-0.005	-0.017**
	(0.009)	(0.005)	(0.008)				(0.009)	(0.005)	(0.008)
ΔPCTTRD				0.020***	0.020***	0.013***	0.020***	0.020***	0.013***
				(0.005)	(0.006)	(0.005)	(0.005)	(0.006)	(0.005)
ΔPCTTRD $\times\hat{\gamma}$				0.021*	0.019	0.001	0.021*	0.019	0.001
				(0.012)	(0.017)	(0.014)	(0.012)	(0.017)	(0.014)
ΔPCTTRD $\times$ SUIT				0.037***	0.007	0.022***	0.037***	0.007	0.023***
				(0.014)	(0.007)	(0.007)	(0.014)	(0.007)	(0.007)
ΔPCTTRD $\times\hat{\gamma}\times$ SUIT				-0.011	-0.003	0.039*	-0.011	-0.003	0.041**
				(0.015)	(0.019)	(0.021)	(0.015)	(0.019)	(0.020)
Observations	39,996	39,996	39,996	39,996	39,996	39,996	39,996	39,996	39,996
R-squared	0.238	0.226	0.227	0.238	0.226	0.227	0.240	0.226	0.228
$SUIT_{i,t}=$	$1/SIZE_{i,t}$	$INACCU_{i,t}$	$STDEV\_RET_{i,t}$	$1/SIZE_{i,t}$	$INACCU_{i,t}$	$STDEV\_RET_{i,t}$	$1/SIZE_{i,t}$	$INACCU_{i,t}$	$STDEV\_RET_{i,t}$

Table IA-11: PBT, PBD and Market Liquidity (Churn Rate)

We report Table 7 with $\hat{\gamma}$ measured as portfolio churn rate.

	1	2	3	4	5
LHS Var.			ΔAMIHUD		
$\hat{\gamma}$			0.010*	0.009	0.009*
			(0.006)	(0.006)	(0.006)
ΔDISCL	-0.006**		-0.006**		-0.006**
	(0.002)		(0.002)		(0.002)
ΔDISCL $\times\, \hat{\gamma}$			-0.005		-0.005
			(0.003)		(0.003)
ΔPCTTRD		0.017***		0.011**	0.011**
		(0.004)		(0.005)	(0.005)
ΔPCTTRD $\times\, \hat{\gamma}$				0.014***	0.014***
				(0.005)	(0.005)
Observations	41,901	41,901	39,363	39,363	39,363
R-squared	0.226	0.227	0.225	0.225	0.225

	6	7	8	9	10	11	12	13	14
LHS Var.					ΔAMIHUD				
$\hat{\gamma}$	-0.021***	0.005	0.003	-0.021***	0.004	0.002	-0.021***	0.004	0.002
	(0.005)	(0.006)	(0.005)	(0.005)	(0.006)	(0.005)	(0.005)	(0.006)	(0.005)
SUIT	0.100***	0.025***	0.031***	0.100***	0.025***	0.030***	0.099***	0.025***	0.031***
	(0.009)	(0.007)	(0.006)	(0.009)	(0.007)	(0.006)	(0.009)	(0.007)	(0.006)
$\hat{\gamma} \times$ SUIT	0.024***	0.012*	-0.002	0.024***	0.012*	-0.003	0.024***	0.012*	-0.002
	(0.009)	(0.007)	(0.007)	(0.009)	(0.007)	(0.007)	(0.009)	(0.007)	(0.007)
ΔDISCL	-0.019	-0.006**	-0.005				-0.020	-0.006**	-0.005
	(0.013)	(0.002)	(0.003)				(0.013)	(0.002)	(0.003)
ΔDISCL$\times \hat{\gamma}$	-0.004	-0.004	-0.006*				-0.005	-0.005	-0.006
	(0.011)	(0.003)	(0.004)				(0.011)	(0.003)	(0.004)
ΔDISCL$\times$SUIT	-0.031	-0.002	-0.004				-0.032	-0.001	-0.004
	(0.023)	(0.003)	(0.004)				(0.023)	(0.003)	(0.004)
ΔDISCL$\times \hat{\gamma} \times$ SUIT	-0.010	-0.001	-0.014**				-0.011	-0.002	-0.013**
	(0.020)	(0.005)	(0.006)				(0.020)	(0.005)	(0.005)
ΔPCTTRD				0.012*	0.011**	0.009**	0.012*	0.011**	0.009**
				(0.006)	(0.005)	(0.004)	(0.006)	(0.005)	(0.004)
ΔPCTTRD $\times\, \hat{\gamma}$				0.007	0.014***	0.011**	0.007	0.014***	0.011**
				(0.004)	(0.005)	(0.005)	(0.004)	(0.005)	(0.005)
ΔPCTTRD $\times$ SUIT				0.030*	0.009	0.013**	0.030*	0.009	0.013**
				(0.017)	(0.006)	(0.007)	(0.017)	(0.006)	(0.007)
ΔPCTTRD $\times\, \hat{\gamma} \times$ SUIT				0.013	-0.004	0.009	0.013	-0.004	0.009
				(0.014)	(0.008)	(0.007)	(0.014)	(0.008)	(0.007)
Observations	39,363	39,363	39,363	39,363	39,363	39,363	39,363	39,363	39,363
R-squared	0.236	0.225	0.225	0.237	0.226	0.226	0.238	0.226	0.226
$\text{SUIT}_{i,t} =$	$1/\text{SIZE}_{i,t}$	$\text{INACCU}_{i,t}$	$\text{STDEV\_RET}_{i,t}$	$1/\text{SIZE}_{i,t}$	$\text{INACCU}_{i,t}$	$\text{STDEV\_RET}_{i,t}$	$1/\text{SIZE}_{i,t}$	$\text{INACCU}_{i,t}$	$\text{STDEV\_RET}_{i,t}$

Table IA-12: PBT, PBD and Market Liquidity (Turnover Rate)

We report Table 7 with $\hat{\gamma}$ measured as portfolio turnover rate.

	1	2	3	4	5
LHS Var.			ΔAMIHUD		
$\hat{\gamma}$			-0.007	-0.007	-0.007
			(0.005)	(0.005)	(0.005)
ΔDISCL	-0.006**		-0.005**		-0.005**
	(0.002)		(0.002)		(0.002)
ΔDISCL × $\hat{\gamma}$			-0.002		-0.002
			(0.003)		(0.003)
ΔPCTTRD		0.017***		0.017***	0.017***
		(0.004)		(0.005)	(0.005)
ΔPCTTRD × $\hat{\gamma}$				-0.005	-0.005
				(0.005)	(0.005)
Observations	41,901	41,901	39,363	39,363	39,363
R-squared	0.226	0.227	0.225	0.225	0.225

	6	7	8	9	10	11	12	13	14
LHS Var.					ΔAMIHUD				
$\hat{\gamma}$	-0.005	-0.007*	-0.005	-0.005*	-0.008*	-0.006	-0.005*	-0.008*	-0.006
	(0.003)	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)
SUIT	0.102***	0.027***	0.034***	0.101***	0.027***	0.034***	0.101***	0.027***	0.034***
	(0.008)	(0.007)	(0.006)	(0.008)	(0.007)	(0.006)	(0.008)	(0.007)	(0.006)
$\hat{\gamma}$ × SUIT	-0.007	-0.002	-0.027***	-0.007	-0.002	-0.028***	-0.007	-0.002	-0.028***
	(0.009)	(0.007)	(0.007)	(0.009)	(0.007)	(0.007)	(0.009)	(0.007)	(0.007)
ΔDISCL	-0.021	-0.005**	-0.006*				-0.023*	-0.005**	-0.006*
	(0.013)	(0.002)	(0.003)				(0.013)	(0.002)	(0.003)
ΔDISCL×$\hat{\gamma}$	-0.002	-0.002	-0.001				-0.002	-0.002	-0.001
	(0.009)	(0.003)	(0.004)				(0.009)	(0.003)	(0.004)
ΔDISCL×SUIT	-0.033	-0.002	-0.004				-0.036	-0.001	-0.004
	(0.022)	(0.003)	(0.004)				(0.023)	(0.003)	(0.004)
ΔDISCL×$\hat{\gamma}$× SUIT	-0.008	-0.001	-0.003				-0.007	-0.001	-0.002
	(0.018)	(0.004)	(0.006)				(0.018)	(0.004)	(0.006)
ΔPCTTRD				0.016***	0.017***	0.015***	0.016***	0.017***	0.015***
				(0.004)	(0.005)	(0.004)	(0.004)	(0.005)	(0.004)
ΔPCTTRD × $\hat{\gamma}$				-0.004	-0.006	-0.007	-0.004	-0.006	-0.007
				(0.004)	(0.005)	(0.005)	(0.004)	(0.005)	(0.005)
ΔPCTTRD × SUIT				0.037***	0.008	0.018***	0.037***	0.008	0.018***
				(0.013)	(0.007)	(0.006)	(0.013)	(0.007)	(0.006)
ΔPCTTRD × $\hat{\gamma}$× SUIT				-0.008	0.004	0.002	-0.008	0.004	0.002
				(0.012)	(0.006)	(0.007)	(0.012)	(0.006)	(0.007)
Observations	39,363	39,363	39,363	39,363	39,363	39,363	39,363	39,363	39,363
R-squared	0.235	0.225	0.226	0.236	0.226	0.227	0.237	0.226	0.227
$SUIT_{i,t}$ =	$1/SIZE_{i,t}$	$INACCU_{i,t}$	$STDEV\_RET_{i,t}$	$1/SIZE_{i,t}$	$INACCU_{i,t}$	$STDEV\_RET_{i,t}$	$1/SIZE_{i,t}$	$INACCU_{i,t}$	$STDEV\_RET_{i,t}$

Table IA-13: PBT, PBD and Market Liquidity (Inverse Holding Period)

We report Table 7 with $\hat{\gamma}$ measured as inverse stock holding period.

	1	2	3	4	5
LHS Var.			ΔAMIHUD		
$\hat{\gamma}$			0.006	0.005	0.005
			(0.006)	(0.006)	(0.006)
ΔDISCL	-0.006**		-0.007***		-0.007***
	(0.002)		(0.003)		(0.003)
ΔDISCL × $\hat{\gamma}$			-0.003		-0.003
			(0.003)		(0.003)
ΔPCTTRD		0.017***		0.020***	0.020***
		(0.004)		(0.005)	(0.005)
ΔPCTTRD × $\hat{\gamma}$				-0.012***	-0.012***
				(0.004)	(0.004)
Observations	41,901	41,901	39,915	39,915	39,915
R-squared	0.226	0.227	0.225	0.225	0.225

	6	7	8	9	10	11	12	13	14
LHS Var.					ΔAMIHUD				
$\hat{\gamma}$	-0.011***	0.004	0.003	-0.012***	0.003	0.002	-0.012***	0.003	0.002
	(0.004)	(0.005)	(0.005)	(0.004)	(0.005)	(0.005)	(0.004)	(0.005)	(0.005)
SUIT	0.105***	0.028***	0.033***	0.106***	0.028***	0.033***	0.105***	0.028***	0.033***
	(0.009)	(0.007)	(0.006)	(0.009)	(0.007)	(0.006)	(0.009)	(0.007)	(0.006)
$\hat{\gamma}$ × SUIT	0.009	0.002	-0.009	0.009	0.002	-0.011	0.009	0.002	-0.010
	(0.010)	(0.007)	(0.008)	(0.010)	(0.007)	(0.008)	(0.010)	(0.007)	(0.008)
ΔDISCL	-0.035**	-0.007**	-0.008**				-0.036**	-0.007***	-0.008**
	(0.014)	(0.003)	(0.003)				(0.014)	(0.003)	(0.003)
ΔDISCL×$\hat{\gamma}$	0.003	-0.002	-0.003				0.003	-0.002	-0.003
	(0.009)	(0.003)	(0.003)				(0.009)	(0.003)	(0.004)
ΔDISCL×SUIT	-0.059**	-0.004	-0.007*				-0.061**	-0.003	-0.006
	(0.025)	(0.004)	(0.004)				(0.025)	(0.004)	(0.004)
ΔDISCL×$\hat{\gamma}$× SUIT	-0.004	-0.004	-0.011**				-0.003	-0.004	-0.010**
	(0.019)	(0.004)	(0.005)				(0.019)	(0.004)	(0.005)
ΔPCTTRD				0.021***	0.020***	0.017***	0.021***	0.020***	0.017***
				(0.005)	(0.005)	(0.004)	(0.005)	(0.005)	(0.004)
ΔPCTTRD × $\hat{\gamma}$				-0.014***	-0.012***	-0.012***	-0.014***	-0.012***	-0.012***
				(0.003)	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)
ΔPCTTRD × SUIT				0.043***	0.009	0.018***	0.044***	0.009	0.018***
				(0.014)	(0.006)	(0.006)	(0.014)	(0.006)	(0.006)
ΔPCTTRD × $\hat{\gamma}$ × SUIT				-0.010	-0.003	0.001	-0.011	-0.002	0.001
				(0.009)	(0.005)	(0.005)	(0.009)	(0.005)	(0.005)
Observations	39,915	39,915	39,915	39,915	39,915	39,915	39,915	39,915	39,915
R-squared	0.237	0.226	0.226	0.238	0.226	0.227	0.239	0.226	0.227
$\text{SUIT}_{i,t} =$	$1/\text{SIZE}_{i,t}$	$\text{INACCU}_{i,t}$	$\text{STDEV\_RET}_{i,t}$	$1/\text{SIZE}_{i,t}$	$\text{INACCU}_{i,t}$	$\text{STDEV\_RET}_{i,t}$	$1/\text{SIZE}_{i,t}$	$\text{INACCU}_{i,t}$	$\text{STDEV\_RET}_{i,t}$

Table IA-14: PBT, PBD and Market Liquidity at Daily Frequency

This table reports tests on the effect of PBT and PBD on market liquidity at daily frequency. We test various specifications of the following regression model (see also Ljungqvist and Qian 2016):

$$\begin{aligned}
\text{AMIHUD}_{i,d,t} =& \beta_0 + \beta_1 \hat{\gamma}_{i,t} + \beta_2 \text{SUIT}_{i,t} + \beta_3 \hat{\gamma}_{i,t} \times \text{SUIT}_{i,t} + \sum_{\Delta d=-1}^{1} \beta_{5+\Delta d} \text{DISCL}_{i,d+\Delta d,t} \\
&+ \sum_{\Delta d=-1}^{1} \beta_{8+\Delta d} \text{DISCL}_{i,d+\Delta d,t} \times \hat{\gamma}_{i,t} + \sum_{\Delta d=-1}^{1} \beta_{11+\Delta d} \text{DISCL}_{i,d+\Delta d,t} \times \hat{\gamma}_{i,t} \times \text{SUIT}_{i,t} \\
&+ \beta_{13} \text{PCTTRD}_{i,t} + \beta_{14} \text{PCTTRD}_{i,t} \times \hat{\gamma}_{i,t} + \beta_{15} \text{PCTTRD}_{i,t} \times \text{SUIT}_{i,t} \\
&+ \beta_{14} \text{PCTTRD}_{i,t} \times \hat{\gamma}_{i,t} \times \text{SUIT}_{i,t} + \delta' \text{X}_{i,t} + \delta_y + \delta_q + \delta_i + \varepsilon_{i,d,t}.
\end{aligned}$$

where i, t, and d index for firm, quarter, and day of quarter, respectively; $\text{AMIHUD}_{i,d,t}$ is the daily price impact (i.e., absolute percentage price change per dollar traded); $\text{DISCL}_{i,d,t}$ is the number of disclosures made about firm i by all sample funds on day d of quarter t; $\hat{\gamma}_{i,t}$ is defined as the equal-weighted average of the standardized values of five firm-level short-termism proxies in that quarter (flow-performance sensitivity, position pivotalness, churn rate, turnover rate, and the inverse of holding duration), when available; $\text{SUIT}_{i,t}$ is defined as either the inverse of firm size (market capitalization, $\text{SIZE}_{i,t}$), analyst forecast inaccuracy about the firm (deviation of analyst EPS forecasts from the realized EPS, $\text{INACCU}_{i,t}$), or the firm's stock return volatility ($\text{STDEV\_RET}_{i,t}$); $\text{PCTTRD}_{i,t}$ is the trading intensity of sample funds, defined as the percentage of firm i's shares traded by all sample funds (relative to its shares outstanding) during quarter t. In all specifications, we include in the control vector, $\Delta \text{X}_{i,t}$, the following variables: inverse firm size, analyst forecast inaccuracy, and the firm's stock return volatility. We also include year, quarter, and firm fixed effects (δ_y, δ_q, and δ_i, respectively). All variables are winsorized at the 2% and 98% levels (except the number of disclosures, to ensure sufficient in-sample variation since more than 98% of its daily realizations are zero) and standardized. Standard errors in parentheses are heteroscedasticity-robust and clustered by firm.

Table IA-14 Continued

	1	2	3	4	5
LHS Var.			AMIHUD		
$\hat{\gamma}$			-0.025***	-0.025***	-0.025***
			(0.007)	(0.007)	(0.007)
DISCL^{-}	-0.003		-0.004		-0.004
	(0.003)		(0.003)		(0.003)
DISCL^{0}	-0.009***		-0.010***		-0.010***
	(0.003)		(0.003)		(0.003)
DISCL^{+}	0.005		0.003		0.003
	(0.003)		(0.004)		(0.004)
$\text{DISCL}^{-} \times \hat{\gamma}$			-0.003		-0.003
			(0.006)		(0.006)
$\text{DISCL}^{0} \times \hat{\gamma}$			-0.006		-0.006
			(0.008)		(0.008)
$\text{DISCL}^{+} \times \hat{\gamma}$			-0.005		-0.005
			(0.008)		(0.008)
PCTTRD		0.004***		0.004***	0.004***
		(0.001)		(0.002)	(0.002)
PCTTRD $\times \hat{\gamma}$				0.002	0.002
				(0.002)	(0.002)
Observations	1,639,654	1,639,654	1,594,065	1,594,065	1,594,065
R-squared	0.676	0.676	0.671	0.671	0.671

Table IA-14 Continued

	6	7	8	9	10	11	12	13	14
LHS Var.					AMIHUD				
$\hat{\gamma}$	-0.017***	-0.024***	-0.023***	-0.018***	-0.024***	-0.023***	-0.018***	-0.024***	-0.023***
	(0.005)	(0.006)	(0.006)	(0.005)	(0.006)	(0.006)	(0.005)	(0.006)	(0.006)
SUIT	0.760***	-0.004	0.025***	0.762***	-0.004	0.025***	0.762***	-0.004	0.025***
	(0.024)	(0.004)	(0.005)	(0.024)	(0.004)	(0.005)	(0.024)	(0.004)	(0.005)
$\hat{\gamma} \times$ SUIT	-0.021**	-0.004	-0.011**	-0.022**	-0.003	-0.011**	-0.022**	-0.003	-0.011**
	(0.009)	(0.003)	(0.005)	(0.009)	(0.003)	(0.005)	(0.009)	(0.003)	(0.005)
DISCL^{-}	-0.013	-0.004	-0.005				-0.013	-0.004	-0.005
	(0.018)	(0.004)	(0.004)				(0.018)	(0.004)	(0.004)
DISCL^{0}	-0.030**	-0.010***	-0.012***				-0.030**	-0.010***	-0.012***
	(0.012)	(0.003)	(0.003)				(0.012)	(0.003)	(0.003)
DISCL^{+}	0.006	0.004	0.003				0.006	0.004	0.003
	(0.012)	(0.004)	(0.004)				(0.012)	(0.004)	(0.004)
DISCL$^{-} \times \hat{\gamma}$	-0.012	-0.002	-0.004				-0.011	-0.002	-0.004
	(0.011)	(0.006)	(0.006)				(0.011)	(0.006)	(0.006)
DISCL$^{0} \times \hat{\gamma}$	-0.015	-0.004	-0.004				-0.015	-0.004	-0.004
	(0.011)	(0.007)	(0.008)				(0.011)	(0.007)	(0.008)
DISCL$^{+} \times \hat{\gamma}$	-0.019**	-0.004	-0.006				-0.019**	-0.004	-0.006
	(0.009)	(0.007)	(0.008)				(0.009)	(0.007)	(0.008)
DISCL$^{-} \times$ SUIT	-0.024	-0.006	-0.011				-0.025	-0.006	-0.011
	(0.034)	(0.011)	(0.008)				(0.034)	(0.011)	(0.008)
DISCL$^{0} \times$ SUIT	-0.055**	-0.012*	-0.019***				-0.055**	-0.012*	-0.019***
	(0.022)	(0.007)	(0.006)				(0.022)	(0.007)	(0.006)
DISCL$^{+} \times$ SUIT	-0.003	-0.003	-0.000				-0.003	-0.003	-0.001
	(0.023)	(0.005)	(0.006)				(0.023)	(0.005)	(0.006)
DISCL$^{-} \times \hat{\gamma} \times$ SUIT	-0.022	-0.001	-0.009				-0.021	-0.001	-0.009
	(0.020)	(0.008)	(0.008)				(0.020)	(0.008)	(0.008)
DISCL$^{0} \times \hat{\gamma} \times$ SUIT	-0.039*	-0.001	-0.005				-0.038*	-0.001	-0.005
	(0.021)	(0.009)	(0.008)				(0.021)	(0.009)	(0.008)
DISCL$^{+} \times \hat{\gamma} \times$ SUIT	-0.042**	-0.004	-0.003				-0.041**	-0.004	-0.003
	(0.017)	(0.009)	(0.009)				(0.017)	(0.009)	(0.009)
PCTTRD				0.004***	0.004***	0.004***	0.004***	0.004***	0.004***
				(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
PCTTRD $\times \hat{\gamma}$				-0.000	0.001	0.001	-0.000	0.001	0.001
				(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
PCTTRD $\times$ SUIT				0.007	-0.002	0.001	0.007	-0.002	0.001
				(0.005)	(0.002)	(0.003)	(0.005)	(0.002)	(0.003)
PCTTRD $\times \hat{\gamma} \times$ SUIT				-0.005	0.003	0.001	-0.005	0.003	0.001
				(0.005)	(0.003)	(0.004)	(0.005)	(0.003)	(0.004)
Observations	1,594,065	1,594,065	1,594,065	1,594,065	1,594,065	1,594,065	1,594,065	1,594,065	1,594,065
R-squared	0.672	0.671	0.672	0.672	0.672	0.672	0.672	0.672	0.672
$\text{SUIT}_{i,t} =$	$1/\text{SIZE}_{i,t}$	$\text{INACCU}_{i,t}$	$\text{STDEV\_RET}_{i,t}$	$1/\text{SIZE}_{i,t}$	$\text{INACCU}_{i,t}$	$\text{STDEV\_RET}_{i,t}$	$1/\text{SIZE}_{i,t}$	$\text{INACCU}_{i,t}$	$\text{STDEV\_RET}_{i,t}$

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