WHEN TO SELL YOUR IDEA: THEORY AND EVIDENCE FROM THE MOVIE INDUSTRY*

(Job Market Paper)

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ABSTRACT. In order to commercialize their ideas, most entrepreneurs need to cooperate with another party. When there are significant and irreversible investments at stake, how far should an entrepreneur develop his idea before selling it? This question is important for entrepreneurs in a variety of contexts, such as research alliances, technology licensing, and VC financing.

I study this question in the context of the U.S. movie industry, in which the screenwriter decides to sell a storyline versus a complete script. I first build a formal model, in which the writer and the buyer interact to transact an idea. The model incorporates important features of a market for ideas: uncertainty, information asymmetry, expropriation risk, and the heterogeneous observable quality of the seller. I then test the model's predictions on a novel sample of 1,638 original movie ideas sold in Hollywood between 1998 and 2003. The data include sale stage, the writer's characteristics, and the eventual outcome of the sale.

I find that, consistent with the theory, the likelihood of a complete script sale has a non-monotonic relationship with respect to the writer's observable quality. The results also suggest that for writers of relatively low observable quality, affiliation with a reputable agency (the intermediary) is most effective in reducing information asymmetry; for writers of better observable quality, however, other agency roles, such as increasing the writer's bargaining power, might carry greater weight.

The paper highlights the access barriers to a desirable audience faced by a seller of relatively low observable quality, as well as the seller's adverse selection behavior. These results have interesting implications for the strategies of both the entrepreneurs who want to commercialize their ideas and the firms or investors that acquire these ideas, as well as for policies on protection for idea/intellectual property transactions.

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1. INTRODUCTION

In order to commercialize their ideas, most entrepreneurs need to cooperate with another party that might control financing, manufacturing, and distribution assets (Teece (1986); Gans and Stern (2003)). Sometimes a research alliance is formed; sometimes a license agreement is written; and sometimes the idea is simply sold. Whatever the nature of the transaction, frequently, there are significant and irreversible investments at stake. This leads to the important question of how far an entrepreneur should develop his idea before selling it.[1]

The question is important for entrepreneurs because it determines both the extent of sunk costs and the strength of their bargaining position (that is, how much of their ideas' value entrepreneurs are able to capture). Understanding the trade-offs in the timing of the idea sale allows us to address questions across a range of industries, such as: "At what phase should a biotech firm form a research alliance with a pharmaceutical firm?" "How much of his own capital should an entrepreneur invest in his business idea before pursuing VC financing?" "Should a fashion designer approach the retailer with an idea of a clothing line or a complete line?"

I study this question in the context of scriptwriting in the U.S. movie industry, in which screenwriters (writers, hereafter) sell original movie ideas to Hollywood studios. In this context, the timing of idea sales is equivalent to the writer's choice of selling the storyline and (possibly) getting paid by the buyer to write the script (*pitch*), versus investing effort to develop the idea and sell a complete script (*spec*).[2] Thus, in this context, the relevant research question is: "When should a writer pitch versus spec an idea?"

I proceed by building a formal model, in which the writer and the buyer interact to transact an idea. Interviews and in-depth readings about the industry led me to a particular set of assumptions and sequential form. I then test the model's predictions using a novel data set consisting of 1,638 original movie ideas sold in Hollywood between 1998 and 2003.

The key elements of the model are as follows. Given an idea, the writer decides whether to pitch, to spec, or to drop it. The buyer, in turn, decides whether or not to meet the writer, either to listen to his pitch or to read his script. The writer has an observable quality (e.g., his previous industry experience) and possesses private information regarding the idea's value, though the writer's information is noisy. If the writer pitches the idea to the buyer, then, additional information is realized (to both parties). The buyer is able to help assess the idea's value because of her knowledge and expertise, which may come from the her extensive experience in commercialization or may simply reflect the buyer's idiosyncratic taste, which is unknown to the writer beforehand. Disclosing an

[1] I use "idea" to mean various types of innovations and technologies, and "sale" to mean various forms of transactions.

[2] The writers' union requires that the buyer hire the writer who sells the pitch to write the first draft. A vast majority of ideas are sold independently. Rarely are two or more ideas combined in one sale. Lastly, in keeping with the industry convention, I use spec and pitch as both a verb and a noun in this paper.

idea to the buyer exposes the writer to the risk of expropriation; however, this risk decreases as the idea is further developed due to more-effective copyright protection.[3] Finally, meeting a writer is costly for the buyer.[4]

From the writer's point of view, there is a trade-off between "pitching" and "specing." Writing a full script is more expensive to the writer than talking about the idea. In this sense, the value of pitching is that if the idea turns out not to be that interesting, the writer can save himself the cost of writing the full script.[5] Another advantage of pitching is that without incurring sunk costs upfront, the writer has a better bargaining position later in the sense that the buyer is sharing his writing cost. However, pitching implies a greater risk of expropriation, leaving the writer a smaller share of the idea's surplus. The problem becomes more complex to the extent that the writer's choice of pitch versus spec signals private information that he possesses.

When would we expect the writer to pitch his idea rather than spec it? I show that the likelihood of a spec has a non-monotonic relationship with respect to observable writer quality: The writer is more likely to spec if his observable quality is either very low or very high, whereas intermediate-level writers are more likely to pitch their ideas. The intuition for this result is that low-observable-quality writers have no choice but to sell complete scripts because, otherwise, the buyer does not trust that the idea is good. Top-observable-quality writers prefer to sell a complete script because the informational value of a pitch is small (that is, the script will most likely be taken anyway), and the incentive to capture a greater share of the idea's surplus through a spec dominates. Finally, intermediate-level writers prefer to pitch their ideas because the option value of doing so is high; that is, the additional information obtained from pitching before writing up the full script is particularly valuable.

The model also predicts that when the writer's observable quality is high enough, conditional on release, a spec is expected to perform better than a pitch. This is because in equilibrium, for writers who will be met by the buyer for both spec and pitch, there is a threshold above which spec is chosen and below which pitch is chosen.

To empirically test these predictions, I construct a novel sample of 1,638 original movie ideas sold in Hollywood between 1998 and 2003. The sales data come from *Done Deal Pro*. The characteristics of the writers, as well as those of the movies, come from *IMDB* and *TheNumbers*. I observe the stage at which the idea is sold and the characteristics of the writer who sells it. In particular, to

[3]Interviews with writers and an internal lawyer from one of the biggest talent agencies confirm that stronger legal protection is an important motivation to spec.

[4]In addition to the physical costs and the opportunity cost of time to evaluate an idea, first-hand knowledge of an idea renders the buyer vulnerable to allegations of idea theft or copyright infringement. This is why movie production companies routinely return unsolicited scripts unopened to writers, and toy companies do the same with unsolicited toy designs.

[5]This "option value" of pitching is reflected in a quote from *The Artful Writer*: "It takes about 1-2 weeks to develop a solid pitch. If a studio/producer/company bites, you go into draft knowing you're not wasting your time."

measure observable writer quality, I use the number of the writer's movies that have been released through the major studios in the previous five years. Lastly, the industry's relatively short project life cycle also allows me to observe the final outcome of the sale. This which provides information about an idea's quality, which is, otherwise, difficult to measure.[6]

The data confirm my theoretical predictions. First, I show that the predicted likelihood of a spec sale is 0.59 when the writer has no major writing credits in the previous five years; it decreases to 0.41 for writers with one credit; and it increases to 0.56 for writers with three or more credits. Both the decline and the increase are statistically significant at the 5% level. Second, I show that for writers with two or more credits, conditional on release, a movie based on a spec outperforms a movie based on a pitch both at the U.S. box office and in the time it takes to get released.

Finally, I extend my theoretical and empirical analysis to study how a writer's affiliation with a reputable agency (intermediary) affects his choice of when to sell.[7] I consider various agency roles that industry people consider important: reducing asymmetric information; monitoring the buyer's opportunistic behavior; and increasing the writer's bargaining power. Comparative statics show that different roles have a different, even opposite, impact on the timing of the sale and that the effect of each role also depends on the writer type.

Empirically, I find that for writers with no major writing credits, an affiliation with one of the five biggest agencies increases the likelihood of a pitch sale by at least 11%. By contrast, for writers with some prior major work, such an affiliation has no significant impact on the likelihood of a pitch sale. Together with the theoretical model, these results suggest that a reputable agency is most effective in mitigating asymmetric information between buyers and writers of low observable quality, thus helping these writers overcome the barriers to selling early-stage ideas. However, for writers with some prior major work, I find that the average quality of specs sold is lower when the writer has a big-agency affiliation than when he does not. Together with the theoretical model, this result suggests that for writers of better observable quality, other agency roles, such as increasing the writer's bargaining power, may have greater weight.

This paper makes several contributions to the study of markets for ideas. There has been considerable work on licensing and research alliances in technology markets; this paper, first of all, provides a better understanding of a market for creative ideas. Also, by constructing a novel data set, it sheds light on idea sales at the most nascent stages. Second, it is one of the few papers to

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[6]This feature of the data is in contrast to the difficulties in studying industries that have much longer life cycles. The average project cycle is between three and four years, while, as Lerner and Merges (1998) write about alliances in the biotech industry, "[I]t frequently takes a decade or longer for a therapeutic product to move from animal studies to approval by the US Food and Drug Administration (FDA)."

[7]Literary and talent agencies are intermediaries in this market. Their main responsibilities are to help writers sell their original ideas and obtain writing assignments. A writer works with one agency, and the contract typically lasts two years. My data show that 65% of the sales are sold through the five biggest agencies.

study the timing of idea sales. In contrast to previous work, I emphasize the option value of selling earlier by taking advantage of the buyer's information and expertise. Third, it emphasizes that entrepreneurs with heterogeneous observable experience face different constraints. In particular, a relatively unknown entrepreneur encounters barriers to selling earlier-stage ideas. Finally, it provides a better understanding of the roles of intermediaries in idea sales. The results suggest that the relative importance of an intermediary's multiple roles depends on the entrepreneur's type.

The rest of this section relates the findings to the existing literature. Section 2 presents the model and derives the writer's choice in equilibrium. Section 3 derives predictions from the model and analyzes the roles of intermediaries. Section 4 describes the data and variables. Section 5 presents the empirical results. Section 6 recaps the main results, and discusses the managerial and policy implications and future research.

Relationship to the previous literature

This paper builds mainly on the growing literature on the markets for ideas (Arrow (1962); Teece (1986); Anton and Yao (1994 and 2002); Arora (1995); Arora et al. (2001); Arora and Gambardella (2010); Gans and Stern (2003 and 2010)). In this paper, the efficiency gain from selling the idea earlier is the option value from taking advantage of the buyer's knowledge and expertise. The value of information gathering has been studied in the literature on R&D investment (Roberts and Weitzman (1981)); the timing of product market entry (Dechenaux et al. (2003)); and the timing of IPO (Maug (2001)). As far as I am aware, the role of the buyer's information feedback in an entrepreneur's R&D investment decisions has not been explicitly considered by previous work on the timing of idea sales. The previous studies base the efficiency gain from trade on specialization in knowledge production and commercialization (Allain et al. (2009); Hellmann and Perotti (2010)); avoiding investments in complementary assets that are already held by established firms (Gans et al. (2002)); or achieving faster time to market (Katila and Mang (2003); Gans et al. (2008)). Interim feedback is particularly important in an entrepreneurial context, in which the uncertainty level is usually high and firms with extensive commercialization experience are likely to contribute critical information on an idea's value.

Since (at least) Arrow (1962), the tension created by asymmetric information and expropriation risk has been studied from various angles.[8] This paper combines an entrepreneur's investment-under-uncertainty problem with these market frictions and argues that developing an idea to a more complete form, though costly, simultaneously mitigates asymmetric information and secures better protection. The former is because of the signaling effect of costly investment, and the latter

[8] E.g., optimal contracts (Gallini and Wright (1990); Anton and Yao (1994)); disclosure strategy (Anton and Yao (2002); James and Shaver (2008)); firm boundaries of R&D (Hellmann and Perotti (2010); Mang (1998)); financing choices (Dushnitsky and Shaver (2009); Ueda (2004)); and effects of optimism (Dushnitsky (2010)).

is because of better-defined intellectual property rights. Katila and Mang (2003) make a similar argument: The tacitness of knowledge is high in an idea's early development stage, which, on the one hand, limits the company's ability to articulate the knowledge and creates information asymmetry, and, on the other hand, makes the knowledge vulnerable for appropriation by others because know-how that is not yet articulated can be difficult to protect. Developing the idea further decreases the degree of tacitness and reduces the articulation and expropriation problems (von Hippel (1994); Garud and Nayyar (1994)).[9]

Selling an idea at a more advanced stage grants the entrepreneur a better share of the idea's surplus. In the model, I argue that this bargaining advantage comes from more-effective intellectual property rights protection. Anton and Yao (1994) argue that the threat of selling the idea to a rival buyer allows the seller to capture a sizable share of the surplus, even without any property rights. This intuition gives an interesting alternative interpretation to the model's assumption that property rights protection is more effective for a spec than for a pitch: An idea at a more advanced stage imposes a more immediate threat to the current buyer's monopoly, which allows the writer to capture a better share of the idea's surplus.

The first prediction of the model is the non-monotonic relationship between the timing of the sale and observable writer quality. It is a result of the interactions between the writer's and the buyer's incentives. This result is in contrast to the monotonicity result obtained from other studies on the timing of idea sales. For example, Jensen et al. (2003) find that universities with higher academic rankings for their faculty have a higher proportion of disclosures licensed in the proof-of-concept stage (early stage). They argue that this is because the marginal impact of quality on the probability of success is highest at this stage. Katila and Mang (2003) find that biotech firms with more partnering experiences and higher R&D intensities are associated with earlier collaboration with pharmaceutical companies.

The second prediction of the model is that writers select better ideas to sell later. This prediction is consistent with Chatterjee and Rossi-Hansberg (2007), who predict that workers with good ideas decide to spin off and set up new firms, while workers with mediocre ideas sell them. I find empirical evidence that supports this prediction. Pisano (1997) also finds supporting evidence in the biotech industry: The termination rate for projects in collaboration with pharmaceutical firms is significantly higher than for projects that biotech firms undertake independently.

There has been extensive work on an intermediary's roles in certification (Biglaiser (1993) and Leland and Pyle (1977)); monitoring (Robinson and Stuart (2007)); providing value-added service (Hellmann and Puri (2002)); and matchmaking (Gehrig (1993)). For markets for ideas in particular,

[9] von Hippel (1994) explains that developing an idea further is a process of know-how codification, whereby tacit knowledge is converted to more-explicit and -defendable forms such as formulas and blueprints.

previous work has studied the roles of university technology transfer offices (Siegel et al. (2003); Macho-Stadler et al. (2007)), patent lawyers and agents (Lamoreaux and Sokoloff (2002)); and online marketplaces for ideas (Palomeras (2007); Dushnitsky and Klueter (2010)). This paper contributes to this literature by studying the intermediary's roles from a particular angle: the impact on the timing of idea sales. It recognizes the various roles an intermediary may play in a market for ideas, and attempts to evaluate their relative importance empirically. The main results are partly consistent with Katila and Mang (2003), who find that institutions that reduce uncertainty and information asymmetry are associated with earlier collaborations between biotech firms and pharmaceutical companies. This paper shows that the impact of such institutions differs by seller type: For inexperienced writers, the intermediary is most effective in mitigating asymmetric information, thus facilitating the sale of early-stage ideas; for experienced writers, its role of increasing the writer's bargaining power may play a bigger part, which tends to delay the sale.

2. Model

I examine the market exchange of ideas between a writer, W, and a buyer, B. Both players are risk-neutral and maximize expected net payoffs.

An idea's ultimate value, V, is the sum of four parts: the observable writer quality, w, such as his past experience; the writer's private signal, $\theta \sim G$, such as his confidence level in this particular idea; the uncertain quality of the abstract idea, $\epsilon_i \sim F^i$; and the uncertain quality of the script, $\epsilon_s \sim F^s$, i.e.,

$$V = w + \theta + \epsilon_i + \epsilon_s. \tag{1}$$

The distributions, G, F^i, and F^s (densities g, f^i, and f^s), are common knowledge. For simplicity, assume that the support of all random variables is $\mathbb{R}$, and they are independent of each other.

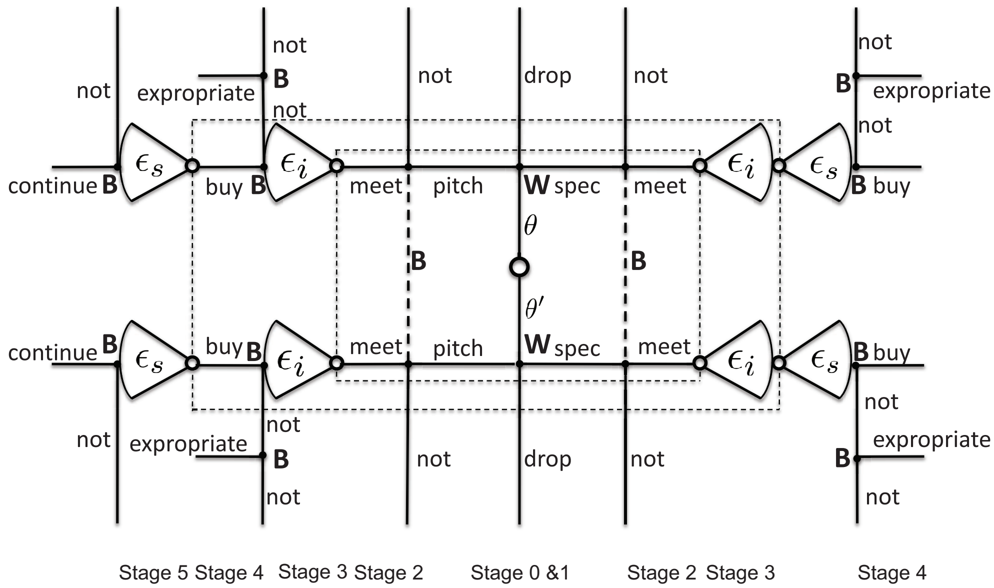
The game proceeds as follows (Figure 1).

At Stage 0, nature determines the value of θ, which is privately observed by the writer.

At Stage 1, the writer decides to spec, to pitch, or to drop the idea given w and θ. If the writer decides to spec (i.e., sell a complete script), he pays the writing cost, $c_s > 0$. If the writer decides to pitch (i.e., sell the storyline), he pays no cost upfront. If the writer drops the idea, the game ends.

At Stage 2, given that the idea is not dropped, the buyer decides whether or not to meet the writer. "Meeting" in the case of a spec means that the buyer reads the script or, in the case of a pitch, listens to the storyline. At this point, the buyer does not observe the writer's private signal, θ. However, she has a prior belief $G(\theta)$ and, based on information Ω, she forms posterior beliefs $H(\theta|\Omega)$ (density h). The buyer observes the writer's quality, w, and the writer's choice of spec versus pitch. Thus, the buyer's information set is $\Omega = \{(w, S), (w, P)\}$. If the buyer decides to meet, she pays the meeting cost, $c_m > 0$. If the buyer decides not to meet, the game ends.

FIGURE 1. **Timing**



Notes: The game starts in the middle, where nature determines the value of the writer's private signal, θ. θ is continuous in the model, though I illustrate only two distinctive values in the graph. W stands for the writer and B stands for the buyer.

At Stage 3, the writer discloses the idea upon meeting. The buyer observes the writer's private signal, θ. Regarding the uncertainties, in the case of a pitch, the quality of the abstract idea, ϵ_i, is realized; in the case of a spec, the qualities of both the abstract idea and the script, ϵ_i and ϵ_s, are realized. Both parties observe the realized qualities.

At Stage 4, the buyer and the writer bargain over the idea's surplus. I assume a generalized Nash bargaining solution, where the writer's and the buyer's bargaining power are, respectively, α and $1 - \alpha$. If the negotiation breaks down, the buyer decides whether to expropriate the idea. For example, she may pass the content of the idea on to another writer and commission a script. If the idea's expected surplus is negative, the buyer's expected net payoff from expropriation is also negative. If the idea's expected surplus is positive, the buyer expects a gross payoff of δ proportion of the idea's surplus. $0 < \delta < 1$ because there are frictions in expropriation, such as the opportunity cost of the time spent to find another writer. Given expropriation, the writer expects to be compensated with λ proportion of the buyer's gross payoff. $0 < \lambda < 1$ reflects the strength of the legal protection, such as the probability of the buyer getting caught. Most importantly, the strength of the legal protection for a spec, λ_s, is greater than that for a pitch, λ_p; that is,

Assumption 1. $\lambda_s > \lambda_p$.

An important reason for this is that copyright protection is more effective for a complete script.

At Stage 5, in the case that the writer sells a pitch, he pays the writing cost, c_s, and the quality of the script, ϵ_s, is realized. The buyer observes the idea's ultimate value and decides whether to continue the project.

Finally, I make two additional assumptions. First, in the case of a spec, the writer's upfront cost (the cost of writing) is greater than the buyer's upfront cost (the cost of meeting the writer), relative to their respective shares of the idea's surplus; that is,

Assumption 2. $\dfrac{c_s}{\alpha(1-\delta)+\lambda_s\delta} > \dfrac{c_m}{1-(\alpha(1-\delta)+\lambda_s\delta)}$.

In the case of a pitch, the opposite is true because the writer pays no upfront cost. This assumption simplifies the analysis greatly. Broadly speaking, it is also consistent with my understanding of the industry. Essentially, it implies that in the case of a spec, the binding constraint is the writer's incentive to write; in the case of a pitch, the binding constraint is the buyer's incentive to meet.

Second, the distributions of the random variables have the following properties.

Assumption 3. *The probability distribution of θ has 1) a monotone increasing hazard rate (i.e., $\frac{g(\theta)}{1-G(\theta)}$ increases with θ), and 2) a monotone decreasing reverse hazard rate (i.e., $\frac{g(\theta)}{G(\theta)}$ decreases with θ). So do the probability distributions of ϵ_i, ϵ_s, and $\epsilon_i+\epsilon_s$.*

This assumption is standard. Many common probability distributions have such properties, such as normal, logistic, and exponential. See Bagnoli and Bergstrom (2005) for a list of examples.

2.1. **Equilibrium analysis.** I solve for a perfect Bayesian equilibrium (PBE) for this sequential-move game of incomplete information. The writer's strategy at Stage 1 is to spec, pitch, or drop the idea, in anticipation of the buyer's meeting decision. The writer's decision depends on his observable quality, w, and his private signal, θ. The buyer's strategy at Stage 2 is whether or not to meet the writer. The buyer's decision is based on the writer's observable quality, w, and his choice of spec versus pitch. The buyer's beliefs about θ following the writer's choice are consistent with the writer's strategy under Bayes' rule wherever possible.

I focus on PBEs in which the writer's strategy is semiseparating, meaning that given any observable writer quality, w, some values of the writer's private signal, θ, make him choose the same action, while other values make him choose different actions.

In the following, I first describe the equilibrium. Then, I explain the results by going through each player's problem. Finally, I discuss the model choices and their interpretations.

Proposition 1. *There exists a unique semiseparating equilibrium where given a spec, the buyer always meets the writer; given a pitch, the buyer meets the writer if and only if $w \geq m_p$. In the equilibrium,*

(i) *when $w \geq m_p$, the writer chooses to spec if $\theta \geq r_0(w)$, and to pitch otherwise;*

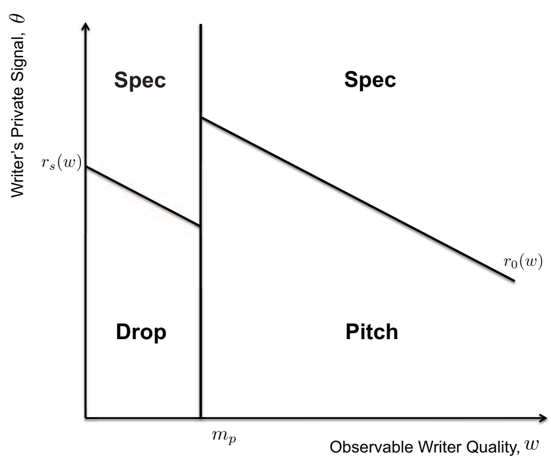
(ii) *when $w < m_p$, the writer chooses to spec if $\theta \geq r_s(w)$, and to drop the idea otherwise.*

Furthermore, $r_0'(w) = r_s'(w) = -1$, and $r_0(w) > r_s(w)$ for all w.

Proof. All proofs are in the Appendix. □

Figure 2 illustrates the writer's choice in equilibrium. First, a writer of relatively low observable quality ($w < m_p$) faces barriers to selling a pitch. His choice is restricted to selling a spec and dropping the idea. Second, when the writer's observable quality is good enough ($w \geq m_p$), the writer selects better ideas ($\theta \geq r_0(w)$) to spec and worse ideas ($\theta < r_0(w)$) to pitch. Moreover, as the writer's observable quality gets better, he chooses to spec (versus pitch) more often.

FIGURE 2. **Writer's Choice in Equilibrium**



Notes: This graph describes the writer's choice in equilibrium, as described in Proposition 1. m_p is the buyer's meeting threshold for pitches. When $w < m_p$, the writer is indifferent between specing and dropping the idea when $\theta = r_s(w)$; and when $w \geq m_p$, the writer is indifferent between specing and pitching the idea when $\theta = r_0(w)$.

To understand the equilibrium, I begin by solving the bargaining problem at Stage 4, the results of which enter into the writer's and the buyer's expected payoffs at Stages 1 and 2.

A. *Bargaining*

In the case of a spec, all uncertainties are realized and observed by both players upon meeting, so the idea's surplus is its ultimate value, V. If the negotiation breaks down, the buyer expropriates if and only if $V \geq 0$ because her net expected payoff from expropriation is $(1 - \lambda_s)\delta V$ when $V \geq 0$, and negative when $V < 0$. Thus, the buyer's outside option is $\max\{(1 - \lambda_s)\delta V, 0\}$. The writer's outside option is $\max\{\lambda_s \delta V, 0\}$, meaning that he can recoup part of the idea's surplus given expropriation.

Under the generalized Nash bargaining rule, when $V < 0$, the writer's and the buyer's payoffs are, respectively, αV and $(1-\alpha)V$. When $V \geq 0$, the writer's and the buyer's payoffs are

$$\begin{aligned}
\alpha(V - (1-\lambda_s)\delta V - \lambda_s \delta V) + \lambda_s \delta V &= (\alpha(1-\delta) + \lambda_s \delta) V \\
(1-\alpha)(V - (1-\lambda_s)\delta V - \lambda_s \delta V) + (1-\lambda_s)\delta V &= (1 - \alpha(1-\delta) - \lambda_s \delta) V.
\end{aligned}$$

These imply that a spec is sold if and only if $V \geq 0$. The writer's payoff, given a sale, increases with his bargaining power, α, the strength of the legal protection for spec, λ_s, and the surplus of the idea, V; the buyer's payoff decreases with α and λ_s and increases with V.

In the case of a pitch, all parts of the idea's ultimate value are observable except for the quality of the script, ϵ_s. The idea's expected value, $v(w, \theta, \epsilon_i)$, is the probability that the idea's ultimate value is greater than zero, multiplied by the conditional expected value; that is,

$$v(w, \theta, \epsilon_i) = \mathbb{P}(w + \theta + \epsilon_i + \epsilon_s \geq 0)\mathbb{E}[w + \theta + \epsilon_i + \epsilon_s | w + \theta + \epsilon_i + \epsilon_s \geq 0]. \tag{2}$$

The expected surplus of a pitch at the time of the negotiation is the idea's expected value minus the writing cost not yet invested; that is, $v(w, \theta, \epsilon_i) - c_s$.

Similar to the case of a spec, the buyer's and the writer's outside options are, respectively, $\max\{(1-\lambda_p)\delta(v(w,\theta,\epsilon_i) - c_s), 0\}$ and $\max\{\lambda_p \delta(v(w,\theta,\epsilon_i) - c_s), 0\}$. A pitch is sold if and only if $v(w, \theta, \epsilon_i) \geq c_s$. Given a sale, the writer's and the buyer's payoffs are

$$(\alpha(1-\delta) + \lambda_p \delta)(v(w,\theta,\epsilon_i) - c_s) \quad \text{and} \quad (1 - (\alpha(1-\delta) + \lambda_p \delta))(v(w,\theta,\epsilon_i) - c_s).$$

Let $\alpha_s = \alpha(1-\delta) + \lambda_s \delta$ and $\alpha_p = \alpha(1-\delta) + \lambda_p \delta$. Then, α_s is the effective share of the idea's surplus the writer is able to capture with a spec, and α_p is that with a pitch. The complementary shares, $1 - \alpha_s$ and $1 - \alpha_p$, are what the buyer is able to capture given that the writer has chosen to spec and pitch. Notice that the bargaining power, α, the legal protection levels, λ_s and λ_p, and the friction of expropriation, δ, affect the writer's and the buyer's expected payoffs only through the effective shares, α_s and α_p. For simplicity, I use α_s and α_p directly hereafter.

Because the strength of protection for spec is stronger than that for pitch, $\lambda_s > \lambda_p$, the writer is able to capture a greater share of the surplus with a spec than with a pitch; that is,

$$\alpha_s > \alpha_p.$$

However, if the writer has chosen to spec rather than pitch, the buyer is put into a worse bargaining position; that is, $1 - \alpha_s < 1 - \alpha_p$.

B. *Writer's problem*

At Stage 1, given w and θ, the writer chooses to spec, pitch, or drop the idea, in anticipation of the buyer's meeting decision at Stage 2. If he drops the idea, he gets zero payoff.

Conditional on being met, the writer's expected payoff from spec, $S^{\mathrm{W}}(w,\theta)$, and his expected payoff from pitch, $P^{\mathrm{W}}(w,\theta)$, are

$$\begin{aligned} S^{\mathrm{W}}(w,\theta) &= \alpha_s \mathbb{P}(V \geq 0)\mathbb{E}[V|V \geq 0] - c_s = \alpha_s \mathbb{E}[v(w,\theta,\epsilon_i)] - c_s \\ P^{\mathrm{W}}(w,\theta) &= \alpha_p \mathbb{P}(v(w,\theta,\epsilon_i) \geq c_s)\mathbb{E}[v(w,\theta,\epsilon_i) - c_s | v(w,\theta,\epsilon_i) \geq c_s]. \end{aligned}$$

In words, $S^{\mathrm{W}}(w,\theta)$ is the probability that a spec is sold, $\mathbb{P}(V \geq 0)$, multiplied by the writer's payoff given a sale, $\alpha_s \mathbb{E}[V|V \geq 0]$, minus the writing cost, c_s. Notice that the expected surplus of a spec $\mathbb{P}(V \geq 0)\mathbb{E}[V|V \geq 0] = \mathbb{E}[v(w,\theta,\epsilon_i)]$, which is the expectation of the idea's value over all possible values of ϵ_i. $P^{\mathrm{W}}(w,\theta)$ is the probability that the pitch is sold, $\mathbb{P}(v(w,\theta,\epsilon_i) \geq c_s)$, multiplied by the writer's payoff given a sale, $\alpha_p \mathbb{E}[v(w,\theta,\epsilon_i) - c_s | v(w,\theta,\epsilon_i) \geq c_s]$.

Proposition 1 says that the writer chooses better ideas to spec and worse ideas to pitch when anticipating a meeting for both spec and pitch (i.e., when $w \geq m_p$). To see this, the writer's trade-off between spec and pitch, $S^{\mathrm{W}}(w,\theta) - P^{\mathrm{W}}(w,\theta)$, consists of three parts:

$$\begin{aligned} \Delta^{\mathrm{W}}(w,\theta) &= \alpha_p \mathbb{P}(v(w,\theta,\epsilon_i) < c_s)\mathbb{E}[v(w,\theta,\epsilon_i) - c_s | v(w,\theta,\epsilon_i) < c_s] \\ &\quad -(1-\alpha_p)c_s + (\alpha_s - \alpha_p)\mathbb{E}[v(w,\theta,\epsilon_i)]. \end{aligned} \tag{3}$$

Note that negative terms reflect the relative advantage of pitch, and positive terms reflect the relative advantage of spec. On the one hand, pitch is desirable for two reasons. First, pitch allows the writer to obtain interim feedback from the buyer before making the investment. The writer's share of the *option value* of pitch is reflected by $\alpha_p \mathbb{P}(v(w,\theta,\epsilon_i) < c_s)\mathbb{E}[v(w,\theta,\epsilon_i) - c_s | v(w,\theta,\epsilon_i) < c_s] < 0$. Second, pitch is desirable also because the writer does not sink the writing cost, resulting in a better bargaining position. This *cost advantage* of pitch is reflected by $-(1-\alpha_p)c_s < 0$. On the other hand, spec is desirable because it allows the writer to capture a greater share of the idea's surplus. This *bargaining advantage* of spec is reflected by $(\alpha_s - \alpha_p)\mathbb{E}[v(w,\theta,\epsilon_i)] > 0$.

The writer follows a threshold strategy because given w, spec becomes more attractive as the writer's private signal, θ, increases. In other words, $\Delta^{\mathrm{W}}(w,\theta)$ is monotone increasing in θ. This is because a better value of θ means a better expected value of the idea, resulting in 1) a bigger incentive to capture a better share of the surplus through spec, and 2) less need for interim feedback from the buyer.

The result $r_0'(w) = -1$ is because the writer's observable quality, w, and his private signal, θ, contribute symmetrically to the idea's value. This implies that an idea from a writer of better w is more likely to be good enough to spec, and the writer chooses to spec more often.

When the writer's observable quality is relatively low (i.e., when $w < m_p$), he anticipates being met only if he chooses to spec. The writer's expected payoff from spec, $S^{W}(w,\theta)$, is monotone increasing in θ. Thus, he chooses to spec if the signal is good enough and to drop the idea otherwise.

The result $r_s(w) < r_0(w)$ is because when the writer is indifferent between spec and pitch (i.e., when $\theta = r_0(w)$), he still finds spec better than dropping the idea.

C. ***Buyer's problem***

At Stage 2, the buyer decides whether or not to meet the writer. To obtain a PBE, I impose that the buyer's posterior distribution of the writer's private signal, $H(\theta|\Omega)$, be consistent with Bayes' theorem. Recall that the buyer's information is the writer's observable quality, w, and the writer's choice of spec versus pitch (i.e., $\Omega = \{(w, S), (w, P)\}$). Let $z(S|w, \theta)$ and $z(P|w, \theta)$ be the probability that the writer chooses to spec and pitch, respectively.[10] Then, Bayes' rule implies that the posterior densities are

$$\begin{aligned} h(\theta|w,S) &= \frac{g(\theta)z(S|w,\theta)}{\int_{-\infty}^{\infty} g(\theta')z(S|w,\theta')d\theta'} \\ h(\theta|w,P) &= \frac{g(\theta)z(P|w,\theta)}{\int_{-\infty}^{\infty} g(\theta')z(P|w,\theta')d\theta'}. \end{aligned} \tag{4}$$

The buyer's expected payoffs from meeting a writer who offers a spec, $S^{\mathrm{B}}(w)$, and a pitch, $P^{\mathrm{B}}(w)$, are, respectively,

$$\begin{aligned} S^{\mathrm{B}}(w) &= \int_{-\infty}^{\infty} \{(1-\alpha_s)\mathbb{E}[v(w,\theta,\epsilon_i)] - c_m\} dH(\theta|w,S) \\ P^{\mathrm{B}}(w) &= \int_{-\infty}^{\infty} \{(1-\alpha_p)\mathbb{P}(v(w,\theta,\epsilon_i) \geq c_s)\mathbb{E}[v(w,\theta,\epsilon_i) - c_s|v(w,\theta,\epsilon_i) \geq c_s] - c_m\} dH(\theta|w,P). \end{aligned}$$

In the case of a spec, given w and θ, the buyer's expected payoff from meeting the writer is her effective share of the expected surplus of the spec, $(1-\alpha_s)\mathbb{E}[v(w,\theta,\epsilon_i)]$, minus the meeting cost, c_m. The writer's choice of spec implies that the buyer's posterior belief of θ is $H(\theta|w,S)$. In the case of a pitch, given w and θ, the buyer's expected payoff is her effective share of the expected surplus of the pitch, $(1-\alpha_p)\mathbb{P}(v(w,\theta,\epsilon_i) \geq c_s)\mathbb{E}[v(w,\theta,\epsilon_i) - c_s|v(w,\theta,\epsilon_i) \geq c_s]$, minus the meeting cost, c_m. The writer's choice of pitch implies that the buyer's posterior belief of θ is $H(\theta|w,P)$.

If the writer has chosen to spec, the buyer's posterior $h(\theta|w,S)$ is $\frac{g(\theta)}{1-G(r_0(w))}$ for $\theta \in [r_0(w), \infty)$, and 0 elsewhere if $w \geq m_p$; it is $\frac{g(\theta)}{1-G(r_s(w))}$ for $\theta \in [r_s(w), \infty)$, and 0 elsewhere if $w < m_p$. Under these beliefs, the buyer always wants to meet the writer. The reason is that the writer's upfront cost of writing is greater than the buyer's upfront cost of meeting the writer, relative to their respective shares of the surplus. In other words, as long as the writer finds it worthwhile to write the script, it is worthwhile for the buyer to read it.

If the writer has chosen to pitch, the buyer's posterior $h(\theta|w,P)$ is $\frac{g(\theta)}{G(r_0(w))}$ for $\theta \in (-\infty, r_0(w))$, and 0 elsewhere. This belief is consistent with Bayes' rule when $w \geq m_p$. When $w < m_p$, because

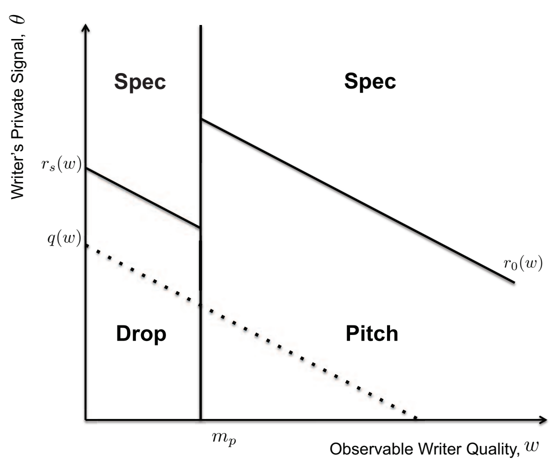
[10] In equilibrium, $z(S|w,\theta)$ and $z(P|w,\theta)$ are either zero or one, but pure strategies are a derived, not assumed, result.

the writer's choosing to pitch is a probability zero event in equilibrium, I impose the buyer's off-the-equilibrium posterior to be so. Under these beliefs, the buyer's expected payoff from meeting the writer is monotone increasing in the writer's observable quality w. This implies that the buyer follows a threshold strategy as well: meet if and only if $w \geq m_p$.

The important result of the buyer's problem is that she is stricter about who to meet for pitch than about who to meet for spec. To get intuitions, consider the buyer's trade-offs. The buyer may prefer spec for two reasons: 1) the idea's expected value is better because the writer selects better ideas to spec; and 2) the buyer does not need to share the writing cost because the writer has already sunk it. However, when the writer has chosen to spec, the buyer may be worse off because her effective share of the idea's surplus is smaller. When the buyer is indifferent to meeting the writer for a pitch (i.e., when $w = m_p$), she is still happy to meet the writer if he has chosen to spec, as long as the buyer does not need to give up too much more of the surplus (i.e., α_s is not too much higher than α_p). Assumption 2 implies that $\alpha_s < \frac{c_s}{c_m + c_s}$, and is a (stronger than necessary) condition to guarantee that this is the case.

2.2. **Comparing the writer's choice in equilibrium and the social optimum.** The social planner knows the writer's observable quality, w, and his private signal, θ, and maximizes the total expected surplus (i.e., the sum of the writer's and the buyer's expected payoffs).

FIGURE 3. **The Writer's choice in Equilibrium and the Social Optimum**



Notes: The solid lines describe the writer's choice in equilibrium (the same as Figure 2). The dotted line, $q(w)$, describes the social optimum. It is socially optimal to pitch if $\theta \geq q(w)$, and to drop the idea otherwise.

The difference in the total expected surplus between specing and pitching is (SP stands for the social planner)

$$\begin{aligned}\Delta^{\text{SP}}(w,\theta) &= (\mathbb{E}[v(w,\theta,\epsilon_i)] - c_s - c_m) - (\mathbb{P}(v(w,\theta,\epsilon_i) \geq c_s)\mathbb{E}[v(w,\theta,\epsilon_i) - c_s | v(w,\theta,\epsilon_i) \geq c_s] - c_m) \\ &= \mathbb{P}(v(w,\theta,\epsilon_i) < c_s)\mathbb{E}[v(w,\theta,\epsilon_i) - c_s | v(w,\theta,\epsilon_i) < c_s]\end{aligned}$$

The difference is the probability that the idea is not worthwhile writing after the buyer evaluates it, $\mathbb{P}(v(w,\theta,\epsilon_i) < c_s)$, multiplied by the conditional loss, $\mathbb{E}[v(w,\theta,\epsilon_i) - c_s | v(w,\theta,\epsilon_i) < c_s]$. In other words, $\Delta^{\text{SP}}(w,\theta) < 0$ reflects the option value that pitching creates by taking advantage of the buyer's knowledge and expertise before writing up the complete script. Therefore, pitching is more efficient than specing.

Then the question is to compare pitching with dropping the idea. Pitching is efficient if and only if the idea is good enough to justify the buyer's evaluation (meeting) cost. In particular, given the writer's observable quality, w, there exists a threshold $q(w)$ such that it is socially optimal to pitch if $\theta \geq q(w)$, and to drop the idea otherwise.

Figure 3 compares the writer's choice in equilibrium to the social optimum. Inefficiency in the timing of idea sales results from a combination of factors: information asymmetry, differential legal protection levels, as well as the transaction costs (i.e., the buyer's meeting cost).

First, there is too much specing when $\theta \geq r_0(w)$. The writer has a stronger incentive to spec than the social planner does when the idea is very good because specing provides a better protection from expropriation, i.e., $\lambda_s > \lambda_p$.

Second, information asymmetry and transaction costs result in too much specing or the exclusion of good ideas for writers of relatively low observable qualities, but too much pitching for writers of better observable qualities. In particular, writers of $w < m_p$ face barriers to selling pitches, thus, are forced to write a script when $r_s(w) < \theta < r_0(w)$, and to drop the idea when $q(w) < \theta < r_s(w)$. On the other hand, writers of $w \geq m_p$ pitch too much when the ideas are not very good (i.e., when $\theta < q(w)$) because these writers do not internalize the buyer's meeting cost.

2.3. **Discussion.** Here, I discuss some of the modeling choices and their interpretations.

Asymmetric information over θ. Before the contents of an idea are disclosed, the buyer can, at best, assess the idea's value based on information that she observes, such as the writer's past experience, w. However, an inexperienced writer or a writer without a good track record may have a great idea, and an established writer may have bad ideas sometimes. The writer's private signal, θ, measures this deviation in the idea's quality from the writer's average past performance w.

In the model, the buyer observes the private signal, θ, as soon as the writer presents the pitch. This is reasonable for a spec, because the qualities of the idea and the script are clear, given a complete script. For a pitch, however, this may not be the case. The writer may have an incentive to brag about the idea and overstate his confidence. Without a complete script, it may be difficult for the buyer to make a fair judgement. Or it may be that the writer simply has difficulty in articulating what he believes without writing it down. In the management literature, a similar concept is the tacitness of knowledge (see von Hippel (1988)).

The reality is likely to lie somewhere in between. In the appendix, I discuss a variation of the model in which the buyer does not observe the writer's private signal, θ, until the script is finished. The results show that persistent asymmetric information gives the writer an extra incentive to spec, and increases the buyer's meeting threshold for pitch. The writer has an extra incentive to spec is because he wants to differentiate his idea from worse ones — a classic adverse selection problem. The barrier to pitch is higher for two reasons: the average quality of pitches offered for sale decreases as a result of the adverse-selection problem; and there is efficiency loss because the buyer does not observe the true θ when deciding whether to buy a pitch.

The timing of realization of the uncertainties ϵ_i and ϵ_s. In the model, the uncertainties are realized only after the buyer evaluates the idea. This highlights the notion that the buyer contributes critical information on an idea's value and is the source of the option value of a pitch. The buyer's information may come from her extensive experience in commercialization, or it simply reflects her idiosyncratic taste, which is unknown to the writer beforehand. For example, if the buyer is already developing a similar project, the writer's idea would be worth much less.

An implicit assumption is that the buyer does not manipulate what she observes, so that both players observe the realized uncertainties accurately. The buyer's incentive to manipulate this information can be an interesting extension.

Interpretation of λ. Stronger legal protection increases the writer's outside option and decreases the buyer's outside option, thus granting the writer a bigger share of the idea's surplus. This is the advantage of a spec because property-rights protection for a complete script is more effective. First of all, copyright does not protect oral conveyance of an idea. Second, to seek some protection by copyright, writers usually write down one- or two-page outline of the story before they pitch. However, the plots, dialogues, and characters in a complete script are much better defined than in a few-page outline. Thus, in general, the protection of a complete script is more effective.

In reality, however, there may be multiple reasons that grant the writer a better bargaining position when selling a complete script. These reasons are likely to coexist. For example, Anton and Yao (1994) argue that the threat of selling the idea to a rival buyer, thus undermining the current buyer's monopoly, allows the idea seller to capture a sizable share of the idea's value even when there are no effective property rights. This intuition gives an interesting alternative interpretation of the parameter λ: *the degree of threat* to the current buyer's monopoly position. An idea at a more advanced stage imposes a more immediate threat to the current buyer, allowing the writer to capture a greater share of the idea's surplus. In the case of a spec, the writer can sell the script to another buyer if the negotiation breaks off. Because it is already a script, the project can go on to the next stage, and eventually to the market, much quicker than a pitch, which will take at least another four months to be turned into a script.

Bargaining. The generalized Nash bargaining solution is a reasonable simplification of the actual contract because a vast majority of ideas are sold through negotiation. Typically, the writer (and his agent if he has one) first contacts the buyer who is likely to value the idea the most. If the negotiated price is reasonable and competitive, he will sell the idea. An auction is sometimes used, but it is a fairly restricted practice. For example, only four percent of sales in the data have gone through some sort of auctioning mechanism.[11]

The equilibrium results hold both in the intermediate cases, where the writer and the buyer both have some bargaining power (i.e., $0 < \alpha < 1$), and in the extreme cases, where either one has all of the bargaining power (i.e., $\alpha = 0$ or 1). In related studies, Ueda (2004) gives the entrepreneur all the bargaining power; Anton and Yao (1994 and 2002) give the buyer all the bargaining power; Aghion and Tirole (1994) and Gans et al. (2002) assume a Nash bargaining solution.[12]

An idea's ultimate value V***.*** The model assumes that $V = w + \theta + \epsilon_i + \epsilon_s$, and the random variables are independent of each other. Together with Assumption 3, this set-up simplifies the analysis and yields reasonable properties of quantities that I am interested in. For example, an idea's expected value $v(w, \theta, \epsilon_i)$, as defined in Equation (2), increases with each of its arguments.[13] Also, the buyer's expected payoffs from meeting the writer increases with the writer's observable quality, w, both for a spec and for a pitch.

First, the symmetry in each factor's contribution to V is not necessary. Suppose $V = aw + \theta + \epsilon_i + \epsilon_s$, then, the slopes of the separating thresholds are $-a$ (instead of -1), and all other results are qualitatively the same.

Second, though V takes an additive form, there is complementarity among different factors in the players' payoffs because the downside risk is eliminated by the option of terminating the project when it is bad (e.g., Lemma A1 shows that the cross partial of $v(w, \theta, \epsilon_i)$ with respect to w and θ is positive).

Lastly, the variances of the uncertainties, ϵ_i and ϵ_s, and the writer's private signal, θ, might depend on the writer's observable quality, w. Reasonable properties of the idea's expected value and the players' expected payoffs that I described above can be sustained under certain conditions, hence, the qualitative results of the model. For example, suppose that the quality of the script is

[11] 1.2% of the sales indicate "bidding war," and 2.8% percent indicate "preemptive bid."

[12] Gans et al. (2000) develop non-cooperative foundations for this bargaining assumption in the context of a licensing game where the timing of licensing is endogenous.

[13] See Lemma A1 and A2 for other properties of $v(w, \theta, \epsilon_i)$.

normally distributed, however, its variance decreases with w because it might be argued that the better the writer's past experience the smaller the variance. $\sigma'_{\epsilon_s}(w) > -1$ is a sufficient condition to sustain the properties of the idea's expected value, $v(x, \theta, \epsilon_s)$, claimed in Lemma A1 and A2. The intuition is that $v(x, \theta, \epsilon_s)$ is bigger when the variance is bigger because the upside benefit is greater, while the downside risk is eliminated. Then, as long as $\sigma_{\epsilon_s}(w)$ does not decrease with w too fast, $v(x, \theta, \epsilon_s)$ still increases with w.

The writer's and the buyer's costs. The model's assumptions on the writer's and the buyer's costs, as well as their relative magnitudes simplifies the analysis, though not necessary.

The buyer's meeting costs for a spec and for a pitch might be different. In fact, under Assumption 2 that the writer's writing cost is relatively greater than the buyer's meeting cost for a spec, the model's results hold qualitatively as long as the buyer's meeting cost for a pitch is positive.[14]

Assumption 2 is also stronger than necessary. A result of this assumption is that in equilibrium, when the writer has chosen to spec, the buyer always meets him. However, this is a simplification of a more general result that the buyer is more strict about who to meet for a pitch than who to meet for a spec. It can be shown that under a more relaxed sufficient condition that yields this general result, the buyer might also have a meeting threshold for a spec, such that writers of w below this threshold are not going to be met no matter what he decides to do.

3. EMPIRICAL IMPLICATIONS

In this section, I derive empirical implications from the model. These implications are then tested using the data in the empirical sections that follow.

Ideally, I would like to observe a random sample of ideas *offered for sale* by the writer, both sold and rejected, so that I could directly test the writer's choice. However, such data are hard to find.[15] Therefore, I take particular care when deriving the following predictions, so that they are conditional on equilibrium outcomes, and testable using the sales data.

3.1. Likelihood of a spec sale and observable writer quality.

The model implies a non-monotonic relationship between the likelihood of a spec sale and observable writer quality; that is:

Prediction 1. *Conditional on sale, the likelihood of a spec is high for writers of low and high observable qualities and low for writers of intermediate observable quality.*

[14] That said, the buyer's meeting cost for evaluating an earlier-stage idea might not be trivial: they might require higher-skilled staff to evaluate because the information embodied is less concrete than a later-stage idea, and higher-skilled staff's opportunity cost of time is higher; in an idea-selling context, the risk of legal disputes that comes with first-hand knowledge of an idea can also be substantial.

[15] The only study I am aware of that has both ideas sold and rejected is Kerr et al. (2010), where they have both business ideas financed and rejected from two angel investment groups.

It is easier to explain the results using Figure 2, which describes the writer's choice in equilibrium. Writers of low observable quality ($w < m_p$) encounter barriers to selling a pitch, so the likelihood of a spec sale for these writers is one. Once a writer's observable quality is good enough ($w \geq m_p$) to get his pitches heard, the likelihood of a spec sale drops. As a writer's observable quality increases, he chooses to spec more often, and the likelihood of a spec sale increases again.

3.2. **Writer's choice and movie performance.** After a pitch is transformed into a script and the buyer deems it qualified for the next stage, pitch and spec are subject to similar go/no-go criteria as they go through the subsequent development and production processes. Thus, the difference in the average quality of these two types of projects come mainly from the early stages.

On the one hand, the model shows that the writer chooses better ideas to spec. *The writer-selection effect*, when considered alone, makes projects purchased as a spec better, on average. On the other hand, projects purchased as a pitch are selected during an extra round by the buyer at the idea stage. *The extra-evaluation effect*, when considered alone, makes projects purchased as a pitch better, on average.[16]

In the data, I observe one such subsequent point where the average qualities of specs and pitches are comparable: when the movie is released. Combining the above two effects, the model predicts:

Prediction 2. *Conditional on release, when observable writer quality is sufficiently high, the average performance of movies purchased as a pitch is worse than that of movies purchased as a spec.*

The extra-evaluation effect is minimal when observable writer quality is high enough. This is because their ideas are most likely good enough to be sold if they choose to pitch; thus, the extra round of evaluation does not make much of a difference. The writer-selection effect dominates for these writers. Thus, spec performs better, on average. However, it is possible that pitch performs, on average, better when the writer has low observable quality because the extra-evaluation effect might dominate the writer-selection effect.

3.3. **Affiliation with a reputable agency.** Market frictions such as asymmetric information and expropriation risk give rise to the role of an intermediary. The following analyzes the effects of the affiliation with a reputable agency on the timing of sale.[17] I focus on a few of the agent's roles that people in the industry consider important: reducing asymmetric information; monitoring the buyer's opportunistic behavior; and increasing the writer's bargaining power. I derive the effects of each role using comparative statics — that is, assuming the change in the primitive parameters

[16] Arguments such as "the producer and the studio contribute positively to the process of transforming the pitch into a script" have effects similar to the extra-evaluation effect, making pitches, on average, better.

[17] I use agent and agency interchangeably to mean the intermediary firm. An agent works for an agency. Most agencies work as a team, even though a particular agent is designated to a certain client.

resulted from the affiliation with a reputable agency and comparing the new equilibrium with that of the model.

The analysis is subject to the following limitations. First, I do not endogenize the writer's choice of whether to engage an agent at all; nor do I study the assortative matching between the agent and the writer.[18] In reality, the writer may have many reasons to hire an agent (e.g., to increase the chance of finding an adaptation job), which are beyond the scope of this paper. Second, I assume that the agent and the writer make a decision to maximize their joint surplus. Thus, I am not considering the conflicts of interests between the agent and the writer. These considerations are left to a separate paper.

A. Mitigating asymmetric information.

An agent may mitigate asymmetric information for the following reasons. First, repeated interactions with both sides of the market make the agent rely heavily on reputation. Some of the biggest agencies represent a few hundred clients of different kinds. This makes the writer trust a reputable agent with his idea, and makes the buyer trust the agent to bring good materials. Second, because of their long-term working relationship, the agent knows a lot more about the writer's capabilities and the idea's potential than other people do. Finally, Hollywood is a small and connected community. Reputation (good or bad) travels rather quickly.

During an interview, an executive from one of the major studios emphasized that when selecting projects, he takes calls only from well-known agents or agents with whom he has had good experiences because he trusts their taste. Mapping to the model, this comment means that a reputable agent is able to let the buyer observe the writer's private signal, θ, before she decides whether to meet the writer.[19]

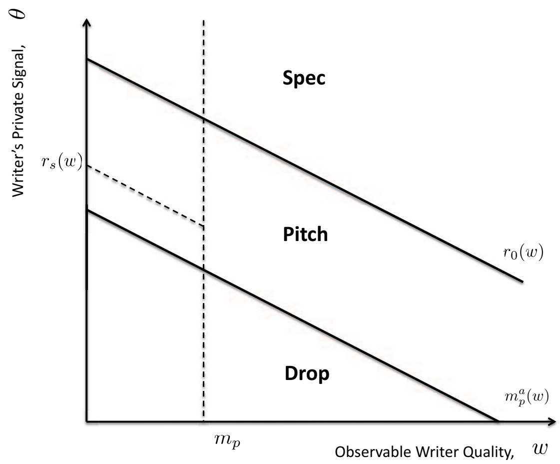
Proposition 2. *Suppose that a reputable agent alleviates asymmetric information before the buyer decides whether to meet. When the buyer's cost of meeting is not too high (i.e., when $c_m < K$), there exist two thresholds $r_0(w)$ and $m_p^a(w)$ such that in the equilibrium, the writer chooses to spec if $\theta \geq r_0(w)$, pitch if $m_p^a(w) \leq \theta < r_0(w)$, and drop the idea otherwise.*

Figure 4 compares the writer's choice in the new equilibrium to that in the model. The most important change is that writers of low observable qualities ($w < m_p$) can now pitch with the help of the agent. This is because the buyer's meeting decision now also depends on the writer's private

[18]In the empirical analysis, I use the writer fixed effects to control, to a certain extent, for the endogenous matching between the writer and a big agency.

[19]To protect both parties, the industry convention is that no details are disclosed until the buyer agrees to meet. Still, a reputable agent is able to convey his rough estimate of the money value of the idea without disclosing the contents. For example, he can say something like, "I think the idea has real potential; it is very likely to be as successful as Twilight! You should definitely listen to him!"

FIGURE 4. **Writer's Choice in Equilibrium with the Agent (alleviating asymmetric information)**



Notes: The solid lines and the texts describe the writer's choice in the new equilibrium where the writer is affiliated with a reputable agency. The dashed lines are the writer's choice in the equilibrium in the model (the same as Figure 2).

signal, θ. A writer of low observable quality will be met for pitch if he has a really good idea (i.e., when $\theta \geq m_p^a(w)$). Writers who do not encounter barriers to pitch by themselves ($w \geq m_p$) pitch less. The reason is that when the signal is not good (i.e., when $\theta < m_p^a(w)$), the agent is screening these ideas out.

Proposition 2 has the following implications.

Prediction 3. (alleviating asymmetric information) *Suppose that a reputable agent alleviates asymmetric information before the buyer decides whether or not to meet. Comparing a writer affiliated with a reputable agent with one not so affiliated:*

(i) *When the writer's observable quality is relatively low, the likelihood of a spec sale is lower. When the writer's observable quality is sufficiently high, the likelihood of a spec sale is not very different. For writers in the middle, the likelihood of a spec sale is higher.*

(ii) *When the writer's observable quality is relatively low, the average quality of specs sold is higher. For writers who are able to sell a pitch with and without the agent, the average quality of pitches sold is higher.*

By mitigating asymmetric information, a reputable agent helps a low-quality writer overcome the barriers to selling a pitch and, thus, lowers the likelihood of a spec sale for these writers. Such an affiliation does not have a significant impact on sufficiently good writers, because their pitches are most likely good enough to be heard. For writers in the middle, the likelihood of a spec sale is higher because the agent, with greater reputation capital to protect, is more strict in screening out bad ideas that the writer would have pitched without the agent.

Another testable implication is about the average quality of specs and pitches sold. For writers of relatively low quality ($w < m_p$), the pressure of writing a spec directly disappears. The threshold above which the writer chooses to spec is higher; that is, $r_0(w) > r_s(w)$. Therefore, the average quality of specs sold by these writers is higher. Similarly, for writers who are able to sell pitches with and without the agent, the average quality of pitches sold is better, as well, because the worst ideas are screened out.

B. Reducing the expropriation risk and increasing the writer's bargaining power.

A reputable agent may reduce the expropriation risk. Copyright and contract laws provide a certain level of protection, but they are often difficult and costly to enforce. Repeated interactions between the agent and the buyer help discipline the buyer's opportunistic behavior because the buyer has to pay a reputation cost if she acts opportunistically.

A reputable agent may also negotiate better terms for the writer than the writer alone is able to. An agency has greater bargaining power because it has better a negotiation skill and better knowledge of the market and the buyer, and it represents multiple types of talents the buyer needs to deal with.

Returning to the model, both roles mentioned above increase the writer's share of the idea's surplus for spec and for pitch. Reducing the expropriation risk is like increasing the idea's protection level λ, and increasing the writer's bargaining power is to increase α. Recall that the writer's effective share of the surplus is $\alpha = \alpha(1-\delta) + \lambda\delta$. It increases with λ and with α.

Proposition 3. *Suppose that the agent increases the writer's share of the idea's surplus for spec and pitch by a similar amount, through either reducing the expropriation risk or increasing the writer's bargaining power. The writer's choice in the equilibrium is qualitatively similar to Proposition 1. Comparing the equilibrium with the agent to that in the model:*

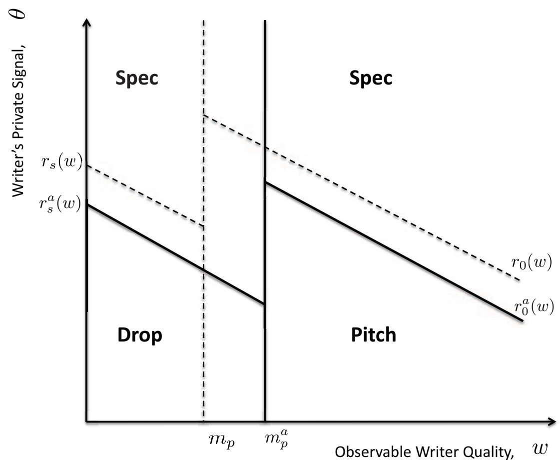
(i) *The writer chooses to spec more; that is, $r_0^a(w) < r_0(w)$ and $r_s^a(w) < r_s(w)$.*

(ii) *The buyer is more strict about who to meet for a pitch; that is, $m_p^a > m_p$.*

Compared to the equilibrium in the model (Figure 5), the barrier to pitch increases. Thus, there are more writers excluded from the pitch market. The reasons is two-fold. First, as will be explained below, the writer specs more, regardless of his observable quality. This results in a lower threshold below which the writer chooses to pitch, which reduces the average quality of pitches offered for sale. Second, the buyer captures a smaller share of the surplus, which lowers her expected payoff from meeting the writer for a pitch.

The writer chooses to spec more, regardless of his observable quality. Writers who are excluded from the pitch market in both cases ($w < m_p$) spec more, relative to dropping the idea, because

FIGURE 5. **Writer's Choice in Equilibrium with the Agent (increasing writer's share of the surplus)**



Notes: The solid lines and the texts describe the writer's choice in the new equilibrium where the writer is affiliated with a reputable agency. The dashed lines are the writer's choice in the equilibrium in the model (the same as Figure 2).

they capture a better share of their idea's surplus. Writers of quality just above the buyer's meeting barrier in the old equilibrium are now excluded from the pitch market and, thus, spec more.

Writers who are able to spec and pitch in both cases spec more because the relative advantage of pitch decreases. To see this, consider the writer's trade-offs between spec and pitch, equation (3). When the writer's share of the surplus increases by a similar amount for spec and pitch, the difference in the relative rent the writer captures does not change — i.e., the term $(\alpha_s - \alpha_p)\mathbb{E}[v(w, \theta, \epsilon_i)]$ stays the same. The other two terms are the relative advantage of pitch (or the disadvantage of spec): the writer's share of the option value, $\mathbb{P}(v(w, \theta, \epsilon_i) < c_s)\mathbb{E}[\alpha_p(v(w, \theta, \epsilon_i) - c_s)|v(w, \theta, \epsilon_i) < c_s]$, and the cost advantage of not paying the sunk cost beforehand, $-(1 - \alpha_p)c_s$. When the writer's share α_p increases, the change in the sum of these two terms is positive, and the net effect favors spec. Even though the writer's share of the option value increases, his share of the writing cost also increases. Overall, the relative advantage of pitch decreases because the preventable loss is, at most, the writing cost.

Proposition 3 implies that the agent's role of increasing the writer's share of the surplus has different predictions from the role of alleviating asymmetric information.

Prediction 4. (increasing writer's share of the surplus) *Suppose that the agent increases the writer's share of the idea's surplus for spec and pitch by a similar amount, through either reducing the expropriation risk or increasing the writer's bargaining power. Compare a writer associated with the agent with one who is not:*

(i) *The likelihood of a spec sale is higher, regardless of observable writer quality.*

(ii) *The average quality of specs sold is lower, regardless of writer quality. For writers who are able to pitch with and without the agent, the average quality of pitches sold is lower, as well.*

4. Data and Variables

4.1. **Data.** The main data source is an internet database called *Done Deal Pro*, which tracks original movie idea sales and script adaptations in Hollywood on a daily basis. The database is recommended by various industry organizations, including the Writers Guild of America, as a valuable resource for screenwriters and other industry professionals to stay up to date on the latest trends in the idea trade. The database covers a decent portion of ideas purchased by the major studios and big production companies. For example, by manually checking all movies released by the major studios in 2008, I am able to track down over 80% of them in the sales database.

The Appendix has a detailed description of the sales database, the matching procedure across different data sources, as well as the construction of the final sample and the variables. There are around 7,900 sales in the database between 1998 and early 2008. First, I exclude cases where a writer is hired to adapt other people's ideas, such as a book, because this paper focuses on original ideas sold by screenwriters. I drop about 55% of the sales for this reason. Second, I use ideas sold by December 2003 to leave enough time to observe the final outcome of the project.[20] This leaves about 2,100 sales. Lastly, not all sales clearly indicate whether they are specs or pitches. Complemented by information from two additional sources, *Hollywood Literary Sales* and *Who's Buying What*, I am able to complete this information for 81% of the sales. Therefore, my final sample for analysis contains 1,638 sales.

To test the predictions, I need more information, which requires matching the sales sample to other databases. First, I need measures of observable writer quality. I obtain this information from matching the writers to people on *IMDB*. *IMDB* has comprehensive information on a person's past experiences, such as the movies or TV shows he has participated in. Second, I need measures of an idea's quality. Under the premise that all else equal, an idea's quality is positively correlated with its final outcome, I match the sales with movies on *IMDB* and *TheNumbers*. I observe whether the movie is released and, if released, the characteristics of the movie and its performance.

I use the sample as a cross-sectional data for most parts of the analysis because about 80% of the sample's writers have only one sale over the six years. The unit of analysis is a sale. Whenever there are multiple players in a player type, I take the maximum of different players' characteristics as that of the player type. For example, for a two-writer team, I define the measure of writer quality as the better of the two. The same rule applies to the producer and the intermediary.

[20] There are 70 months between January 2004 and November 2009. The data show that of ideas sold between January 1998 and December 2003, if the movies are released, 92 percent of them are released within 70 months (the average is 38 months).

4.2. **Variables.** Table 1 summarizes the variables (defined in the following). To save space, the table omits a few groups of dummy variables, such as the idea's major genre.

TABLE 1. **Variables and Descriptive Statistics**

Variable	**Obs.**	**Mean**	**S.D.**	**Min.**	**Max.**	**Mean**		**t**
SPEC	1638	0.55	0.5	0	1	Pitch	Spec	
RELEASED	1638	0.12	0.33	0	1	0.09	0.15	-3.78
US_BOXOFFICE ($millions)	197	44.33	48.25	0.00	242.71	43.53	43.88	-0.16
TIME_TO_MARKET (months)	197	41.21	20.21	12.47	124.97	44.38	39.68	1.53
WRITEREXP	1638	0.32	0.72	0	4	0.40	0.25	4.01
BIG_AGENT	1638	0.40	0.49	0	1	0.49	0.33	6.57
NUM_WRITER	1638	1.35	0.51	1	3	1.39	1.31	3.45
WRITER_ANYMOVIE	1638	0.59	0.49	0	1	0.69	0.52	7.17
WRITER_TV	1638	0.04	0.20	0	1	0.06	0.03	2.49
WRITER_DIRECTOR	1638	0.07	0.26	0	1	0.08	0.07	0.91
WRITER_ACTOR	1638	0.15	0.36	0	1	0.19	0.12	3.81
WRITER_PRODUCER	1638	0.13	0.34	0	1	0.15	0.12	2.03
MANAGER	1638	0.27	0.45	0	1	0.25	0.29	-1.44
BUYER_STUDIO	1638	0.60	0.49	0	1	0.70	0.52	7.49
PRODUCER_EXP	1429	3.67	4.03	0	26	3.62	3.70	-0.40
WRITER_DIRECT	1638	0.08	0.27	0	1	0.08	0.08	-0.17
WRITER_ACT	1638	0.02	0.13	0	1	0.02	0.01	1.69
WRITER_PRODUCE	1638	0.05	0.23	0	1	0.07	0.04	2.11
ATTACH_ACTOR	1638	0.14	0.34	0	1	0.15	0.13	1.26
ATTACH_DIRECTOR	1638	0.21	0.41	0	1	0.20	0.23	-1.45
YEAR_SALE	1638	2000.77	1.57	1998	2003	2000.69	2000.83	-1.89
PROD_BUDGET($millions)	149	38.27	26.52	1.5	150	40.32	37.29	0.66
NUM_SCREEN	197	2077.18	1107.19	1	3965	2345.75	1947.95	2.39
STAR	197	0.20	0.40	0	1	0.20	0.20	0.13
FRANCHISE	197	0.06	0.23	0	1	0.03	0.07	-1.04
YEAR_RELEASE	197	2003.76	2.26	1999	2009	2003.89	2003.70	0.55
WEAK_RELEASE	197	26.25	15.04	2	52	23.98	27.35	-1.47

Notes: 1) The unit of analysis is a sale. Whenever there are multiple players in a player type, I take the maximum of different players' characteristics as that of the player type. For example, for a two-writer team, WRITEREXP is the greater of the two. 2) To save space, summaries of the dummies for the major genre of the idea, the major studio that purchases the idea, the distributor and the MPAA rating movies that are released are not presented here.

A. Dependent variables

SPEC equals 1 if the sale is a spec, and 0 if a pitch. 55% of the sample are specs.

RELEASED equals 1 if the movie is theatrically released and generates positive box office revenues in the U.S.[21] The rate of release is 0.12 on average. A spec is significantly more likely to be released than a pitch (0.15 versus 0.09), which is not surprising given its more advanced stage.

For movies that are released, I construct the following two measures of movie performance:

US_BOXOFFICE: The average U.S. box office is $44.4 millions. There is no significant difference in the average U.S. box office between specs and pitches ($43.88 versus $43.53 million).

TIME_TO_MARKET equals (release date in the U.S. − sale date)/30. I define the date on which the sale is entered into the database, *Done Deal Pro*, as the sale date. This is a reasonable approximation because the database is updated daily, as soon as the relevant parties make the announcement in the trade press. The announcement is usually timely, either because the studio wants to preempt a project, or because the writer (and his agent) wants the positive advertising effect. TIME_TO_MARKET measures the number of months a project takes from sale to market. A spec is at a more advanced stage than a pitch. Thus, I add four months to specs to make the measurement comparable. I add four months because a typical writing contract for a pitch requires the writer to finish the first draft in three months, and it allows the buyer about a month to decide whether to continue. The mean of TIME_TO_MARKET is 41.3 months. A one-sided test suggests that after adjusting for the average leading time of specs, a pitch, on average, still takes longer to reach the market than a spec (44.38 versus 39.7 months). Note that all else equal, longer time to market is generally undesirable, because it requires extra costs and delays recoupment of the investments.

B. Independent variables

The independent variables of most interest are measures of observable writer quality and the writer's affiliation with a reputable agency: WRITEREXP and BIG_AGENT.

WRITEREXP is a measure of observable writer quality. I use the number of the writer's movies that have been released by the major studios in the previous five years.[22] I restrict the count to the last five years both to avoid simply measuring the length of the writer's experience, and also because in Hollywood, the writer's current status is what really matters. I restrict the count to movies released by the major studios because writing for small-production independent films is not usually regarded as an important credential in Hollywood. Presumably, only writers that have proved themselves to be good are able to keep working for the major studios. This selection mechanism also justifies the variable as being a reasonable and strict measure of observable writer quality. The raw measure ranges from zero to seven. For writers with more than four credits, I

[21]There are three cases where the movies are released in film festivals, and the box office revenues are recorded as $0. I count them as not released.

[22]A writing credit includes *written by*, *screenplay by*, and *story by*. I count movies where the idea is the writer's original, as well as movies where the writer is hired to do the adaptation.

group them at four to obtain a decent number of observations. 79% of the sales are from writers with no major writing credit in the previous five years. For the other 21%, the average number of writing credits is 1.52.

I choose the measure explained in the previous paragraph instead of other measures, such as the average U.S. box office or the average *IMDB* user ratings of movies the writer has written, for the following reasons. First, factors that are critical to the ratings and the box office performance, such as the production budget, other talents, and genre, affect the pure count less. Second, the pure count makes a consistent measure for all writers because there is no rating nor box office information available for those who haven't written any released movie.

BIG_AGENT equals 1 if the writer is affiliated with one of the five biggest agencies in Hollywood.[23] I focus on the effects of these biggest agencies because having an agent or other minor type of intermediary is more or less the norm in Hollywood. However, in terms of reputation capital and market power, the difference between being represented by one of these "big five" and not is greater than the difference between being represented by any intermediary and not.[24] 40% of the sales are from writers affiliated with a big agency. On average, sales from writers with a big agency are significantly more likely to be a pitch (54%) than are sales from writers without a big agency (38%).

The following defines a few sets of control variables.

Other writer characteristics: NUM_WRITER is the number of writers on the team. 67.3% of the sales are from single writers, 31% are from two-writer teams, and 1.7% are from teams of three or more. WRITER_ANYMOVIE equals 1 if the writer has ever written any feature film that was then released. WRITER_TV equals 1 if the writer has written for any TV program aired by the major TV networks. WRITER_DIRECTOR, WRITER_ACTOR, and WRITER_PRODUCER indicate whether the writer has ever obtained a directing, acting (top five listed actors in a movie, by importance), or producing credit for movies released by the major studios.

Other intermediary characteristics: MANAGER equals 1 if the writer also has a manager. 27% of the sales are from writers that have a manager.

Buyer characteristics: There can be several buyers for each sale. They can be major studios or independent production companies. I create ten dummies which indicate the ten major studios during the sample period that I study.[25] The baseline is an average non-studio buyer. 60% of the ideas

[23]During the sample period that I study, the biggest five agencies were Creative Artists Agency, United Talent Agency, William Morris, International Creative Management, and Endeavor.

[24]From the perspective of size, the total number of unique sales by the five biggest agencies between January 1998 and February 2008 range from 610 to 998, while the highest number from the other 267 agencies is 181. The number of sales is based on the complete sample of 7980 sales that include both adaptations and original ideas dropped due to missing information on the sale stage.

[25]Six traditional major studios were Walt Disney, Warner Bros., Paramount, Universal, Twentieth Century-Fox, and Sony Pictures Entertainment (Columbia Pictures). Four smaller ones were DreamWorks SKG, New Line Cinema, MGM,

are purchased by the major studios, which are more likely to purchase pitches than an average non-studio buyer (53% versus 34%). Producers are also involved in most cases. PRODUCER_EXP measures a producer's experience, which is the number of the producer's movies that have been released by the major studios in the previous five years. I then take the maximum of this variable if there is more than one producer involved. I impute the variable as zero for sales where there is no producer listed.

Idea characteristics: Nine dummy variables are used to control for the main GENRE of the idea.[26] The largest genre is comedy (45%), which is followed by drama (21%) and action (11.5%). This is important because ideas of some genres (e.g., comedy) are more execution-dependent than others, so it is more important for the writer to illustrate that he can write well. Genres also differ in profitability and production budget, which affect the size of the expected surplus. ATTACH_DIRECTOR and ATTACH_ACTOR indicate whether a director or an actor is already attached to the project at the time of sale. WRITER_DIRECT, WRITER_ACT, and WRITER_PRODUCE indicate whether the writer is going to direct, act in, or produce this particular movie, as well. The year of sale, YEAR_SALE, controls for the general market demand and supply in a particular year. It also affects whether the movie is released within the considered time frame.

Movie characteristics: This information is available only for movies that are released. Of the 197 released movies, 149 have information on PROD_BUDGET (in $millon). The mean production budget levels are not significantly different between specs and pitches ($40.3 versus $37.3 millions). I use NUM_SCREEN in the first weekend of the film's release to control for the movie's marketing strategy. Pitches have significantly greater number of screens in the first weekend of the film's release than pitches (2345.75 versus 1947.95). STAR indicates whether the movie is on the list of top 1,000 "Highest Combined Star Gross", as defined by *TheNumbers*.[27] 36 movies are on the list. FRANCHISE indicates whether the movie has a franchised name to bank on. GENRE and MPAA_RATING[28] of the movie affect the potential market size. Dummies of YEAR_RELEASE are also included. Seasonal effects are controlled for using 51 WEEK_RELEASE dummies, as in Einav (2007). Distributor dummies are also included.

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and Miramax Films. There are three cases where there are two major studios involved. I count the first major studio listed as the buyer.

[26]They are action, comedy, drama, horror, thriller, family, adventure, fantasy, and sci-fi. The baseline is other genres.

[27]"Highest Combined Star Gross" is calculated by adding together the total box office for all the credited actors and actresses in the movie, where the total box office for an actor/actress is the sum of the U.S. box office for all the movies he/she has been in.

[28]MPAA rating refers to the film-rating system by the Motion Picture Association of America. It is used in the U.S. and its territories to rate a film's thematic and content suitability for certain audiences. The ratings are G, PG, PG-13, R, and NC-17, in an increasing order of inappropriateness for younger audience. For the 198 movies that are released, there is one G and one not-rated. I group them into PG.

5. EMPIRICAL ANALYSIS

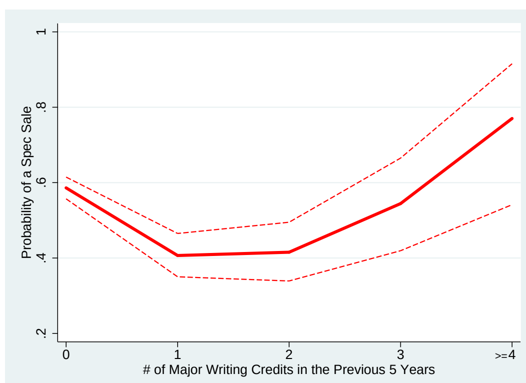
5.1. **Likelihood of a spec sale and observable writer quality.** The model predicts that the likelihood of a spec sale has a non-monotonic relationship with respect to the writer's observable quality. To test this prediction, consider the following Probit model:

$$\mathbb{P}(\text{SPEC}_i = 1) = \mathbb{P}(\beta_0 + \beta_1 \text{WRITEREXP}_i + \beta_2 \text{WRITEREXP}_i^2 + \beta_X X_i + u_i \geq 0), \quad (5)$$

where WRITEREXP_i is the writer's number of major writing credits in the previous five years, and X_i are controls. These controls include other writer characteristics, the characteristics of the agency, the buyer, and the idea. u_i is the random shock.

The Probit estimates are reported in Column (1) of Table 2. Figure 6 plots the predicted probability of a spec sale at different values of WRITEREXP, keeping the control variables at their sample means. The predicted probability is 0.59 when WRITEREXP = 0. It drops to 0.41 when WRITEREXP = 1 and increases back to 0.54 when WRITEREXP = 3. Both the decrease and the increase are significantly different from zero at the 5% level.[29]

FIGURE 6. **Predicted Probability of a Spec (versus a Pitch) Sale**



Notes: The solid line is the predicted probability of spec sale as a function of observable writer quality, keeping the control variables at their sample means. The dashed lines are the 95% confidence interval. The computation is based on the regression results of equation (5), and the results are reported in Column (1) of Table 2.

The non-monotonic relationship is statistically significant when 1) the control variables are kept at the sample medians or other quantiles; 2) a group of dummies indicating each value of WRITER-EXP is used in lieu of the linear and the quadratic terms; 3) only sales from single writers are used (Column (2) in Table 2); and 4) an expanded sample, including the years 2004 to 2007, is used.

Interpreting the results based on the theory, the non-monotonic relationship results from the interaction between the writer's and the buyer's incentives. Low-quality writers have no choice but to spec because, otherwise, the buyer does not trust that the writer's idea is good. Writers in

[29] $t = 5.42$ and -2.14 respectively. The standard errors are calculated using the delta method.

TABLE 2. **Probit Estimates for the Probability of a Spec Sale** (marginal effects)

	Complete Sample (1)	Single Writer (2)	Complete Sample (3)	Single Writer (4)
WRITEREXP	-0.171***	-0.199***	-0.276***	-0.318***
	(0.050)	(0.062)	(0.078)	(0.095)
$WRITEREXP^2$	0.060***	0.062***	0.093***	0.101***
	(0.017)	(0.021)	(0.031)	(0.036)
BIG_AGENT	-0.113***	-0.137***	-0.139***	-0.162***
	(0.028)	(0.034)	(0.031)	(0.037)
BIG_AGENT × WRITEREXP			0.182*	0.205*
			(0.097)	(0.117)
BIG_AGENT × $WRITEREXP^2$			-0.054	-0.065
			(0.037)	(0.044)
WRITER_ANYMOVIE	-0.131***	-0.144***	-0.127***	-0.141***
	(0.030)	(0.036)	(0.030)	(0.036)
WRITER_TV	-0.094	-0.139	-0.092	-0.134
	(0.068)	(0.091)	(0.068)	(0.092)
WRITER_DIRECTOR	0.072	0.082	0.064	0.071
	(0.056)	(0.070)	(0.057)	(0.072)
WRITER_ACTOR	-0.055	0.001	-0.056	0.001
	(0.041)	(0.054)	(0.041)	(0.055)
WRITER_PRODUCER	0.047	0.131**	0.046	0.132**
	(0.044)	(0.052)	(0.044)	(0.052)
NUM_WRITER	-0.042		-0.042	
	(0.026)		(0.026)	
MANAGER	0.017	-0.008	0.016	-0.008
	(0.030)	(0.039)	(0.030)	(0.039)
WRITER_DIRECT	0.010	0.003	0.008	0.002
	(0.061)	(0.073)	(0.061)	(0.073)
WRITER_ACT	-0.013	-0.143	-0.011	-0.140
	(0.107)	(0.155)	(0.107)	(0.156)
WRITER_PRODUCE	-0.121**	0.005	-0.124**	-0.002
	(0.060)	(0.077)	(0.061)	(0.078)
ATTACH_ACTOR	-0.018	-0.028	-0.021	-0.030
	(0.040)	(0.048)	(0.041)	(0.049)
ATTACH_DIRECTOR	0.062	0.066	0.061	0.065
	(0.038)	(0.044)	(0.038)	(0.044)
PRODUCER_EXP	0.015**	0.017*	0.016**	0.018*
	(0.008)	(0.009)	(0.008)	(0.009)
$PRODUCER\_EXP^2$	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)
YEAR_SALE F.E.	Y	Y	Y	Y
MAJOR_STUDIO F.E.	Y	Y	Y	Y
GENRE F.E.	Y	Y	Y	Y
p-value	0.000	0.000	0.000	0.000
N	1638	1100	1638	1100

Note: 1) the dependent variable is SPEC for all regressions. 55% of the observations are spec. 2) All regressions are Probit estimates, and the marginal effects are reported. Column (1) and (2) correspond to equation (5), with the former using the complete sample, and the latter using sales from single writers. Column (3) and (4) correspond to equation (6). 3) ***, **, and * are respectively significant levels of 1%, 5%, and 10%.

the middle want to sell early, and are good enough to get their pitches heard. Top writers want to spec to capture the best possible share of the idea's surplus.

Interestingly, when WRITEREXP $= 0$, the likelihood of a pitch sale is still quite big (41%). There are a few ways to reconcile the data with the discontinuity result from the model. That is, writers of observable quality lower than the buyer's meeting threshold for pitch cannot sell a pitch at all. One explanation is that even after controlling for as many of the writer's observable characteristics as possible, the buyer still observes information about the writer that is not in the data. Some writers who appear to be low-quality in the data may be working on projects that are still in the pipeline, or their movies are dropped for reasons unrelated to their ability. This could explain why a fairly large proportion of writers without any major writing experience are still good enough to pitch.[30]

All else equal, the sale is less likely to be a spec if the writer has written any feature film that is released, is producing the movie at the same time, is affiliated with a big agency (more on this later), or if the idea is bought by a less-experienced producer. The dummies for YEAR_SALE are jointly significant. So are the dummies for GENRE and MAJOR_STUDIO.

5.2. **Affiliation with a reputable agency.** Probit estimates of equation (5) includes the dummy variable BIG_AGENT as a control variable. The coefficient estimate (Column (1) of Table 2) shows that, on average, the sale is 11.2% (significant at the 5% level) more likely to be a pitch if the writer is affiliated with one of the five biggest agencies in Hollywood.

The model suggests that the effects of a big agency depend on the writer type. To see this, add the interaction term between the affiliation and observable writer quality to the Probit regression:

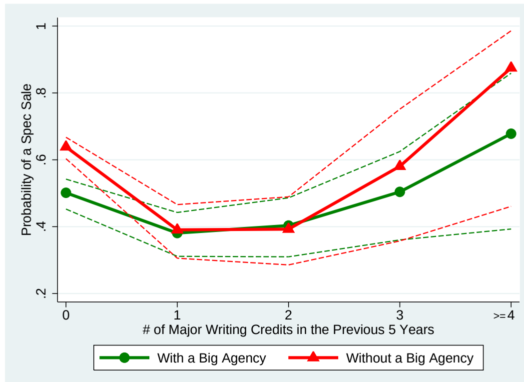
$$\begin{aligned}\mathbb{P}(\text{SPEC}_i = 1) \quad = \quad & \mathbb{P}(\beta_0 + \beta_1 \text{WRITEREXP}_i + \beta_2 \text{WRITEREXP}_i^2 + \beta_3 \text{BIG\_AGENT}_i \\ & + \beta_4 \text{BIG\_AGENT}_i \times \text{WRITEREXP}_i + \beta_5 \text{BIG\_AGENT}_i \times \text{WRITEREXP}_i^2 \\ & + \beta_X X_i + u_i \geq 0).\end{aligned} \tag{6}$$

The estimates using the complete sample are reported in Column (3) of Table 2. Figure 7 plots the predicted probability of a spec sale for two groups of writers: those affiliated with a big agency, and those not. For writers of low observable quality, the affiliation with a big agency decreases the likelihood of a spec sale (i.e., increases the likelihood of a pitch sale) significantly; such affiliation has no significant impact for writers of better observable quality. In particular, when WRITEREXP

[30]More formally, think of the writer's true observable quality w in the model consisting of two parts — e.g., $w = \text{WRITEREXP} + w^u$, where w^u is observable to the industry insiders but not to the researcher, and WRITEREXP is observable to both. The predictions from the model derived in Section 3 are about w, while in the empirical analysis, I use WRITEREXP. I argue that the tests are valid under reasonable assumptions that w^u is independent of WRITEREXP, or they are positively correlated. First, when WRITEREXP $= 0$, the writer may still be good enough to overcome the barriers to pitch when w^u is high. This could explain why a fairly big proportion of the sales from these writers are pitch. Second, the probability that w is below the buyer's meeting threshold for pitch is bigger when WRITEREXP $= 0$ than when WRITEREXP > 0. This could explain why sales from writers with no prior major writing experience are more likely to be spec than sales from writers with one or two major writing credits.

= 0, the affiliation decreases the likelihood of a spec sale by 13.9% (significant at the 1% level); when WRITEREXP > 0, the difference is not statistically significant.

FIGURE 7. **Predicted Probability of a Spec Sale and a Big Agency**



Notes: The line with circles is the predicted probability of a spec sale for writers associated with a big agency, and the line with triangles is that for writers without a big agency. These graphs are based on the Probit estimates of equation (6), and the estimates are reported in Column (3) of Table 2.

When restricted to sales from single writers, the results (Column (4) in Table 2) are qualitatively similar, only more significant. In particular, when WRITEREXP = 0, the affiliation decreases the likelihood of a spec sale by 16.2% (significant at the 1%).

The evidence so far is consistent with Part (i) of Prediction 3 that a big agency is effective in reducing asymmetric information for relatively unknown writers, thus helping them overcome the barriers to selling early-stage ideas. For experienced writers, asymmetric information is not a big problem, so a big agency does not have significant influence over the sale stage.

These results are consistent with Katila and Mang (2003), who find that institutions that reduce uncertainty and information asymmetry are associated with earlier collaborations between biotech firms and pharmaceutical companies. Here, I show that the impact of such an institution depends on the seller type: It is most effective for idea sellers who suffer from asymmetric information.

A concern of the cross-sectional analysis is that BIG_AGENT in (6) may be endogenous. For example, there may exist unobservable writer quality that affects the likelihood both of being affiliated with a big agency and of having a spec sale. One way to mitigate this concern, at least to some extent, is to use writer fixed effects: Let the change in the affiliation status within an individual writer help us identify its effects on the writer's choice.

I reconstruct the sample into a panel. If a two-writer team sells an idea, I treat it as two separate observations, one by each writer. There are 1,641 unique writers in the sample, and 78% of them sell only one idea, which leaves the fixed effects analysis with 360 writers and 901 observations.

Change in the affiliation status happens 25% of the time. In half of these instances, a writer changes from not having a big agency to having one, and in the other half the opposite occurs.[31]

TABLE 3. **Fixed Effects Estimates for the Probability of a Spec Sale**

	Complete Sample				Single Writer
		WRITEREXP = 0	WRITEREXP > 0	WRITEREXP = 0	WRITEREXP = 0
	(1)	(2)	(3)	(4)	(5)
WRITEREXP	0.036		-0.036		
	(0.064)		(0.113)		
BIG_AGENT	-0.065	-0.099	-0.008	-0.134**	-0.226*
	(0.056)	(0.068)	(0.146)	(0.068)	(0.120)
NUM_WRITER	-0.034	-0.005	-0.079	-0.002	
	(0.069)	(0.080)	(0.172)	(0.080)	
WRITER_ANYMOVIE	0.086	-0.060		-0.128	-0.387
	(0.112)	(0.203)		(0.203)	(0.483)
WRITER_TV	-0.192	-0.048		-0.150	
	(0.454)	(0.454)		(0.445)	
WRITER_DIRECTOR	0.413**	-0.024	-0.499	-0.184	
	(0.207)	(0.467)	(0.631)	(0.440)	
WRITER_ACTOR	-0.289	-0.336	0.283	-0.365	
	(0.203)	(0.407)	(0.573)	(0.411)	
WRITER_PRODUCER	-0.050	-0.494	0.060	-0.329	
	(0.156)	(0.302)	(0.402)	(0.297)	
WRITER_DIRECT	0.043	0.067	0.353	0.098	-0.043
	(0.111)	(0.146)	(0.228)	(0.144)	(0.278)
WRITER_PRODUCE	-0.335***	-0.285**	-1.016***	-0.254*	0.077
	(0.113)	(0.140)	(0.374)	(0.140)	(0.237)
WRITER_ACT	-0.045	-0.185	0.617	-0.180	-0.550
	(0.240)	(0.284)	(0.460)	(0.287)	(0.653)
ATTACH_ACTOR	-0.124**	-0.060	-0.315**	-0.053	-0.007
	(0.063)	(0.076)	(0.143)	(0.076)	(0.121)
ATTACH_DIRECTOR	0.135**	0.150**	0.035	0.150**	0.228*
	(0.063)	(0.073)	(0.157)	(0.073)	(0.126)
PRODUCER_EXP	0.044***	0.048***	-0.056	0.052***	0.067***
	(0.013)	(0.014)	(0.044)	(0.014)	(0.022)
PRODUCER_EXP^2	-0.003***	-0.003***	0.002	-0.003***	-0.004**
	(0.001)	(0.001)	(0.003)	(0.001)	(0.001)
MANAGER	0.133**	0.146**	0.142	0.148**	0.099
	(0.054)	(0.062)	(0.160)	(0.062)	(0.108)
SALE_YEAR F.E.	Y	Y	Y	Y	Y
MAJOR_STUDIO F.E.	Y	Y	Y	Y	Y
GENRE F.E.	Y	Y	Y	N	Y
WRITER F.E.	Y	Y	Y	Y	Y
(Adj.) R-squared	0.2572	0.2976	0.3546	0.2683	0.2168
Obs.	901	706	195	706	316

Notes: These results are fixed effects estimates of a linear probability model. The dependent variable is SPEC. Columns (1) and (2) use all observations in which the writer has more than one sale; column (3) uses sales from single writers. ***, **, and * are respectively significant levels of 1%, 5%, and 10%.

Table 3 reports the fixed effects estimates of a linear probability model. Broadly speaking, the results are consistent with the cross-sectional analysis, although they are less significant statistically. Column (1) in Table 3 shows that, on average, affiliation with a big agency decreases the likelihood of a spec sale by 6.5%, but this is not statistically significant. I am interested in knowing how the effects differ by writer type. I split the sample into two subsamples: writers without any major writing credits in the last five years, and writers with some credits. Consistent with the

[31] Of the 901 observations, there are 540 instances where the same writer moves from sale$_t$ to sale$_{t+1}$. In 407 of these instances, the writer has no change in the status of the affiliation with a big agency. Of the 133 instances where there are changes, 69 change from having a big agency to not, and 63 change from not with a big agency to with one.

cross-sectional results, the coefficient estimates of BIG_AGENT (Column (2) and (3)) show that the effects are different: a big-agency affiliation decreases the likelihood of a spec sale by 9.9% (the p-value is 0.15) for writers with no major writing credits, and it has no impact for writers of better observable quality.

Focusing on writers with no major writing credits, the marginal effect of the big-agency affiliation is statistically significant for alternative specifications. Column (4) exclude the genre dummies because they are not jointly statistically different from zero. The big-agency affiliation decreases the likelihood of a spec sale by 13.4% (significant at the 5% level). Column (5) uses sales from single writers only (but include the genre dummies), and the marginal decrease almost doubles, 22.6%, and is significant at the 10% level.

Compared to the cross-sectional results, the fixed effects estimates are statistically less significant and vary greatly depending on the specification. A possible explanation is that there is not enough variation in the change of the affiliation status within an individual. Nonetheless, the fixed effects results are broadly consistent with the cross-sectional results.

So far, the results suggest that a big agency is effective in mitigating asymmetric information for relatively inexperienced writers. Curiously, for writers with a good track record, there is no evidence that such an affiliation has significant impact on a spec vs pitch sale. To look for further evidence, I consider the average quality of ideas sold. Recall that Part (ii) of Predictions 3 and 4 give different predictions about the average quality of specs and pitches sold by a writer with a big agency compared to one without.

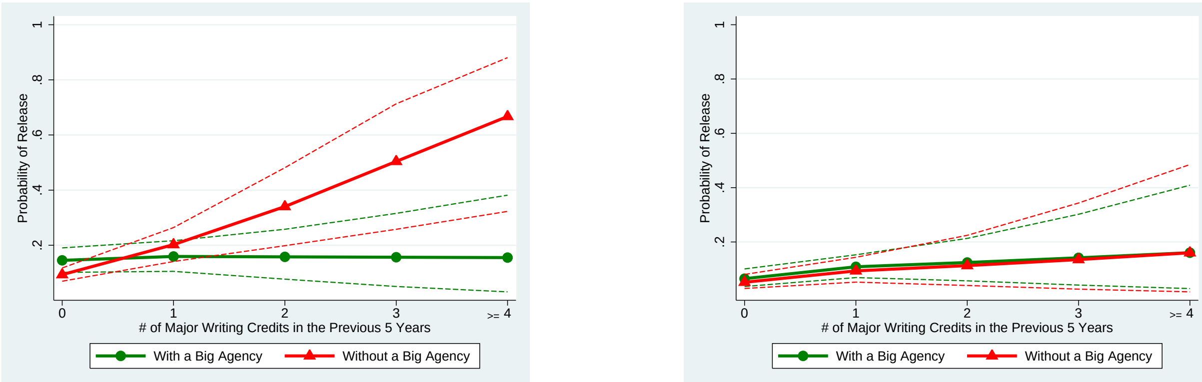
Under the premise that an idea's quality is positively correlated with the probability of release, I run the following Probit model for specs and pitches separately using the cross-sectional data:

$$\begin{aligned}\mathbb{P}(\text{RELEASE}_i = 1) \quad &= \quad \mathbb{P}(\beta_0 + \beta_1 \text{WRITEREXP}_i + \beta_2 \text{BIG\_AGENT}_i \\ &\quad + \beta_3 \text{WRITEREXP}_i \times \text{BIG\_AGENT}_i + \beta_X X_i + u_i \geq 0).\end{aligned} \tag{7}$$

The estimates are reported in Table 4. For pitches (Figure 7.B), there is no significant difference in the predicted probability of release between a big-agency-affiliated writer and one unaffiliated. For specs (Figure 7.A), however, a spec sold by a writer who has zero or one major writing credit and who is affiliated with a big agency is, on average, 5.5% more likely to be released (significant at the 10% level) than a spec by such a writer who is not affiliated with a big agency. Among writers with two or more major writing credits, a spec sold by a big-agency-affiliated writer is less, on average, likely to be released. For example, when WRITEREXP = 2, the difference in the probability of release is 18.2% (significant at the 5% level).

The most interesting result of these regressions is that specs sold by experienced writers affiliated with a big agency are less likely to be released than specs sold by such writers who are not

FIGURE 8. **Predicted Probability of Release**



(A) **SPEC** (B) **PITCH**

Notes: In graph (A), the solid line with circles is the expected probability that a spec from writers associated with a big agency releases, and the line with triangles is that from writers not associated with a big agency. Graph (B) is that of pitch. The dashed lines are 95% confidence intervals. The graphs are based on Probit estimates of equation (7). The results are reported in Table 4.

affiliated with a big agency. This is consistent with Part (ii) of Proposition 4, which suggests that for these writers, the agency's role is mainly to increase the writer's share of the idea's surplus, either through decreasing the risk of expropriation or increasing the writer's bargaining power. An affiliated writer has more incentive to spec. As a result, the idea's quality threshold above which the writer chooses to spec decreases, resulting in a lower average quality of sold specs.

The above result may be problematic because 1) there may exist positive sorting between agency size and unobservable writer quality, and 2) an agency may influence the probability of release even after the sale. These arguments, however, are more likely to strengthen the result. For the first argument, a positive correlation between BIG_AGENT and the unobservable writer quality in the random shock u_i is likely to over-estimate its coefficient. Thus, correcting the bias would have made the estimated coefficient even more negative. For the second argument, a big agency is likely to have more resources to help bring a project to the market than a smaller agency or no agency has. This would also strengthen the result that showed a lower average quality of specs sold by experienced writers with a big agency.

The result that specs sold by relatively inexperienced writers affiliated with a big agency are better (5.5% more likely to be released) on average than specs sold by such writers who are not affiliated with a big agency provides extra evidence to support the agency's role of reducing asymmetric information for these writers. Part (ii) of Prediction 3 suggests, reduced asymmetric information makes the writer feel less pressured to spec. The quality threshold above which the writer chooses to spec increases, which results in a higher average quality of specs sold.

In sum, the empirical results on the effects of a big agency affiliation are consistent with the following conclusion: 1) For relatively inexperienced writers, a big agency is more important in

TABLE 4. **Probit Estimates for the Probability of Release** (marginal effects)

	Spec	Pitch
	(1)	(2)
WRITEREXP	0.084***	0.014
	(0.024)	(0.021)
BIG_AGENT	0.055*	0.015
	(0.029)	(0.025)
BIG_AGENT × WRITEREXP	-0.085***	-0.004
	(0.030)	(0.026)
WRITER_ANYMOVIE	0.022	0.055***
	(0.026)	(0.021)
WRITER_DIRECTOR	-0.011	0.013
	(0.048)	(0.044)
WRITER_ACTOR	0.003	-0.001
	(0.036)	(0.028)
WRITER_PRODUCER	0.035	-0.019
	(0.044)	(0.027)
WRITING_TV	0.068	
	(0.078)	
NUM_WRITER	-0.044*	0.043**
	(0.024)	(0.019)
MANAGER	-0.014	-0.042**
	(0.026)	(0.021)
WRITER_DIRECT	0.100	0.145
	(0.062)	(0.097)
WRITER_ACT	-0.019	0.130
	(0.082)	(0.128)
WRITER_PRODUCE	0.014	-0.037
	(0.057)	(0.027)
ATTACH_ACTOR	0.095**	0.007
	(0.045)	(0.034)
ATTACH_DIRECTOR	0.075**	-0.036
	(0.037)	(0.026)
PRODUCER_EXP	0.008	-0.000
	(0.006)	(0.006)
$PRODUCER\_EXP^2$	-0.000	0.000
	(0.000)	(0.000)
YEAR_SALE F.E.	Y	Y
MAJOR_STUDIO F.E.	Y	Y
GENRE F.E.	Y	Y
p-value	0.000	0.003
N	888	630

Note: These Probit estimates correspond to equation (7), where the dependent variable is whether the movie is theoretically released. Column (1) uses the subsample of spec sales, and Column (2) uses the subsample of pitch sales. ***, **, and * are respectively significant levels of 1%, 5%, and 10%.

mitigating asymmetric information, so it helps them overcome barriers to selling a pitch; and 2) for experienced writers, asymmetric information is not a severe problem, so other roles of the agency (such as increasing the writer's bargaining power) may play a bigger part. The latter part of the conclusion requires caution because Part (i) of Prediction 4 is not supported, though not refuted either.

5.3. **Writer's choice and movie performance.** The model predicts that when the writer's observable quality is high enough, conditional on release, the expected performance of a spec is better than that of a pitch (Prediction 2).

I use two alternative measures of movie performance: US_BOXOFFICE measured in millions of U.S. dollars, and TIME_TO_MARKET, the number of months a project takes from sale to release. In the latter case, the variable already takes into account the average four-month lead time of a spec. The underlying assumption is that these two measures are positively and negatively correlated with an idea's underlying quality.[32]

Consider the following OLS regression for movies that are released:

$$\text{Performance}_i = \beta_0 + \beta_1 \text{SPEC}_i + \beta_2 \text{WRITEREXP}_i + \beta_3 \text{SPEC}_i \times \text{WRITEREXP}_i + \beta_M M_i + u_i. \quad (8)$$

The control variables, M_i, for the two measures are similar except for the time dummies. In particular, when using US_BOXOFFICE, dummies indicating the year and the week of release are included. When using TIME_TO_MARKET, dummies indicating the year of sale are included.

Consider the results using box office revenues first (Columns (1) to (2) in Table 5). Because its distribution is skewed, I use log(US_BOXOFFICE) as the dependent variable. The results are slightly different when using different specifications, though they are similar qualitatively. Comparing Columns (1) and (2), the idea's characteristics at the time of sale, such as whether there is an actor/actress attached, do not affect the box office revenues significantly. In the following, I use the results in Column (1) for illustration purposes.

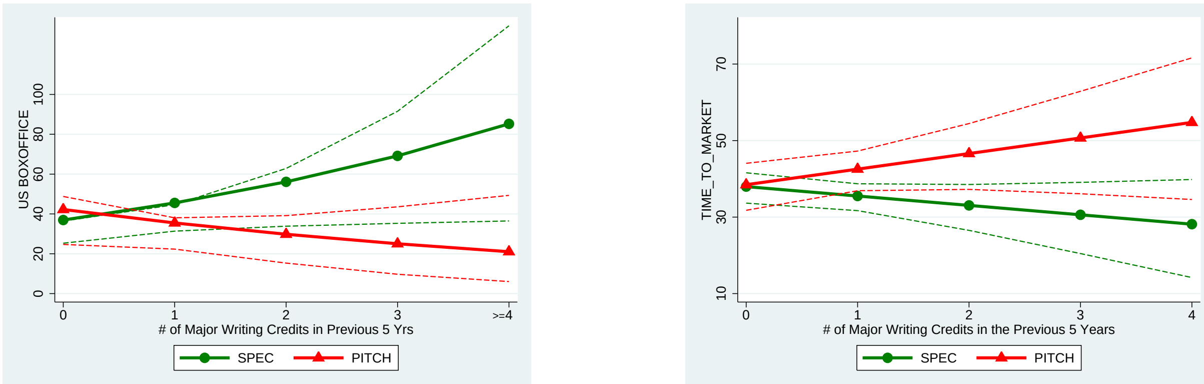
To see how the conditional performances compare between spec and pitch, I plot in Figure 8(A) the predicted U.S. box-office revenues (transformed from log(US_BOXOFFCE)), with the other variables kept at their sample means. Other things being equal, the difference in log(US_BOXOFFICE) between a spec and a pitch is $(-0.134 + 0.383 \times \text{WRITEREXP})$. When the writer has zero or one major writing credit in the previous five years, there is no significant difference between spec and pitch in the box office. However, spec performs significantly better for writers with two or more credits. For example, when WRITEREXP = 2, spec performs 63.2% better than pitch (significant at the 5% level).[33]

The results using TIME_TO_MARKET are qualitatively similar. Figure 8(B) looks the opposite to 9(A) because this measure is negatively correlated with an idea's quality. Take the results in Column (3), for example. Other things being equal, the difference in TIME_TO_MARKET between spec and pitch is $(-0.494 - 6.527 \times \text{WRITEREXP})$. Again, when the writer has zero or one major

[32]The positive correlation between box-office revenue and an idea's quality is relatively straightforward. The negative correlation between TIME_TO_MARKET and an idea's quality is because other things being equal, worse ideas may require more rounds of rewrites and take longer to get commitments from other talents, etc.

[33]When using log(US_BOXOFFICE), $\text{sd}(\hat{\beta}_1 + 2\hat{\beta}_3) = 0.30$. Thus, $t = \frac{-0.134+2*0.383}{0.30} = \frac{0.632}{0.30} = 2.07$.

FIGURE 9. **Predicted Movie Performance Conditional on Release**



(A) **U.S. box office** (B) **Time to Market**

Notes: In (A), the solid lines are the predicted US_BOXOFFICE (transformed from log(US_BOXOFFICE)) for spec and pitch; in (B), the solid lines are the predicted TIME_TO_MARKET for spec and pitch. The control variables are kept at their sample means. The dashed lines are the 95% confidence intervals. The calculations are based on the regression results of equation (8), where the dependent variables are, respectively, log(US_BOXOFFICE) and TIME_TO_MARKET. See Columns (1) and (3) in Table 5 for the regression results.

writing credit in the previous five years, there is no significant difference between spec and pitch in terms of how long the project takes from sale to theater. Starting from WRITEREXP = 2, spec takes significantly less time to get to market. For example, when WRITEREXP = 2, spec takes, on average, 13.5 months less to be released (significant at the 5% level).[34]

These results are consistent with the theory that the writer selects better ideas to sell as a spec in the first place. They also resonate with Pisano (1997) who finds that in the biotechnology market, the termination rate for projects done in collaboration with pharmaceutical companies is significantly higher than for projects undertaken by the biotech firms via vertical integration.

When WRITEREXP = 0 and 1, specs and pitches perform similarly. One reason may be that when the writer's observable quality is relatively low, the extra-evaluation effect (i.e., pitches are selected by the buyer for an extra round at the idea stage) offsets the writer-selection effect. Another possible explanation is related to the previous discussion about the part of the true observable writer quality that is unobservable in the data. In particular, for any given value of WRITEREXP, specs observed in the data pool together ideas from writers who are forced to spec because their unobservable part of the quality is low, as well as ideas from writers of high unobservable quality who choose better ideas to spec. Thus, the empirical results are generally likely to underestimate the writer-selection effect.

[34]When using TIME_TO_MARKET, $\text{sd}(\hat{\beta}_1 + 2\hat{\beta}_3) = 5.894$. Thus, $t = \frac{-0.494-6.527*2}{5.894} = \frac{-13.548}{5.894} = -2.30$.

TABLE 5. **Performance of Movies Conditional on Release**

	log(US_BOXOFFICE)	log(US_BOXOFFICE)	TIME_TO_MARKET	log(TIME_TO_MARKET)
	(1)	(2)	(3)	(4)
SPEC	-0.134	-0.313	-0.494	-0.047
	(0.214)	(0.240)	(4.293)	(0.097)
WRITEREXP	-0.174	-0.247	4.072	0.096
	(0.157)	(0.172)	(2.993)	(0.068)
SPEC $\times$ WRITEREXP	0.383**	0.452**	-6.527*	-0.137*
	(0.184)	(0.200)	(3.532)	(0.080)
PROD_BUDGET	0.007	0.008*	0.595**	0.017***
	(0.004)	(0.005)	(0.227)	(0.005)
PROD_BUDGET^2			-0.003*	-0.000**
			(0.002)	(0.000)
NUM_SCREEN	0.054***	0.049***	0.009	-0.000
	(0.016)	(0.017)	(0.249)	(0.006)
STAR	-0.040	-0.038	-12.772***	-0.300***
	(0.214)	(0.221)	(3.917)	(0.089)
FRANCHISE	1.164***	1.198**	-13.986*	-0.362**
	(0.431)	(0.492)	(7.616)	(0.172)
WRITER_DIRECT		-0.012	-4.044	-0.133
		(0.282)	(5.590)	(0.127)
WRITER_ACT		0.508	-5.278	-0.202
		(0.542)	(10.003)	(0.226)
WRITER_PRODUCE		0.001	-3.987	-0.181
		(0.307)	(6.111)	(0.138)
ATTACH_ACTOR		-0.041	-10.675**	-0.337***
		(0.253)	(4.572)	(0.104)
ATTACH_DIRECTOR		0.249	0.467	0.018
		(0.216)	(4.348)	(0.098)
PRODUCER_EXP		0.046	-1.552*	-0.037*
		(0.052)	(0.915)	(0.021)
PRODUCER_EXP^2		-0.003	0.102*	0.002*
		(0.003)	(0.059)	(0.001)
GENRE F.E.	Y	Y	Y	Y
MPAA_RATING F.E.	Y	Y	Y	Y
DISTRIBUTOR F.E.	Y	Y	Y	Y
YEAR_RELEASE F.E.	Y	Y	N	N
WEEK_RELEASE F.E.	Y	Y	N	N
YEAR_SALE F.E.	N	N	Y	Y
(Adj.) R-squared	0.649	0.640	0.210	0.325
N	149	149	149	149

Note: 1) These OLS regressions correspond to eq. (8), which examines the difference in movie performance (conditional on release) between spec and pitch. ***, **, and * are, respectively, significant levels of 1%, 5%, and 10%.

6. CONCLUDING REMARKS

This paper studies the question: "At what stage of development should an entrepreneur sell his idea?" The timing of idea sales is an important question both for entrepreneurs who want to commercialize their ideas, and for downstream firms or investors that acquire these ideas. Understanding the challenges the seller and the buyer face is also a first-step towards addressing policy questions to correct inefficient timing of idea transfers or exclusion of good ideas.

I study this question in the context of the U.S. movie industry, in which the writer decides to sell either a storyline or a complete script. I develop a formal model that examines how the writer and the buyer interact to transact an idea. I then test the model's predictions using a novel data set consisting of 1,638 original movie ideas sold in Hollywood between 1998 and 2003.

Consistent with the model, the empirical analysis shows: First, both low-observable-quality and high-observable-quality writers are more likely to sell a complete script, while writers in the middle are more likely to sell a storyline. Second, writers have an incentive to select better ideas to sell as a complete script. Using the model, I also study the roles played by intermediaries. Together with the theory, the empirical results suggest that an affiliation with a reputable agency is effective in reducing information asymmetry for writers of low observable qualities and, thus, helps them overcome the barriers to selling earlier. This generally improves efficiency. However, for writers of better observable qualities, such an affiliation might be more important in increasing the writer's bargaining power, which tends to delay the sale and reduce efficiency.

The market for original movie ideas is, in and of itself, an important and fascinating market — the price of an idea ranges from a few thousand dollars to possibly a few million; thousands of aspiring and experienced writers supply ideas to an industry that grosses over ten billion dollars annually,[35] and, most importantly, the market is active despite all the typical frictions in idea sales. However, the basic trade-offs that writers and studios face are, by no means, specific to this market alone. They are fundamental considerations in many other markets for ideas, where uncertainty is high; where information asymmetry and expropriation risk might hinder efficient transfers of ideas; where established firms might contribute critical information about an idea's value; and where idea sellers are heterogeneous in their observable experience and qualities. Interesting examples include book publishing, software programming, and biotech industries, as well as the financing of entrepreneurial start-ups.

Managerial and policy implications

This paper has several implications (with caveats) for both the seller and the buyer of an idea, as well as for the policy-maker.

A main result of the paper is that an entrepreneur with low observable quality (with unknown or a mediocre track record) is likely to be excluded from the market for early-stage ideas. There are a few actions that the entrepreneur can take. First, instead of wasting time and effort trying to obtain access to a buyer with only a business plan or a nascent idea, the entrepreneur might be better off developing the idea further. In this way, he boosts the buyer's confidence in his idea by showing that he, himself, has confidence in it. Second, it might be worthwhile for the entrepreneur to engage an intermediary if the benefits of selling the idea earlier — assuming that the intermediary can assess the idea effectively and convey such information to the buyer credibly — outweigh the share of the surplus demanded by the intermediary. It should be noted, however, that both these paths

[35] I am counting only ticket sales in the U.S. The data are from *TheNumbers*.

work to a certain extent and are subject to limitations, such as the entrepreneur's liquidity/time constraint and the access barriers to a reputable intermediary.

The highlight of the access barriers an entrepreneur might face also has interesting policy implications. The barriers to a desirable audience increase with the buyer's meeting cost, decrease with the buyer's share of the idea's surplus, and is less severe when there is less information asymmetry. First, the model suggests that policies that limit the buyer's risk of lawsuits (e.g., claims of idea theft or intellectual property rights infringement) might be important to lower these barriers. An example is a properly designed and enforceable release form policy.

Second, the model suggests that strengthening legal protection levels might benefit some sellers, while hurt others. The intuition is that the buyer's expected payoff from meeting the seller decreases when the protection level increases, and as a result, the barriers increase. An interesting case is the recent trend of strengthening contract law protection for idea sales across the states, which in the scriptwriting context, increases the protection level both for specs and for pitches, though specs are still better protected by copyright law.[36] The comparative statics suggests that the writer tends to sell later, and the barrier to selling pitches increases (similar to Proposition 3). As a result, writers of top observable qualities are better off because they will always be met, and the regime change will only increase their shares of the idea's surplus. Writers of very low observable quality, who will be excluded from selling pitches either way, are better off as well because their specs are now better protected. However, writers of intermediate observable qualities are worse off because they are now excluded from selling pitches.

Lastly, institutions that help reduce information asymmetry are critical for a market for ideas where there is disperse supply of ideas from small entrepreneurs. These institutions can be market intermediaries, online auction places (e.g., Ocean Tomo), government and industry association supported intermediating services (e.g., CORDIS by the European Union).[37]

The paper also finds supporting evidence for the notion that the seller has an incentive to develop better ideas further on his own. The seller's selection behavior has important implications for the buyer. First, when evaluating ideas offered (by the seller) for sale at different stages, it is important for the buyer to understand that, in addition to the level of uncertainty, the ideas' underlying qualities might also be very different. Second, when soliciting ideas from the sellers, the buyer should be aware that the seller still has the incentive to pitch mediocre ideas early, and

[36]Recent rulings by nine out of the eleven U.S. courts of appeals have established that idea-theft claims based on contract law are no longer preempted by federal copyright law, which means that abstract ideas underlying any written expression (such as a book) are protected as well, as long as a contractual relationship is established. The most prominent court case is the ruling by the Ninth Circuit court on Grosso v.s. Miramax in September 2004.

[37]CORDIS provides information on technologies coming from E.U.-funded R&D programmes, as well as other online services that facilitate licensing, R&D alliances, and manufacturing and marketing agreements.

to keep the best ideas and wait until they are further developed. In other words, moving first to solicit ideas from the seller might not make a difference.

The model also suggests that for intermediate-level sellers, the buyer prefers that the seller offers a more complete idea. This implies that the buyer might be better off if she can commit not to listen to early-stage ideas. An interesting anecdote about the scriptwriting world is from an article in *Variety* that quotes a sign outside producers David Zucker's and Jerry Zucker's office at Columbia Pictures: "Thank you for not pitching us your idea." Of course, the credibility of such a commitment might be limited especially when there is competition from rival buyers.

Future research

This paper points to several directions for future research related to the timing of idea sales. One is to investigate further intermediaries' roles by considering the endogenous matching between writers and agents, their conflicts of interests, and the agents' role of matching ideas to appropriate buyers. Another is to exploit pricing information and quantify how the pie is split between the seller and the buyer. Lastly, it would be interesting to compare the patterns in the timing of sales in different markets for ideas. If there is a significant difference across markets, how do the nature of the technology (e.g., the magnitude of uncertainty, costs required, and asymmetric information) and the institutional environment (e.g., the strength of IP protection) explain these differences?

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APPENDIX

A. Data construction

The data were collected from various internet databases: *Done Deal Pro*, *IMDB*, *TheNumbers*, *Hollywood Literary Sale*, and *Who's Buying What*. Data obtained from these various sources were matched using Stata programs or by hand. The following documents in details how the data were constructed.

Step 1: sale data.

(1) I used *Done Deal Pro* as the main source for idea sales. Its "Sales Archive" contains sales from 9/25/1997 until now. Below is an example.

Title:	**Billy Two Sugars**
Logline:	Centers on a low-man-on-the-totem-pole driver for a huge Cuban drug lord in Miami. This man becomes sick and tired of his abusive boss and decides to change his fate by putting together a gang of other lowly down-and-outs in order to rip off the drug lord in order to gain riches and respect.
Writer:	Seth Pearlman
Agency:	Creative Artists Agency
Studio:	New Line Cinema
Price:	Mid six figures
Genre:	Comedy
Logged:	12/8/1999
More:	New Line made a preemptive bid on this spec in which Brett Ratner is attached to direct and produce with Antonio Banderas to star. Bandera's company, Green Moon Prods' Diane Sillan Isaacs will produce with Pearlman co-producing.

(2) I obtained sales from 1/1/1998 to 2/26/2008. About 55% of the sales are adaptations of a source material, such as a novel or a magazine article, or assignment jobs for which the writer is hired to rewrite existing screenplays or to adapt the producer's ideas into a screenplay. These cases can be identified using information in section *More*. For the current paper, I excluded these cases, because the writer(s) listed are not selling their original ideas. This left a sample of approximately 3,522 original ideas sold by writers.

(3) Of the original idea sales, I used sales that took place by 12/31/2003. The reason is that I wanted to leave enough time for the project to be released, so that I could obtain the final outcome of the sales. This resulted in a sample with about 2,019 sales.

(4) As shown in the example above, I could obtain the following information for each sale: (a) title; (b) date of the updates (*Logged*). I define this date as the SALE DATE. The database is updated daily, as soon as the relevant parties make the announcement in the trade press. The announcement in the market is usually very timely, either because the studio wants to preempt a project, or the writer (and his agent) want the positive advertising effect. Thus, it is reasonable to use the date as a proxy for the time of sale; (c) name of the writer(s); (d) name of the intermediaries that represent each writer. More on this later in Step 4; (e) name

of the buyer(s). These can be a studio or (and) a production company; (f) whether the sale is a spec or a pitch. This information is identified using information in section *More*. For example, the sale I gave above says that it is a *spec*. Not all sales have a clear indication of whether it is a spec or a pitch. I complemented the information using two other sources: *Hollywood Literary Sales* and *Who's Buying What*.[38] I identified the same sale by the title, the date of updates, and the writers. Eventually, I was able to complete the sale stage for 80% of the sales, totaling 1,638 sales; (g) other information about the sale: genre, rough price range for part of the sales, whether there are director or actors/actresses attached (in section *More*).

(5) The final sample has 1,638 original ideas sold by writers from 1/1/1998 to 12/31/2003.

Step 2: match writers in the sale data to people on *IMDB*.

Done Deal Professional has no information about the writers except for their names. I matched the writers to people on *IMDB*, which contains rich information on people's experiences in the industry. I matched the writers in two steps:

(1) I first matched the names by writing Ruby codes. *IMDB* assigns each person a unique identifier. To maximize the accuracy of the matching, I first deleted people who share the same name. In other words, if there were two or more writers with the same name, but different identifiers, I deleted them. Then, I matched the writers in the sale data set with the names on the list from *IMDB*. If there was a match, I identified them as the same person.[39]

(2) For writers in the sale data who were not matched automatically, I matched them by hand.[40] I made the judgement of whether they were the same person according to a couple of criteria. For example, if there were two writers in the team and the other was identified. I searched the films written by the other writer and tracked down the the other writers of the movie. This worked fairly well because writing teams usually tend to be pretty stable.

Eventually, many writers do not match to anyone on *IMDB*. For these writers, I treated them as inexperienced writers, and assigned zero to their writing experience. Though not a hundred percent accurate, I have done my best to guarantee accuracy. For writers that are matched to people on *IMDB*, I assigned them the unique identifiers that *IMDB* uses. For the rest, I assigned my own unique identifier to them.

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[38] *Hollywood Literary Sales* has higher data quality than *Who's Buying What*. However, the updates stop at Dec. 2003. This is one of the reasons why the final sample I use stops at Dec. 2003.

[39] Because *Done Deal Pro* does not assign identifiers to people, I could not tell whether there are different writers that share the same name. There is nothing that I could do about this. However, judging by my experience with the data, it is reasonable to believe that these cases are rare. They are usually differentiated by adding different middle names.

[40] Writers may not be matched automatically because the middle name may or may not be present, or the writers may be deleted because they share the same names with others.

Step 3: match sales to movies on *IMDB*.

To obtain the final outcome of the sales, I matched sales to movies on *IMDB*, which lists almost all movies that are released — at least all movies theatrically released in the U.S. The match was done mostly by hand. For each of the 1,638 sales:

(1) I searched *IMDB* by the Title first. If I found movies of the same name that were released after the sale date, I further checked the writer's name. If all matched, I identified them as the same movie. A good thing about *IMDB* is that it lists all the working titles that the project has, which includes the title that the sale is named after.

(2) If I could not match the sale using the Title, I then searched by writer name because the original idea sellers are typically guaranteed a writing credit. Thus, if I could find the writer, I went through all movies that the writer has written and that were released after the sale date, and I identified the movie by similarity of the log-line.

If I could not match the sale by the above two steps, I identified the movies as not released.

Step 4: obtain writer, intermediary, and movie characteristics. For writers that are matched to people on *IMDB*, I obtained information about them as described below. All steps were achieved by Ruby or Stata programs.

Writer characteristics

(1) Downloaded the *filmography by type* webpages for all writers that were matched into html pages. Read the unique identifiers assigned by *IMDB* of all movies in which these writers were involved as a writer, a director, an actor, or a producer.

(2) Downloaded the *combined details* webpages for all movies identified in (1) into html files. Read the following characteristics of each movie: type (such as whether it is a feature-length film),[41] genre, distributor, and release date.

(3) For each writer, made a list of all movies that she/he has been involved in by job (e.g., writer, director). For each of these movies, matcheded the information on type, distributor, genre, and release date obtained in (2). For each movie in which the writer was involved as a writer, created a variable differentiating the screenwriting credits versus credits for source materials.[42]

(4) Then, I was ready to define alternative measures of observable writer quality. For example, WRITEREXP is defined as the number of screenwriting credits for feature films released by major studios and big production companies in the previous five years

[41]Type includes "Feature," "Short," "TV" (TV movies, series, and programs), "V" (Video), and "VG" (Video Game).

[42] The former include writing credits with key words "Writer," "Written," "Screenplay," "Adaptation," ("Teleplay"), "Script," "Treatment," or "Story."

Intermediary characteristics. In Hollywood, a writer may be represented by three types of intermediaries: agents, managers, and lawyers. *Done Deal Pro* records the information in six separate fields if applicable: agent, agency, manager, management firm, lawyer, and law firm. Using the agent/agency as an example, the following paragraph describes how I treat this information in the analysis. The same applies to manager/management firms, and lawyer/law firm.

An agency is the private firm that an agent works for. In the analysis, if two writers are represented by the same agency, but different agent names are listed, I coded the writers as being represented by the same intermediary. The main reason is that an agency typically works as a team; thus, the reputation capital and network connection of individual agents are transferrable within a firm. In addition, an individual agent's name is usually missing from the database when the writer is represented by a sizable agency, as is the case in the given example. There are a few cases where only an agent, not the agency, is listed. This is usually because it is a small agency, consisting of a couple of agents and usually named after the agent. When this was the case, I coded the agent as an individual agency.

Movie characteristics. *IMDB* has comprehensive information on cast and crew. However, the information on the production budget and the box office are not readily available. *TheNumbers* has high-quality business-related data on almost all movies theatrically released in the U.S. after 1995. For movies in the sale data for which I could find a match with movies on *IMDB* (Step 3), I was able to complete 198 of them with positive U.S. box office information from *TheNumbers* or a couple of other sources, including *BoxofficeMojo*. These are the movies that I define as released. 149 of them have information on production budget.

B. Proof

Lemma A1 and A2 are useful to prove the results of the paper. The expected value of an idea given (w, θ, ϵ_i) (defined in (2)) is

$$\begin{aligned} v(w,\theta,\epsilon_i) &= \mathbb{P}[w+\theta+\epsilon_i+\epsilon_s \geq 0]\mathbb{E}[w+\theta+\epsilon_i+\epsilon_s | w+\theta+\epsilon_i+\epsilon_s \geq 0] \\ &= (1-F^s(-w-\theta-\epsilon_i)) \int_{-w-\theta-\epsilon_i}^{\infty} (w+\theta+\epsilon_i+\epsilon_s) \frac{f^s(\epsilon_s)}{(1-F^s(-w-\theta-\epsilon_i))} d\epsilon_s. \end{aligned} \tag{A1}$$

Lemma A1. $\frac{\partial v(w,\theta,\epsilon_i)}{\partial w} = \frac{\partial v(w,\theta,\epsilon_i)}{\partial \theta} = \frac{\partial v(w,\theta,\epsilon_i)}{\partial \epsilon_i} > 0$; $\frac{\partial^2 v(w,\theta,\epsilon_i)}{\partial w^2} = \frac{\partial^2 v(w,\theta,\epsilon_i)}{\partial \theta^2} = \frac{\partial^2 v(w,\theta,\epsilon_i)}{\partial \epsilon_i^2} = \frac{\partial^2 v(w,\theta,\epsilon_i)}{\partial w \partial \epsilon_i} = \frac{\partial^2 v(w,\theta,\epsilon_i)}{\partial w \partial \theta} = \frac{\partial^2 v(w,\theta,\epsilon_i)}{\partial \theta \partial \epsilon_i} > 0$.

Proof. $\frac{\partial v(w,\theta,\epsilon_i)}{\partial w} = 1 - F^s(-w-\theta-\epsilon_i) > 0$. $\frac{\partial^2 v(w,\theta,\epsilon_i)}{\partial w^2} = f^s(-w-\theta-\epsilon_i) > 0$. The other results hold by symmetry. □

Lemma A2. $\lim_{w\to\infty} v(w,\theta,\epsilon_i) = \infty$ *and* $\lim_{w\to-\infty} v(w,\theta,\epsilon_i) = 0$. *By symmetry,* $v(w,\theta,\epsilon_i)$ *have the same limits with respect to* θ *and* ϵ_i.

Proof. Given θ and ϵ_i, $\lim_{w\to\infty} v(w,\theta,\epsilon_i) = 1 \times (\infty + \theta + \epsilon_i) + \mathbb{E}[\epsilon_s] = \infty$.

Integrating (A1) by parts, one gets

$$v(w,\theta,\epsilon_i) = (1-F^s(-w-\theta-\epsilon_i)) \int_{-w-\theta-\epsilon_i}^{\infty} \frac{1-F^s(\epsilon_s)}{(1-F^s(-w-\theta-\epsilon_i))} d\epsilon_s. \tag{A2}$$

$\lim_{w\to-\infty} v(w,\theta,\epsilon_i) = \lim_{w\to-\infty} (1-F^s(-w-\theta-\epsilon_i)) \lim_{w\to-\infty} \int_{-w-\theta-\epsilon_i}^{\infty} \frac{1-F^s(\epsilon_s)}{(1-F^s(-w-\theta-\epsilon_i))} d\epsilon_s = 0 \times c = 0$. As $w \to -\infty$, $\int_{-w-\theta-\epsilon_i}^{\infty} \frac{1-F^s(\epsilon_s)}{(1-F^s(-w-\theta-\epsilon_i))} d\epsilon_s$ is a decreasing series (explained below), and is bounded from below by 0. This implies that it must converge to some nonnegative finite number c.

The derivative of $\int_{-w-\theta-\epsilon_i}^{\infty} \frac{1-F^s(\epsilon_s)}{(1-F^s(-w-\theta-\epsilon_i))} d\epsilon_s$ w.r.t. w is

$$\frac{1}{(1-F^s(-w-\theta-\epsilon_i))^2} \int_{-w-\theta-\epsilon_i}^{\infty} ((1-F^s(-w-\theta-\epsilon_i)) f^s(\epsilon_s) - (1-F^s(\epsilon_s)) f^s(-w-\theta-\epsilon_i)) d\epsilon_s > 0.$$

The inequality holds because under Assumption 3, $(1-F^s(-w-\theta-\epsilon_i)) f^s(\epsilon_s) > (1-F^s(\epsilon_s)) f^s(-w-\theta-\epsilon_i)$, for all $\epsilon_s > -w-\theta-\epsilon_i$.

The other results hold by symmetry. □

Proof of Proposition 1. I first prove the existence, the uniqueness follows.

□ *The writer's strategy.*

When $w \geq m_p$, the writer anticipates being met for both spec and pitch. Dropping the idea is dominated by pitch, because the latter always yields a positive payoff. The difference between spec and pitch, $\Delta^W(w,\theta)$, is (3). As will be explained below, $\frac{\partial \Delta^W(w,\theta)}{\partial \theta} > 0$, $\lim_{\theta\to\infty} \Delta^W(w,\theta) = \infty$, and $\lim_{\theta\to-\infty} \Delta^W(w,\theta) = -c_s$. Then, $\exists\, r_0(w) \in R$ such that $\Delta^W(w,\theta) \geq 0$ if and only if $\theta \geq r_0(w)$.

Let $\epsilon_i^*(w,\theta)$ be the solution of $v(w,\theta,\epsilon_i) = c_s$. Because $\frac{\partial v(w,\theta,\epsilon_i)}{\partial \theta} > 0$ and $\frac{\partial v(w,\theta,\epsilon_i)}{\partial \epsilon_i}$,

$$\frac{\partial \Delta^{\mathrm{W}}(w,\theta)}{\partial \theta} = \alpha_p \int_{-\infty}^{\epsilon_i^*(w,\theta)} \frac{\partial v(w,\theta,\epsilon_i)}{\partial \theta} dF^i(\epsilon_i) + (\alpha_s - \alpha_p) \int_{-\infty}^{\infty} \frac{\partial v(w,\theta,\epsilon_i)}{\partial \theta} dF^i(\epsilon_i) > 0.$$

As $\theta \to \infty$, $v(w,\theta,\epsilon_i)$ is nonnegative and monotone increasing. By monotone convergence theorem,

$$\begin{aligned} \lim_{\theta\to\infty} \Delta^{\mathrm{W}}(w,\theta) &= \alpha_p \lim_{\theta\to\infty} \textstyle\int_{-\infty}^{\epsilon_i^*(w,\theta)} (v(w,\theta,\epsilon_i) - c_s) dF^i(\epsilon_i) - (1-\alpha_p)c_s + (\alpha_s - \alpha_p)\mathbb{E}[\lim_{\theta\to\infty} v(w,\theta,\epsilon_i)] \\ &= 0 - (1-\alpha_p)c_s + \infty = \infty. \end{aligned}$$

$\lim_{\theta\to\infty} \int_{-\infty}^{\epsilon_i^*(w,\theta)} (v(w,\theta,\epsilon_i) - c_s) dF^i(\epsilon_i) = \lim_{\theta\to\infty} F^i(\epsilon_i^*(w,\theta)) \lim_{\theta\to\infty} \int_{-\infty}^{\epsilon_i^*(w,\theta)} (v(w,\theta,\epsilon_i) - c_s) \frac{f^i(\epsilon_i)}{F^i(\epsilon_i^*(w,\theta))} d\epsilon_i = 0 \times c = 0$. $\lim_{\theta\to\infty} F^i(\epsilon_i^*(w,\theta)) = 0$ because $\epsilon_i^*(w,\theta) \to \infty$ ($\frac{\epsilon_i^*(w,\theta)}{\partial\theta} = -1$). As $\theta \to \infty$, $\int_{-\infty}^{\epsilon_i^*(w,\theta)} (v(w,\theta,\epsilon_i) - c_s) \frac{f^i(\epsilon_i)}{F^i(\epsilon_i^*(w,\theta))} d\epsilon_i$ is an increasing series, and is bounded from above by zero. Then, it must converge to a finite non-positive number, c.

As $\theta \to -\infty$, $v(w,\theta,\epsilon_i)$ is nonnegative and monotone decreasing. By dominated convergence argument, and $\lim_{\theta\to-\infty} v(w,\theta,\epsilon_i) = 0$.

$$\begin{aligned} \lim_{\theta\to-\infty} \Delta^{\mathrm{W}}(w,\theta) &= \alpha_p \textstyle\int_{-\infty}^{\infty} (\lim_{\theta\to-\infty} v(w,\theta,\epsilon_i) - c_s) dF^i(\epsilon_i) - (1-\alpha_p)c_s + (\alpha_s - \alpha_p)\mathbb{E}[\lim_{\theta\to-\infty} v(w,\theta,\epsilon_i)] \\ &= -c_s. \end{aligned}$$

When $w < m_p$, the writer anticipates being met only if he chooses to spec. Similarly, it can be shown that $\frac{\partial S^{\mathrm{W}}(w,\theta)}{\partial\theta} > 0$, $\lim_{\theta\to\infty} S^{\mathrm{W}}(w,\theta) = \infty$, and $\lim_{\theta\to-\infty} S^{\mathrm{W}}(w,\theta) = -c_s$. Thus, $\exists\, r_s(w) \in R$ such that $S^{\mathrm{W}}(w,\theta) \geq 0$ if and only if $\theta \geq r_s(w)$.

By the implicit function theorem, $r_0'(w) = -\frac{\frac{\partial \Delta^{\mathrm{W}}(w,\theta)}{\partial w}}{\frac{\partial \Delta^{\mathrm{W}}(w,\theta)}{\partial \theta}}|_{w,r_0(w)} = -1$. $\frac{\partial \Delta^{\mathrm{W}}(w,\theta)}{\partial w} = \frac{\partial \Delta^{\mathrm{W}}(w,\theta)}{\partial \theta}$, $\forall\ (w,\theta)$, by symmetry. $r_s'(w) = -1$ is proved similarly.

Furthermore, $r_0(w) > r_s(w)$ because $S^{\mathrm{W}}(w, r_0(w)) > 0$.

□ *Buyer's strategy and beliefs.*

First, the buyer's meeting threshold for spec is $-\infty$, because $S^{\mathrm{B}}(w) > 0$, $\forall\ w$. To see this, when $w \geq m_p$, given the writer's strategy, the buyer's belief $H(\theta|w,S)$ is $\frac{g(\theta)}{1-G(r_0(w))}$ for $\theta \in [r_0(w), \infty)$, and 0 elsewhere. Then,

$$\begin{aligned} S^{\mathrm{B}}(w) &= \textstyle\int_{r_0(w)}^{\infty} \{(1-\alpha_s)\mathbb{E}[v(w,\theta,\epsilon_i)] - c_m\} \frac{g(\theta)}{1-G(r_0(w))} d\theta \\ &> \textstyle\int_{r_s(w)}^{\infty} \{(1-\alpha_s)\mathbb{E}[v(w,\theta,\epsilon_i)] - c_m\} \frac{g(\theta)}{1-G(r_s(w))} d\theta \\ &> (1-\alpha_s)\mathbb{E}[v(w, r_s(w), \epsilon_i)] - c_m \qquad \text{(A3)} \\ &= \left(\frac{1-\alpha_s}{\alpha_s}\right) c_s - c_m \\ &> 0. \end{aligned}$$

The first inequality holds because the signal $\theta \in [r_0(w), \infty)$ is more favorable than $\theta \in [r_s(w), \infty)$ in the sense of first-order stochastic dominance. The second equality holds, because $S^{\mathrm{W}}(w, r_s(w)) = 0 \Rightarrow \mathbb{E}[v(w, r_s(w), \epsilon_i)] = \frac{c_s}{\alpha_s}$. The last inequality holds under Assumption 2.

When $w < m_p$, the buyer's belief $H(\theta|w, S)$ is $\frac{g(\theta)}{1-G(r_s(w))}$ for $\theta \in [r_s(w), \infty)$, and 0 elsewhere. Line 2 onwards in (A3) show that the buyer's expected payoff from meeting the writer for spec is always positive as well. Thus, the buyer's best response for a writer who has chosen to spec is "always meet".

Second, if the writer has chosen to pitch, the buyer's posterior is $H(\theta|w, P)$ is $\frac{g(\theta)}{G(r_0(w))}$ for $\theta \in (-\infty, r_0(w))$, and 0 elsewhere. This belief is consistent with Bayes' rule when $w \geq m_p$. When $w < m_p$, because the writer's choosing to pitch is a probability zero event in the equilibrium, I impose the buyer's off-the-equilibrium posterior to be so.

As will be explained later, under $H(\theta|w, P)$, the buyer's expected payoff from meeting a pitch, $P^{\mathrm{B}}(w)$, is monotone increasing in w. Plus that $\lim_{w \to -\infty} P^{\mathrm{B}}(w) = -c_m$ and $\lim_{w \to \infty} P^{\mathrm{B}}(w) > 0$. Therefore, there exists $m_p \in R$ such that $P^{\mathrm{B}}(w) \geq 0$ if and only if $w \geq m_p$.

To see that $P^{\mathrm{B}}(w)$ is monotone increasing in w, let $P^{\mathrm{B}}(w, \theta) = (1-\alpha_p)\mathbb{P}(v(w, \theta, \epsilon_i) \geq c_s)\mathbb{E}[v(w, \theta, \epsilon_i) - c_s | v(w, \theta, \epsilon_i) \geq c_s] - c_m$, then, the buyer's expected payoff is

$$\begin{aligned} P^{\mathrm{B}}(w) &= \int_{-\infty}^{r_0(w)} P^{\mathrm{B}}(w, \theta) \frac{g(\theta)}{G(r_0(w))} d\theta \\ &= P^{\mathrm{B}}(w, r_0(w)) - \int_{-\infty}^{r_0(w)} \frac{\partial P^{\mathrm{B}}(w, \theta)}{\partial \theta} \frac{G(\theta)}{G(r_0(w))} d\theta \quad \text{(Integration by parts).} \end{aligned} \tag{A4}$$

Because $r_0'(w) = -1$, then

$$\frac{dP^{\mathrm{B}}(w)}{dw} = \frac{\partial P^{\mathrm{B}}(w)}{\partial w} - \frac{\partial P^{\mathrm{B}}(w)}{\partial r_0(w)} = \frac{1}{G^2(r_0(w))} \int_{-\infty}^{r_0(w)} \frac{\partial P^{\mathrm{B}}(w, \theta)}{\partial \theta} \{g(\theta)G(r_0(w)) - g(r_0(w))G(\theta)\} d\theta > 0.$$

The inequality holds because by Assumption 3, $g(\theta)G(r_0(w)) > g(r_0(w))G(\theta), \forall\, \theta < r_0(w)$.

To see that $\lim_{w \to -\infty} P^{\mathrm{B}}(w) = -c_m$, first notice that given w and θ, $\lim_{w \to -\infty} P^{\mathrm{B}}(w, \theta) = -c_m$ (the proof is similar to that for $\Delta^{\mathrm{W}}(w, \theta)$). $\lim_{w \to -\infty} P^{\mathrm{B}}(w) = \int_{-\infty}^{\infty} \lim_{w \to -\infty} P^{\mathrm{B}}(w, \theta) dG(\theta) = -c_m$.

To see that $\lim_{w \to \infty} P^{\mathrm{B}}(w) > 0$, note that $\lim_{w \to \infty} P^{\mathrm{B}}(w) = \lim_{w \to \infty} P^{\mathrm{B}}(w, r_0(w)) - \lim_{w \to \infty} \int_{-\infty}^{r_0(w)} \frac{\partial P^{\mathrm{B}}(w, \theta)}{\partial \theta} \frac{G(\theta)}{G(r_0(w))} d\theta = P^{\mathrm{B}}(w, r_0(w))$. The second term tends to 0 because both terms in the integral are positive and bounded from above by 1, and $\lim_{w \to \infty} r_0(w) = -\infty$. $P^{\mathrm{B}}(w, r_0(w))$ is a constant because $r_0'(w) = -1$. To see that it is positive, write $P^{\mathrm{B}}(w, r_0(w)) = (1-\alpha_p)\bar{P} - c_m$, where $\bar{P} = \mathbb{P}(v(w, r_0(w), \epsilon_i) \geq c_s)\mathbb{E}[v(w, r_0(w), \epsilon_i) - c_s | v(w, r_0(w), \epsilon_i) \geq c_s]$. The following shows that $(1-\alpha_p)\bar{P} > \frac{1-\alpha_s}{\alpha_s} c_s$, which is greater than c_m.

$\mathbb{E}[v(w, r_0(w), \epsilon_i) - c_s] = \mathbb{P}(v(w, r_0(w), \epsilon_i) < c_s)\mathbb{E}[v(w, r_0(w), \epsilon_i) - c_s | v(w, r_0(w), \epsilon_i) < c_s] + \bar{P}$. Then, $S^{\mathrm{W}}(w, r_0(w)) = P^{\mathrm{W}}(w, r_0(w))$ implies that $\mathbb{P}(v(w, r_0(w), \epsilon_i) < c_s)\mathbb{E}[v(w, r_0(w), \epsilon_i) - c_s | v(w, r_0(w), \epsilon_i) < c_s] = \frac{1-\alpha_s}{\alpha_s} c_s - \frac{\alpha_s - \alpha_p}{\alpha_s} \bar{P}$. The LHS of the equation is between $-c_s$ and 0, which implies $\frac{(1-\alpha_p)(1-\alpha_s)}{\alpha_s-\alpha_p}c_s \leq (1-\alpha_p)\bar{P} \leq \frac{(1-\alpha_p)c_s}{\alpha_s-\alpha_p}$. $(1-\alpha_p)\bar{P} > \frac{1-\alpha_s}{\alpha_s}c_s$, because the lower bound $\frac{(1-\alpha_p)(1-\alpha_s)}{\alpha_s-\alpha_p}c_s > \frac{1-\alpha_s}{\alpha_s}c_s$.

□ *Uniqueness of the equilibrium.*

The equilibrium is the unique semi-separating equilibrium. The buyer's posterior beliefs matter only in terms of her meeting decisions. Anticipating the buyer's meeting decisions, the writer's problem, both when $w \geq m_p$ and when $w < m_p$, are not functions of the buyer's beliefs. The writer's problem has a unique solution. Conversely, given the writer's strategy, (4) is the only belief system that is consistent with Bayes' rule. Under these beliefs, the buyer's expected payoffs (for both spec and pitch) from meeting the writer are also monotone increasing in the writer's observable quality, w. Thus, the buyer's meeting threshold for pitch is unique as well.

Note that Bayes' rule does not determine the posterior distribution over the writer's choice to which the equilibrium assigns zero probability, i.e., if a writer of quality $w < m_p$ has chosen to pitch. Any posterior, including what is specified above, such that the buyer finds it not worthwhile to meet the writer for pitch sustains the equilibrium. To see that the buyer meets both spec and pitch for some $w < m_p$ can not be an equilibrium, suppose this were the case under some posterior belief, then, given the buyer's strategy, the writer's best response is to spec if $w \geq r_0(w)$, and pitch otherwise. This can not be an equilibrium, because, given the writer's strategy and Bayes' rule, the buyer's expected payoff given that the writer has chosen to pitch is negative, thus, her best response is to reject him. □

Proof of Prediction 1*.* By Bayes' rule, conditional on sale, the likelihood of spec is

$$\mathbb{P}(\text{spec}|\text{sale}, w) = \frac{\mathbb{P}(\text{spec} \cap \text{sale}|w)}{\mathbb{P}(\text{spec} \cap \text{sale}|w) + \mathbb{P}(\text{pitch} \cap \text{sale}|w)}.$$

$\mathbb{P}(\text{spec} \cap \text{sale}|w) = \mathbb{P}(\text{spec}|w)\mathbb{P}(\text{sale}|\text{spec}, w)$ is the joint probability that the writer has chosen to spec in the first place, and the spec is sold. $\mathbb{P}(\text{pitch} \cap \text{sale}|w)$ has similar interpretation.

When $w < m_p$, $\mathbb{P}(\text{pitch} \cap \text{sale}|w) = 0$ implies that $\mathbb{P}(\text{spec}|\text{sale}, w) = 1$.

When $w \geq m_p$, $\mathbb{P}(\text{spec}|\text{sale}, w)$ increases with w if and only if

$$\frac{\partial \mathbb{P}(\text{spec} \cap \text{sale}|w)/\partial w}{\mathbb{P}(\text{spec} \cap \text{sale}|w)} \geq \frac{\partial \mathbb{P}(\text{pitch} \cap \text{sale}|w)/\partial w}{\mathbb{P}(\text{pitch} \cap \text{sale}|w)}. \tag{A5}$$

First, $\frac{\partial \mathbb{P}(\text{spec}\cap\text{sale}|w)}{\partial w} > 0$ always. This is because $\mathbb{P}(\text{spec} \cap \text{sale}|w) = \mathbb{P}(\text{spec}|w)\mathbb{P}(\text{sale}|\text{spec}, w)$, and both terms increase with w. $\frac{\partial \mathbb{P}(\text{spec}|w)}{\partial w} = -G(r_0(w))r_0'(w) > 0$. $\frac{\partial \mathbb{P}(\text{sale}|\text{spec},w)}{\partial w} = \frac{\partial \int_{r_0(w)}^{\infty} \mathbb{P}(\epsilon_i+\epsilon_s \geq -w-\theta)\frac{g(\theta)}{1-G(r_0(w))}d\theta}{\partial w} = \int_{r_0(w)}^{\infty} \frac{\partial \mathbb{P}(\epsilon_i+\epsilon_s \geq -w-\theta)}{\partial \theta} \frac{g(\theta)(1-G(r_0(w)))-g(r_0(w))(1-G(\theta))}{(1-G(r_0(w)))^2}d\theta > 0$. The inequality holds because $g(\theta)$ has monotone increasing hazard rate.

Second, $\frac{\partial \mathbb{P}(\text{pitch}\cap\text{sale}|w)}{\partial w} < 0$, when w is sufficiently high. Then, condition (A5) holds when w is sufficiently high.

$$\begin{aligned}\mathbb{P}(\text{pitch} \cap \text{sale}|w) &= \mathbb{P}(\text{pitch}|w)\mathbb{P}(\text{sale}|\text{pitch}, w) \\ &= G(r_0(w)) \int_{-\infty}^{r_0(w)} [1 - F(\epsilon_i^*(w,\theta))] \frac{g(\theta)}{G(r_0(w))} d\theta,\end{aligned}$$

where $\epsilon_i^*(w,\theta)$ is the solution of $v(w,\epsilon_i,\theta) = c_s$. Because $\frac{\partial \epsilon_i^*(w,\theta)}{\partial w} = -1$ and $r_0'(w) = -1$, $\frac{\partial \mathbb{P}(\text{pitch}\cap\text{sale}|w)}{\partial w} <$ 0 if and only if

$$\frac{g(r_0(w))}{G(r_0(w))} > \frac{\int_{-\infty}^{r_0(w)} f^i(\epsilon_i^*(w,\theta)) \frac{g(\theta)}{G(r_0(w))} d\theta}{\int_{-\infty}^{r_0(w)} [1 - F^i(\epsilon_i^*(w,\theta))] \frac{g(\theta)}{G(r_0(w))} d\theta} + \frac{-\frac{\partial \int_{-\infty}^{r_0(w)} [1-F^i(\epsilon_i^*(w,\theta))] \frac{g(\theta)}{G(r_0(w))} d\theta}{\partial r_0(w)}}{\int_{-\infty}^{r_0(w)} [1 - F^i(\epsilon_i^*(w,\theta))] \frac{g(\theta)}{G(r_0(w))} d\theta} \tag{A6}$$

integrate by parts, $\frac{\int_{-\infty}^{r_0(w)} f^i(\epsilon_i^*(w,\theta)) \frac{g(\theta)}{G(r_0(w))} d\theta}{\int_{-\infty}^{r_0(w)} [1 - F^i(\epsilon_i^*(w,\theta))] \frac{g(\theta)}{G(r_0(w))} d\theta} = \frac{f^i(\epsilon_i^*(w, r_0(w))) + \int_{-\infty}^{r_0(w)} f^{i'}(\epsilon_i^*(w,\theta)) \frac{G(\theta)}{G(r_0(w))} d\theta}{1 - F^i(\epsilon_i^*(w, r_0(w))) + \int_{-\infty}^{r_0(w)} f^i(\epsilon_i^*(w,\theta)) \frac{G(\theta)}{G(r_0(w))} d\theta}$.
As as $w \to \infty$, $r_0(w) \to -\infty$, this term tends to a constant $\frac{f^i(\epsilon_i^*(w, r_0(w)))}{1 - F^i(\epsilon_i^*(w, r_0(w)))}$. On the other hand, $\frac{g(r_0(w))}{G(r_0(w))} \to \infty$. In addition, $-\frac{\partial \int_{-\infty}^{r_0(w)} [1-F^i(\epsilon_i^*(w,\theta))] \frac{g(\theta)}{G(r_0(w))} d\theta}{\partial r_0(w)} = -\int_{-\infty}^{r_0(w)} f^i(\epsilon_i^*(w,\theta)) \frac{G(\theta) g(r_o(w))}{G^2(r_0(w))} d\theta$ is negative. Thus, (A6) holds, i.e., $\frac{\partial \mathbb{P}(\text{pitch}\cap\text{sale}|w)}{\partial w} < 0$, when w is sufficiently high.

Finally, $\lim_{w\to\infty} \mathbb{P}(\text{pitch} \cap \text{sale}|w) = 0$ implies $\lim_{w\to\infty} \mathbb{P}(\text{spec}|\text{sale}, w) = 1$. Thus, $\mathbb{P}(\text{spec}|\text{sale}, w)$ is at its minimum for intermediate value of w. □

Proof of Prediction 2. Define "released" as the terminal value (if realized) is greater than zero, i.e., $V \geq 0$. Given writer quality w, the conditional expected value of movies purchased as spec is

$$\mathbb{E}[V|\text{released}, \text{spec}, w] = \mathbb{E}[V|\theta \geq r_0(w), V \geq 0], \tag{A7}$$

where the expected value is conditional on 1) the writer has chosen to spec, i.e., $\theta \geq r_0(w)$, and 2) the finished script is released, i.e., $V \geq 0$. The conditional expected value of movies purchased as pitch is

$$\mathbb{E}[V|\text{released}, \text{pitch}, w] = \mathbb{E}[V|\theta < r_0(w), v(w,\theta,\epsilon_i) \geq c_s, V \geq 0] \tag{A8}$$

where the expected value is conditional on 1) the writer has chosen to pitch, i.e., $\theta < r_0(w)$, 2) the pitch is sold, i.e., $v(w,\theta,\epsilon_i) \geq c_s$, and 3) finished script is released, i.e., $V \geq 0$.

It is clear from (A7) and (A8) that the writer selection effect is reflected by $\theta \geq r_0(w)$ for spec, and $\theta < r_0(w)$ for pitch. The extra evaluation effect is reflected by the extra condition $v(w,\theta,\epsilon_i) \geq c_s$ for pitch. In the following, I first consider the writer selection effect only, and then add the extra evaluation effect.

□ **Writer selection effect.** When considering the writer selection effect only, the conditional expected value of spec is greater than that of pitch, irrespective of the writer quality, i.e., $\mathbb{E}[V|\theta \geq r_0(w), V \geq 0] > \mathbb{E}[V|\theta < r_0(w), V \geq 0]$, for all w.

To see this, let $\delta(w,\theta) = \mathbb{E}[V|\epsilon_i + \epsilon_s \geq -w-\theta]$. Write the conditional expected values of spec and pitch in the form of the expectation of $\delta(w,\theta)$ over their corresponding domain of θ's.

$$\begin{aligned}
\mathbb{E}[V|\theta \geq r_0(w), V \geq 0] &= \frac{\int_{r_0(w)}^{\infty} \delta(w,\theta)(1-F(-w-\theta))g(\theta)d\theta}{\int_{r_0(w)}^{\infty}(1-F(-w-\theta))g(\theta)d\theta} \\
\mathbb{E}[V|\theta < r_0(w), V \geq 0] &= \frac{\int_{-\infty}^{r_0(w)} \delta(w,\theta)(1-F(-w-\theta))g(\theta)d\theta}{\int_{-\infty}^{r_0(w)}(1-F(-w-\theta))g(\theta)d\theta}.
\end{aligned}$$

Because $\delta(w,\theta)$ is an increasing function of θ,

$$\mathbb{E}[V|\theta \geq r_0(w), V \geq 0] > \delta(w, r_0(w)) > \mathbb{E}[V|\theta < r_0(w), V \geq 0].$$

□ **Adding the extra evaluation effect of pitch.** Adding the extra evaluation effect increases the conditional expected value of pitch, i.e., $\mathbb{E}[V|\theta < r_0(w), \epsilon_i \geq \epsilon_i^*(w,\theta), V \geq 0] > \mathbb{E}[V|\theta < r_0(w), V \geq 0]$, where $\epsilon_i^*(w,\theta)$ is the solution of $v(w,\theta,\epsilon_i) = c_s$.

Let $\delta(w,\theta,\epsilon_i) = \mathbb{E}[V|\epsilon_s \geq -w-\theta-\epsilon_i]$. Again, the conditional expected value of pitch with and without considering the extra evaluation effect are

$$\begin{aligned}
\mathbb{E}[V|\theta < r_0(w), \epsilon_i \geq \epsilon_i^*(w,\theta), V \geq 0] &= \frac{\int_{-\infty}^{r_0(w)}\{\int_{\epsilon_i^*(w,\theta)}^{\infty}(1-F^s(-w-\theta-\epsilon_i))dF^i(\epsilon_i)\}\left(\frac{\int_{\epsilon_i^*(w,\theta)}^{\infty}\delta(w,\theta,\epsilon_i)(1-F^s(-w-\theta-\epsilon_i))f^i(\epsilon_i)d\epsilon_i}{\int_{\epsilon_i^*(w,\theta)}^{\infty}(1-F^s(-w-\theta-\epsilon_i))f^i(\epsilon_i)d\epsilon_i}\right)dG(\theta)}{\int_{-\infty}^{r_0(w)}\int_{\epsilon_i^*(w,\theta)}^{\infty}(1-F^s(-w-\theta-\epsilon_i))dF^i(\epsilon_i)dG(\theta)} \\
\mathbb{E}[V|\theta < r_0(w), V \geq 0] &= \frac{\int_{-\infty}^{r_0(w)}\{\int_{-\infty}^{\infty}(1-F^s(-w-\theta-\epsilon_i))dF^i(\epsilon_i)\}\left(\frac{\int_{-\infty}^{\infty}\delta(w,\theta,\epsilon_i)(1-F^s(-w-\theta-\epsilon_i))f^i(\epsilon_i)d\epsilon_i}{\int_{-\infty}^{\infty}(1-F^s(-w-\theta-\epsilon_i))f^i(\epsilon_i)d\epsilon_i}\right)dG(\theta)}{\int_{-\infty}^{r_0(w)}\int_{-\infty}^{\infty}(1-F^s(-w-\theta-\epsilon_i))dF^i(\epsilon_i)dG(\theta)}.
\end{aligned}$$

Each expression above is the expectation of a function of θ over $(-\infty, r_0(w))$ with respect to its respective density. $\mathbb{E}[V|\theta < r_0(w), \epsilon_i \geq \epsilon_i^*(w,\theta), V \geq 0] > \mathbb{E}[V|\theta < r_0(w), V \geq 0]$, because 1) the integrand of the former is greater than that of the latter for all θ, and 2) the density of θ of the former is more favorable than that of the latter in terms of first-order stochastic dominance.

First, given (w,θ), $\frac{\int_{\epsilon_i^*(w,\theta)}^{\infty}\delta(w,\theta,\epsilon_i)(1-F^s(-w-\theta-\epsilon_i))f^i(\epsilon_i)d\epsilon_i}{\int_{\epsilon_i^*(w,\theta)}^{\infty}(1-F^s(-w-\theta-\epsilon_i))f^i(\epsilon_i)d\epsilon_i} > \frac{\int_{-\infty}^{\infty}\delta(w,\theta,\epsilon_i)(1-F^s(-w-\theta-\epsilon_i))f^i(\epsilon_i)d\epsilon_i}{\int_{-\infty}^{\infty}(1-F^s(-w-\theta-\epsilon_i))f^i(\epsilon_i)d\epsilon_i}$, because $\delta(w,\theta,\epsilon_i)$ is an increasing function of ϵ_i, and the density $\frac{(1-F^s(-w-\theta-\epsilon_i))f^i(\epsilon_i)}{\int_{\epsilon_i^*(w,\theta)}^{\infty}1(1-F^s(-w-\theta-\epsilon_i))f^i(\epsilon_i)d\epsilon_i}$ for $\epsilon_i \in (\epsilon_i^*(w,\theta), \infty)$ and 0 elsewhere is more favorable than $\frac{(1-F^s(-w-\theta-\epsilon_i))f^i(\epsilon_i)}{\int_{-\infty}^{\infty}1(1-F^s(-w-\theta-\epsilon_i))f^i(\epsilon_i)d\epsilon_i}$ in the sense of first-order stochastic dominance.

Second, the density $\frac{\int_{\epsilon_i^*(w,\theta)}^{\infty}(1-F^s(-w-\theta-\epsilon_i))dF^i(\epsilon_i)}{\int_{-\infty}^{r_0(w)}\int_{\epsilon_i^*(w,\theta)}^{\infty}(1-F^s(-w-\theta-\epsilon_i))dF^i(\epsilon_i)dG(\theta)}$ for $\theta \in (-\infty, r_0(w))$ and 0 elsewhere is more favorable than $\frac{\int_{-\infty}^{\infty}(1-F^s(-w-\theta-\epsilon_i))dF^i(\epsilon_i)}{\int_{-\infty}^{r_0(w)}\int_{-\infty}^{\infty}(1-F^s(-w-\theta-\epsilon_i))dF^i(\epsilon_i)dG(\theta)}$ for $\theta \in (-\infty, r_0(w))$ and 0 elsewhere in the sense of first-order stochastic dominance as well (the proof of the claim is omitted).

Finally, it can be shown that both conditional expected values increase with w. However, $\lim_{w\to\infty} \mathbb{E}[V|\theta \geq r_0(w), V \geq 0] = \infty$, and $\lim_{w\to\infty} \mathbb{E}[V|\theta < r_0(w), \epsilon \geq \epsilon_i^*(w,\theta), V \geq 0]$ is finite. The former is true because $\mathbb{E}[V|\theta \geq r_0(w), V \geq 0]$ is the expectation of $\delta(w,\theta)$, and $\delta(w,\theta)$ tends to infinity as $w \to \infty$. The latter is true because for all w, $\mathbb{E}[V|\theta < r_0(w), \epsilon \geq \epsilon_i^*(w,\theta), V \geq 0] < \mathbb{E}[V|\theta = r_0(w), \epsilon \geq \epsilon_i^*(w, r_0(w)), V \geq 0]$, which is a constant.

Thus, when the writer's observable quality w is sufficiently high, the writer selection effect dominates the extra evaluation effect. The conditional performance of spec is better. When w is sufficiently low, it is possible that pitch performs better, because the extra evaluation effect may dominate the writer selection effect. □

Proof of Proposition 2. The writer's problem stays the same. Observing both w and θ, the buyer's expected payoff from meeting the writer for pitch and spec are respectively

$$\begin{aligned} P^{\mathrm{B}}(w,\theta) &= (1-\alpha_p)\mathbb{P}(v(w,\theta,\epsilon_i) \geq c_s)\mathbb{E}[v(w,\theta,\epsilon_i) - c_s | v(w,\theta,\epsilon_i) \geq c_s] - c_m \\ S^{\mathrm{B}}(w,\theta) &= (1-\alpha_s)\mathbb{E}[v(w,\theta,\epsilon_i)] - c_m. \end{aligned}$$

Given w, $\lim_{\theta\to-\infty} P^{\mathrm{B}}(w,\theta) = -c_m$ and $\lim_{\theta\to\infty} P^{\mathrm{B}}(w,\theta) = \infty$. $P^{\mathrm{B}}(w,\theta)$ is monotone increasing in θ. Thus, there exists $m_p^a(w) \in R$ such that $P^{\mathrm{B}}(w,\theta) \geq 0$ if and only if $\theta \geq m_p^a(w)$. Similarly, there exists $m_s^a(w) \in R$ such that $S^{\mathrm{B}}(w,\theta) \geq 0$ if and only if $\theta \geq m_s^a(w)$.

Regarding the order of the thresholds, 1) $m_p^a(w) < r_0(w)$ because it is shown in Proposition 1 that $P^{\mathrm{B}}(w, r_0(w)) = (1-\alpha_p)\bar{P} - c_m > 0$; 2) $m_s^a(w) < r_s(w)$ because $S^{\mathrm{B}}(w, r_s(w)) = \frac{1-\alpha_s}{\alpha_s} c_s - c_m > 0$; 3) $m_p^a(w) < r_s(w)$ if and only if $c_m < K$, where K is a constant, and equals

$$K = (1-\alpha_p)\mathbb{P}(v(w, r_s(w), \epsilon_i) \geq c_s)\mathbb{E}[v(w, r_s(w), \epsilon_i) - c_s | v(w, r_s(w), \epsilon_i) \geq c_s].$$

It can be shown that $\frac{(1-\alpha_p)(1-\alpha_s)}{\alpha_s} c_s < K < \frac{1-\alpha_p}{\alpha_s} c_s$ (proof is omitted).

When $c_m < K$, the writer's choice in the equilibrium is to spec if $\theta \geq r_0(w)$, pitch if $m_p^a(w) \leq \theta < r_0(w)$, and drop the idea otherwise.

Finally, $m_p^a(w) > q(w)$. That is, the buyer has less incentive to meet the pitch than the social planner. This is because the buyer pays the cost c_m, while only gets $(1-\alpha_p)$ share of the total expected value of the idea. □

Proof of Prediction 3. By Bayes' rule, $\mathbb{P}(\text{spec}|\text{sale}) = \frac{\mathbb{P}(\text{spec}\cap\text{sale})}{\mathbb{P}(\text{spec}\cap\text{sale}) + \mathbb{P}(\text{pitch}\cap\text{sale})}$. Comparing the new equilibrium to the old equilibrium (Proposition 4), for $w < m_p$, $\mathbb{P}(\text{spec}|\text{sale})$ decreases, because $\mathbb{P}(\text{pitch} \cap \text{sale})$ used be zero, but is now positive. Thus, $\mathbb{P}(\text{spec}|\text{sale})$ decreases from 1 to a number less than 1. For $w \geq m_p$, $\mathbb{P}(\text{pitch} \cap \text{sale} = \int_{m_p^a(w)}^{r_0(w)} (1 - F^i(\epsilon^*(w,\theta)))g(\theta)d\theta$ is smaller than that in the model, which is $\int_{-\infty}^{r_0(w)} (1 - F^i(\epsilon^*(w,\theta)))g(\theta)d\theta$. $\mathbb{P}(\text{spec} \cap \text{sale}$ stays the same. Thus, $\mathbb{P}(\text{spec}|\text{sale})$ increases. However, as w increases, $\mathbb{P}(\text{spec} \cap \text{sale})$ approaches to 1, which is the same limit of the probability of spec sale in the equilibrium without the big agency. Thus, when w is sufficiently high, the difference is not much.

When $w < m_p$, the average quality of spec sold becomes

$$\mathbb{E}[V|\theta \geq r_0(w), V \geq 0] \quad = \quad \frac{\int_{r_0(w)}^{\infty} \delta(\theta, w)(1 - F(-w - \theta))g(\theta)d\theta}{\int_{r_0(w)}^{\infty}(1 - F(-w - \theta))g(\theta)d\theta},$$

where $\delta(\theta, w) = \mathbb{E}[V|\epsilon_i + \epsilon_s \geq -w - \theta]$. $\delta(\theta, w)$ is monotone increasing in θ, and the density $\frac{(1-F(-w-\theta))g(\theta)}{\int_{r_0(w)}^{\infty}(1-F(-w-\theta))g(\theta)d\theta}$ for $\theta \in [r_0(w), \infty)$ and 0 elsewhere is more favorable than the the density $\frac{(1-F(-w-\theta))g(\theta)}{\int_{\tilde{r}_0(w)}^{\infty}(1-F(-w-\theta))g(\theta)d\theta}$ for $\theta \in [r_s(w), \infty)$ and 0 elsewhere in the sense of first-order stochastic dominance. Thus, $\mathbb{E}[V|\theta \geq r_0(w), V \geq 0] > \mathbb{E}[V|\theta \geq r_s(w), V \geq 0]$.

The average quality of pitch sold increases also because the increasing threshold yields a more favorable distribution of θ. The proof is similar to Prediction 2. □

Proof of Proposition 3. Recall $\alpha_p = \alpha(1 - \delta) + \lambda_p\delta$ and $\alpha_s = \alpha(1 - \delta) + \lambda_s\delta$. Let $\lambda_p = \lambda$, and $\tilde{\lambda} = \lambda_s - \lambda_p$. Then, $\lambda_s = \lambda + \tilde{\lambda}$. Changing λ_s and λ_p by the same amounts is equivalent to increasing λ and keeping $\tilde{\lambda}$ unchanged. Rewrite the difference between spec and pitch, $\Delta^{\mathrm{W}}(w, \theta)$ (defined in (A10)), in terms of $\tilde{\lambda}$ and λ, and take the derivatives with respect to λ,

$$\frac{\partial \Delta^{\mathrm{W}}(w,\theta)}{\partial \lambda} \quad = \quad \delta \mathbb{P}(v(w, \theta, \epsilon_i) < c_s)\mathbb{E}[(v(w, \theta, \epsilon_i) - c_s)|v(w, \theta, \epsilon_i) < c_s] + \delta c_s.$$

The sum of the two terms is positive, because the former is always greater than $-c_s$. By the implicit function theorem, the writer favors spec more, thus, the separating threshold decreases.

The buyer's expected payoff from meeting the writer for pitch, $P^{\mathrm{B}}(w)$, is defined in the text. Take derivative w.r.t. λ,

$$\begin{aligned} \frac{\partial P^{\mathrm{B}}(w)}{\partial \lambda} \quad = \quad & -\delta \int_{-\infty}^{r_0(w)} \int_{\epsilon_i^*(w,\theta)}^{\infty} (v(w, \theta, \epsilon_i) - c_s)dF^i(\epsilon_i)\frac{g(\theta)}{G(r_0(w))}d\theta \\ & + \frac{\partial r_0(w)}{\lambda} \int_{\epsilon_i^*(w,r_0(w))}^{\infty} (v(w, r_0(w), \epsilon_i) - c_s)dF^i(\epsilon_i)\frac{g(r_0(w))}{G(r_0(w))}, \end{aligned}$$

where $\epsilon_i^*(w, \theta)$ is the solution of $v(w, \theta, \epsilon_i) = c_s$. Both terms are negative, which implies that the buyer's expected payoff decreases for all w. Thus, the meeting threshold for pitch increases, i.e., $m_p^a > m_p$. □

Proof of Prediction 4. By Bayes' rule, $\mathbb{P}(\text{spec}|\text{sale}) = \frac{\mathbb{P}(\text{spec}\cap\text{sale})}{\mathbb{P}(\text{spec}\cap\text{sale})+\mathbb{P}(\text{pitch}\cap\text{sale})}$. For $m_p < x < m_p^a$, $\mathbb{P}(\text{spec}|\text{sale})$ changes from a number less than 1 to 1, because $\mathbb{P}(\text{pitch} \cap \text{sale})$ used to be positive, but is now zero. For $w > m_p^a$, $\mathbb{P}(\text{spec}|\text{sale})$ increases, because $\mathbb{P}(\text{spec} \cap \text{sale})$ increases and $\mathbb{P}(\text{pitch} \cap \text{sale})$ decreases. To see this,

The average quality of spec and pitch sold both decrease as the result of the decreasing threshold $r_0(w)$. The proofs are similar to Prediction 3. □

C. A VARIATION OF THE MODEL: BUYER DOES NOT OBSERVE θ UNTIL THE SCRIPT IS FINISHED

In the model, the buyer observes the writer's private signal, θ, as soon as she hears the story. This is reasonable for spec, because the qualities of the idea and the script are clear, given a complete script. For pitch, however, the writer may find it difficult to convey what he believes about the idea's potential. Here, I discuss another extreme where the buyer does not observe θ until the script is finished. The reality is likely to lie somewhere in between.

The sequence of events is similar to that in the model, except that if the writer has chosen to pitch, the buyer does not observe the writer's private signal, θ, until the script is finished. The buyer still observes the writer's observable quality, w, and the quality of the abstract idea, ϵ_i, upon meeting. To avoid solving a bargaining problem under asymmetric information, I make two simplifying assumptions about the negotiation stage, given a pitch. First, the expected value of the idea, $\tilde{v}(w, \epsilon_i)$, is calculated based on what the buyer's information — i.e.,

$$\tilde{v}(w, \epsilon_i) = \int_{-\infty}^{\infty} v(w, \theta, \epsilon_i) dH(\theta|w, P), \tag{A9}$$

where the density of the buyer's posterior given a pitch from a writer of quality w is $h(\theta|w, P) = \frac{g(\theta)z(P|w,\theta)}{\int_{-\infty}^{\infty} g(\theta')z(P|w,\theta)d\theta'}$, and $z(P|w, \theta)$ is the probability that the writer chooses to pitch given (w, θ). Second, the writer accepts the offer if and only if his payment is greater than the writing cost he is to incur.

Analogous to a generalized Nash bargaining solution, the pitch is sold if and only if its expected surplus is positive — i.e., $\tilde{v}(w, \epsilon_i) \geq c_s$. Given a sale, the writer's and the buyer's payoffs at the negotiation stage are, respectively, $\alpha_p(\tilde{v}(w, \epsilon_i) - c_s)$ and $(1 - \alpha_p)(\tilde{v}(w, \epsilon_i) - c_s)$.

At Stage 1, the writer's expected payoffs from spec and pitch are

$$\begin{aligned} \tilde{S}^{\mathrm{W}}(w, \theta) &= \alpha_s \mathbb{E}[v(w, \theta, \epsilon_i)] - c_s \\ \tilde{P}^{\mathrm{W}}(w) &= \alpha_p \mathbb{P}(\tilde{v}(w, \epsilon_i) \geq c_s) \mathbb{E}[\tilde{v}(w, \epsilon_i) - c_s | \tilde{v}(w, \epsilon_i) \geq c_s]. \end{aligned}$$

The writer's expected payoff from spec is the same in the benchmark case. His expected payoff from pitch does not depend on θ now, because the buyer does not observe it.

At Stage 2, the buyer decides whether or not to meet the writer, updating her belief, $H(\theta|w, S)$ and $H(\theta|w, P)$, about the writer's private signal θ. The buyer's expected payoffs from meeting the writer for spec and for pitch are

$$\begin{aligned} \tilde{S}^{\mathrm{B}}(w) &= \textstyle\int_{-\infty}^{\infty} \{(1 - \alpha_s) \mathbb{E}[v(w, \theta, \epsilon_i)] - c_m\} dH(\theta|w, S) \\ \tilde{P}^{\mathrm{B}}(w) &= (1 - \alpha_p) \mathbb{P}(\tilde{v}(w, \epsilon_i) \geq c_s) \mathbb{E}[\tilde{v}(w, \epsilon_i) - c_s | \tilde{v}(w, \epsilon_i) \geq c_s] - c_m. \end{aligned}$$

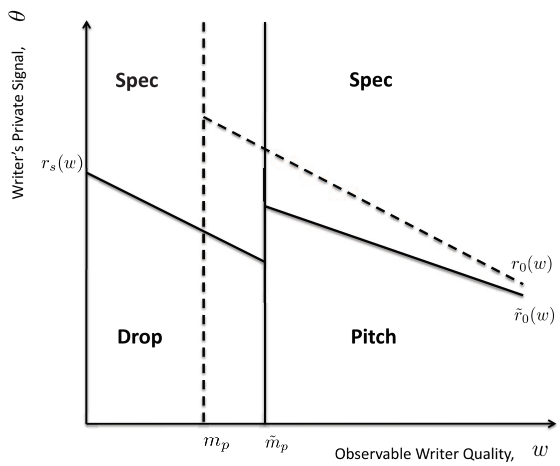
Let $\tilde{m}_p$ and $\tilde{r}_0(w)$ denote the new thresholds.

Proposition 4. (buyer does not observe θ until the script is finished) *The writer's choice in equilibrium is qualitatively similar to Proposition 1; the differences are*

(i) *the buyer's meeting threshold for pitch is more strict — i.e., $\tilde{m}_p > m_p$;*

(ii) *for all $w \geq \tilde{m}_p$, the writer chooses to spec more — i.e., $\tilde{r}_0(w) < r_0(w)$. The difference decreases with w — i.e., $\partial(r_0(w) - \tilde{r}_0(w))/\partial w < 0$, and $\lim_{w\to\infty} \tilde{r}_0(w) = r_0(w)$.*

FIGURE 10. **Writer's Choice in Equilibrium (buyer does not observe θ until the script is finished)**



Notes: The solid lines describe the writer's equilibrium choice when the buyer does not observe θ until the script is finished. The dashed lines describe the writer's equilibrium choice in the model (the same as Figure 2).

The differences are illustrated in Figure 10. First, given any observable quality, w, the writer prefers to spec (relative to pitch) more — i.e., $\tilde{r}_0(w) < r_0(w)$. This is the classic adverse selection problem: When asymmetric information does not resolve until a script is finished, the writer has an extra incentive to spec in order to differentiate his idea from worse ones. The difference, however, decreases as w increases, and disappears at the limit. In other words, writers of better observable quality suffer less from asymmetric information. Second, the barrier to pitch is higher — i.e., $\tilde{m}_p > m_p$. There are two reasons for this: One is that the average quality of the pitch offered for sale decreases as a result of the adverse selection problem; the other is that there is efficiency loss, because the buyer does not observe the true θ when deciding whether to buy a pitch upon meeting.

The existence and the uniqueness of the equilibrium are proved similarly to the model. The rest of this section focuses on proving the following three things: 1) the existence and the uniqueness of the separating threshold $\tilde{r}_0(w)$ when $w \geq \tilde{m}_p$; 2) the writer has a stronger incentive to spec than the benchmark case — i.e., $\tilde{r}_0(w) < r_0(w)$, $\forall w$; and 3) the buyer's meeting threshold for pitch is more strict — i.e., $\tilde{m}_p < m_p$.

Proof. $\square$ $\mathbf{\tilde{r}_0(w)}$ **exists and is unique.** When $w \geq \tilde{m}_p$, the writer anticipates being met for both spec and pitch. Given w, the writer's expected payoff from pitch is constant, and his expected payoff from spec increases with θ. Then, it is the writer with a better signal that prefers to spec, and one with a lower signal that prefers to pitch. Let the threshold be $\tilde{r}_0(w)$. Then, in equilibrium, $\tilde{S}^W(w, \tilde{r}_0(w)) = \tilde{P}^W(w)$, where the buyer's posterior $h(\theta|w, P) = \frac{g(\theta)}{G(\tilde{r}_0(w))}$ for $\theta \in (-\infty, \tilde{r}_0(w))$, and 0 elsewhere.

Let $\tilde{\Delta}^W(w,\theta) = \tilde{S}^W(w,\theta) - \tilde{P}^W(w)$. The following shows that $\tilde{\Delta}^W(w,\theta)$ is monotone increasing in θ, $\lim_{\theta\to\infty} \tilde{\Delta}^W(w,\theta) = \infty$ and $\lim_{\theta\to-\infty} \tilde{\Delta}^W(w,\theta) = -c_s$. Thus, $\tilde{r}_0(w)$ exists and is unique.

The difference $\tilde{\Delta}^W(w,\theta)$ can be written as

$$\begin{aligned}\tilde{\Delta}^W(w,\theta) \quad = \quad & \mathbb{P}(v(w,\theta,\epsilon_i) < c_s)\mathbb{E}[\alpha_p(v(w,\theta,\epsilon_i) - c_s)|v(w,\theta,\epsilon_i) < c_s] \\ & -(1-\alpha_p)c_s + (\alpha_s - \alpha_p)\mathbb{E}[v(w,\theta,\epsilon_i)] \\ & +\mathbb{P}(\epsilon_i \in A_1)\mathbb{E}[\alpha_p(v(w,\theta,\epsilon_i) - c_s)|\epsilon_i \in A_1] \\ & +\mathbb{P}(\epsilon_i \in A_2)\mathbb{E}[\alpha_p(v(w,\theta,\epsilon_i) - \tilde{v}(w,\epsilon_i))|\epsilon_i \in A_2],\end{aligned} \tag{A10}$$

where $\tilde{v}(w,\epsilon_i) = \int_{-\infty}^{\theta} v(w,\hat{\theta},\epsilon_i)\frac{g(\hat{\theta})}{G(\theta)}d\hat{\theta}$. The event $A_1 := \{\epsilon_i | v(w,\theta,\epsilon_i) \geq c_s, \tilde{v}(w,\epsilon_i) < c_s\}$, and is where the idea is worthwhile writing; however, the pitch is not sold. The event $A_2 := \{\epsilon_i | \tilde{v}(w,\epsilon_i) \geq c_s\}$, and is where the pitch is sold.

To see that $\tilde{\Delta}^W(w,\theta)$ is monotone increasing in θ, let $\epsilon_i^*(w,\theta)$ be the solution of $v(w,\theta,\epsilon_i) = c_s$, and $\epsilon_i^*(w)$ be the solution of $\tilde{v}(w,\epsilon_i) = c_s$. Notice that $\epsilon_i^*(w,\theta) < \epsilon_i^*(w)$, because given (w,θ), $v(w,\theta,\epsilon_i) > \tilde{v}(w,\epsilon_i)$, $\forall \epsilon_i$. Then,

$$\begin{aligned}\frac{\partial \tilde{\Delta}^W(w,\theta)}{\partial \theta} \quad = \quad & \alpha_p \int_{-\infty}^{\epsilon_i^*(w,\theta)} \frac{\partial v(w,\theta,\epsilon_i)}{\partial \theta} dF^i(\epsilon_i) + (\alpha_s - \alpha_p)\mathbb{E}[\frac{\partial v(w,\theta,\epsilon_i)}{\partial \theta}] \\ & +\alpha_p \int_{\epsilon_i^*(w,\theta)}^{\epsilon_i^*(w)} \frac{\partial v(w,\theta,\epsilon_i)}{\partial \theta} dF^i(\epsilon_i) + \alpha_p \int_{\epsilon_i^*(w)}^{\infty} (\frac{\partial v(w,\theta,\epsilon_i)}{\partial \theta} - \frac{\partial \tilde{v}(w,\epsilon_i)}{\partial \theta}) dF^i(\epsilon_i) \\ > \quad & 0.\end{aligned}$$

The first three terms are all positive. As explained below, $\frac{\partial v(w,\theta,\epsilon_i)}{\partial \theta} > \frac{\partial \tilde{v}(w,\epsilon_i)}{\partial \theta}$, for all ϵ_i. Thus, the last term is positive, as well.

Integrate by parts, $\tilde{v}(w,\epsilon_i) = v(w,\theta,\epsilon_i) - \int_{-\infty}^{\theta} \frac{\partial v(w,\hat{\theta},\epsilon_i)}{\partial \hat{\theta}} \frac{G(\hat{\theta})}{G(\theta)} d\hat{\theta}$. Take derivative w.r.t. θ,

$$\frac{\partial \tilde{v}(w,\epsilon_i)}{\partial \theta} = \frac{g(\theta)}{G(\theta)} \int_{-\infty}^{\theta} \frac{\partial v(w,\hat{\theta},\epsilon_i)}{\partial \hat{\theta}} \frac{G(\hat{\theta})}{G(\theta)} d\hat{\theta} < [\frac{g(\theta)}{G(\theta)} \int_{-\infty}^{\theta} \frac{G(\hat{\theta})}{G(\theta)} d\hat{\theta}] \frac{\partial v(w,\theta,\epsilon_i)}{\partial \theta} < \frac{\partial v(w,\theta,\epsilon_i)}{\partial \theta}.$$

The first inequality holds because $v(w,\theta,\epsilon_i)$ is a convex function of θ. The second inequality holds because $\frac{g(\theta)}{G(\theta)} \int_{-\infty}^{\theta} \frac{G(\hat{\theta})}{G(\theta)} d\hat{\theta} < 1$ when g has a decreasing reverse hazard rate.

$\lim_{\theta\to\infty} \tilde{\Delta}^W(w,\theta) = \infty$, and $\lim_{\theta\to-\infty} \tilde{\Delta}^W(w,\theta) = -c_s$. This is because $\lim_{\theta\to\infty} \tilde{S}^W(w,\theta) = \infty$, $\lim_{\theta\to-\infty} \tilde{S}^W(w,\theta) = -c_s$, $\lim_{\theta\to\infty} \tilde{P}^W(w) = c$, and $\lim_{\theta\to-\infty} \tilde{P}^W(w) = 0$. The limits of $\tilde{P}(w)$ hold because given (w,ϵ_i), $\lim_{\theta\to\infty} \tilde{v}(w,\epsilon_i)$ is finite, and $\lim_{\theta\to-\infty} \tilde{v}(w,\epsilon_i) = 0$.

Finally, $-1 < \tilde{r}_0'(w) < 0$. By the implicit function theorem,

$$\tilde{r}_0'(w) = -\frac{\frac{\partial \tilde{\Delta}^{W}(w,\theta)}{\partial w}}{\frac{\partial \tilde{\Delta}^{W}(w,\theta)}{\partial \theta}}|_{w,\tilde{r}_0(w)} = -\frac{\int \alpha_s \frac{\partial v(w,\theta,\epsilon_i)}{\partial w} dF^i(\epsilon_i) - \int_{\epsilon_i^*(w)}^{\infty} \alpha_p \frac{\partial \tilde{v}(w,\epsilon_i)}{\partial w} F^i(\epsilon_i)}{\int \alpha_s \frac{\partial v(w,\theta,\epsilon_i)}{\partial \theta} dF^i(\epsilon_i) - \int_{\epsilon_i^*(w)}^{\infty} \alpha_p \frac{\partial \tilde{v}(w,\epsilon_i)}{\partial \theta} dF^i(\epsilon_i)}|_{w,\tilde{r}_0(w)} \; .$$

First, $\tilde{r}_0'(w) < 0$ because both $\frac{\partial \tilde{\Delta}^{W}(w,\theta)}{\partial w}$ and $\frac{\partial \tilde{\Delta}^{W}(w,\theta)}{\partial \theta}$ are positive. Second, $\tilde{r}_0'(w) > -1$ because the first term in the denominator is equal to the first term in the numerator, while the second term in the denominator is always smaller than the second term in the numerator. The former is true by symmetry. The latter is true because $\frac{\partial \tilde{v}(w,\epsilon_i)}{\partial w} - \frac{\partial \tilde{v}(w,\epsilon_i)}{\partial \theta} = \int_{-\infty}^{\theta} \frac{\partial v(w,\hat{\theta}),\epsilon_i}{\partial \theta} \frac{g(\hat{\theta})G(\theta) - g(\theta)G(\hat{\theta})}{G^2(\theta)} d\theta > 0$.

□ $\tilde{\mathbf{r}}_\mathbf{0}(\mathbf{w}) < \mathbf{r}_\mathbf{0}(\mathbf{w})$**,** $\forall \mathbf{w}$**.** When $\theta = r_0(w)$, the difference $\tilde{\Delta}^{W}(w,\theta)$ becomes (note that the first three lines in (A10) disappear by the definition of $r_0(w)$)

$$\begin{aligned} \tilde{\Delta}^{W}(w, r_0(w)) &= \mathbb{P}(\epsilon_i \in A_1)\mathbb{E}[\alpha_p(v(w,r_0(w),\epsilon_i) - c_s)|\epsilon_i \in A_1] \\ &\quad + \mathbb{P}(\epsilon_i \in A_2)\mathbb{E}[\alpha_p(v(w,r_0(w),\epsilon_i) - \tilde{v}(w,\epsilon_i))|\epsilon_i \in A_2], \end{aligned}$$

where $\tilde{v}(w,\epsilon_i) = \int_{-\infty}^{r_0(w)} v(w,\hat{\theta},\epsilon_i) \frac{g(\hat{\theta})}{G(r_0(w))} d\hat{\theta}$. Both terms are positive. Thus, $\tilde{r}_0(w) < r_0(w), \forall w$.

Finally, $\lim_{w\to\infty} \tilde{r}_0(w) = r_0(w)$. This is true because $\lim_{w\to\infty} \tilde{v}(w,\epsilon_i) = v(w, r_0(w), \epsilon_i)$, thus, $\lim_{w\to\infty} \tilde{P}^{W}(w) = P^{W}(w, r_0(w))$. $\tilde{v}(w,\epsilon_i) = \int_{-\infty}^{\tilde{r}_0(w)} v(w,\hat{\theta},\epsilon_i) \frac{g(\hat{\theta})}{G(\tilde{r}_0(w))} d\hat{\theta} = v(w,\tilde{r}_0(w),\epsilon_i) - \int_{-\infty}^{\tilde{r}_0(w)} \frac{\partial v(w,\theta,\epsilon_i)}{\partial \theta} \frac{G(\theta)}{G(\tilde{r}_0(w))} d\theta$. Both terms in the integrand of the second term are smaller than 1, and $\lim_{w\to\infty} \tilde{r}_0(w) = -\infty$. Thus, the second term tends to zero as $w \to \infty$.

□ $\tilde{\mathbf{m}}_\mathbf{p} > \mathbf{m}_\mathbf{p}$**.** The following shows that the buyer's expected payoff from meeting the writer for a pitch in this case, $\tilde{P}^{B}(w)$, is always smaller than that in the benchmark case, $P^{B}(w)$.

$$\begin{aligned} P^{B}(w) &= (1-\alpha_p) \int_{-\infty}^{r_0(w)} [\int_{\epsilon_i^*(w,\theta)}^{\infty} [v(w,\theta,\epsilon_i) - c_s] dF^i(\epsilon_i)] \frac{g(\theta)}{G(r_0(w))} d\theta - c_m \\ &> (1-\alpha_p) \int_{-\infty}^{\tilde{r}_0(w)} [\int_{\epsilon_i^*(w,\theta)}^{\infty} [v(w,\theta,\epsilon_i) - c_s] dF^i(\epsilon_i)] \frac{g(\theta)}{G(\tilde{r}_0(w))} d\theta - c_m \\ &> (1-\alpha_p) \int_{-\infty}^{\tilde{r}_0(w)} [\int_{\epsilon_i^*(w)}^{\infty} [v(w,\theta,\epsilon_i) - c_s] dF^i(\epsilon_i)] \frac{g(\theta)}{G(\tilde{r}_0(w))} d\theta - c_m \\ &= (1-\alpha_p) \int_{\epsilon_i^*(w)}^{\infty} [v(w,\theta < \tilde{r}_0(w),\epsilon_i) - c_s] dF^i(\epsilon_i) - c_m \\ &= \tilde{P}^{B}(w), \end{aligned}$$

where $\tilde{v}(w,\epsilon_i) = \int_{-\infty}^{\tilde{r}_0(w)} v(w,\hat{\theta},\epsilon_i) \frac{g(\hat{\theta})}{G(\tilde{r}_0(w))} d\hat{\theta}$, $\epsilon_i^*(w,\theta)$ is the solution of $v(w,\theta,\epsilon_i) = 0$, and $\epsilon_i^*(w)$ is the solution of $\tilde{v}(w,\epsilon_i) = 0$. The first inequality holds, because $r_0(w) > \tilde{r}_0(w), \forall w$. The second inequality holds, because 1) for θ such that $v(w,\theta,\epsilon_i) > \tilde{v}(w,\epsilon_i)$, $\epsilon_i^*(w,\theta) < \epsilon_i^*(w)$. Then, buying the pitch if and only if $\epsilon_i > \epsilon^*$ incurs loss, because when $\epsilon_i^*(w,\theta) < \epsilon_i < \epsilon_i^*(w)$, $v(w,\theta,\epsilon_i) - c_s > 0$; 2) Similarly, for θ such that $v(w,\theta,\epsilon_i) < \tilde{v}(w,\epsilon_i)$, $\epsilon_i^*(w,\theta) > \epsilon_i^*(w)$. Then, buying the pitch if and only if $\epsilon_i > \epsilon^*$ incurs loss, as well, because when $\epsilon_i^*(w) < \epsilon_i < \epsilon_i^*(w,\theta)$, $v(w,\theta,\epsilon_i) - c_s > 0$. □