Appendix B: Supplementary Results

In this appendix, we provide supplementary results to show that our main findings continue to hold when several assumptions are relaxed, and to derive additional insights of our model. Specifically, Appendix B.1 examines scenarios with large exogenous imitation efficiency. Appendix B.2 explores the implications of endogenous imitation efficiency. Appendix B.3 investigates the impact of long-lived backers. Appendix B.4 analyzes the influence of single-version product launch strategy. Appendix B.5 introduces a two-stage bank financing model in which the startup first enjoys a monopoly period before facing potential copycat entry. Appendix B.6 discusses potential platform interventions to mitigate crowdfunding imitation risks. Appendix B.7 extends our model to incorporate demand following uniform distribution.

B.1. Large Exogenous Imitation Efficiency: $\delta_c > \frac{4}{7}$ (Special Case Discussion)

In the base model as depicted in Section 2, we assumed that the imitation efficiency δ_c is smaller or equal to $\frac{4}{7}$. Hence, the copycat's high efficiency in imitation would not hurt itself in the retail competition. We now extend our analysis to the case where δ_c can be larger than $\frac{4}{7}$. That is, the copycat's efficiency in imitation can be close to or equal to 1, and its replica products' quality can be close to the original products'. One example of such an efficient copycat is giants. For example, Xiaomi introduced an accessory named MiKey, which was based on two crowdfunding projects: Pressy and Kuai Anniu (Millward 2014). Suing a giant such as Xiaomi is often impossible for most startups, which lack the time and resources to defend their intellectual property (Key 2017). Thus, this underscores the role of our innovative product introduction strategy in combatting crowdfunding copycats.

Using the same approach presented in Section 2, we show that the main results obtained from the base model (i.e., Propositions 2-4 and Corollary 1) continue to hold when $\delta_c \le \frac{4}{7}$ and $\frac{4}{7} < \delta_c < \kappa_2^{-1}(1)$, where $\kappa_2^{-1}(1)$ is the second root to $\Pi_c^{C*} = 0$. To explain this result, observe that the equilibrium outcome of the subgame remains unchanged since δ_c is exogenous. Consequently, the startup has no incentive to deviate from the equilibrium point. However, if $\delta_c \ge \kappa_2^{-1}(1)$, the copycat will not enter the market, i.e., case CMF. This is because a more efficient copycat produces products with quality closer to the original ones. This, in turn, inevitably triggers more fierce price competition. When the price competition is intense enough, i.e., $\delta_c \ge \kappa_2^{-1}(1)$, the copycat will not enter the market due to unaffordable entry costs. This is consistent with the finding that higher imitation efficiency does not always benefit the copycat (Gao et al. 2017). Figure EC.1 depicts these distinctions between the case where $\delta_c \le \frac{4}{7}$ and the case of large imitation efficiency.

B.2. Endogenous Imitation Efficiency

Recall from Section 1 that we assume that the copycat's efficiency δ_c is exogenously given and restrict $\delta_c \in (0, \frac{4}{7})$. Specifically, when δ_c is larger than $\frac{4}{7}$, a more efficient copycat may not benefit from its imitation efficiency in the retail competition. The restriction $\delta_c \in (0, \frac{4}{7})$ is to exclude this uninteresting case. Based on this assumption, the copycat always achieves the highest profit with all its strength. One may argue that, when the imitation efficiency δ_c is endogenous, the uninteresting case can also be excluded. By endogenizing imitation efficiency $\delta_c \in (0, 1]$, we first study the equilibrium in the retail stage via Lemma EC.1.

Lemma EC.1. *Given $\lambda \in (0, 1]$, the optimal retail pricing strategy and associated profit are:*

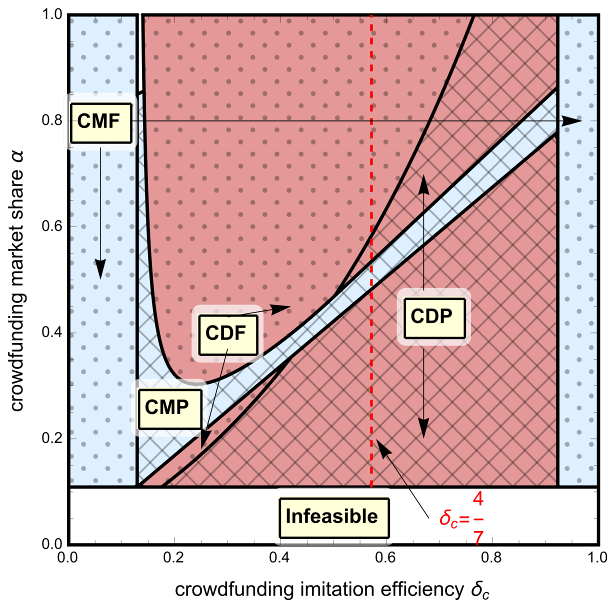


Figure EC.1 Equilibrium Cases with Large Exogenous Imitation Efficiency

(i) *When $0 < \lambda \leq \frac{4}{7}$ and $\kappa(\lambda) > 1$, the copycat enters the market (i.e., duopoly case), and the equilibrium outcome is $p_c^{C*} = \frac{\lambda q(\lambda-1)}{\lambda-4}$, $\delta_c^* = 1$ and $p_{s2}^{C*} = \frac{2q(\lambda-1)}{\lambda-4}$;*

(ii) *When $\lambda > \frac{4}{7}$ and $\kappa(\frac{4}{7}) > 1$, the copycat enters the market (i.e., duopoly case), and the equilibrium outcome is: $p_c^{C*} = \frac{1}{14}$, $\delta_c^* = \frac{4}{7\lambda}$ and $p_{s2}^{C*} = \frac{1}{4}$;*

(iii) *Otherwise, the copycat does not enter the market (i.e., monopoly case), and the equilibrium outcome is: $p_{s2}^{C*} = \frac{q}{2}$.*

Lemma EC.1 summarizes possible imitation behavior under different market conditions. In the same vein, the copycat would not enter the retail market if its entry costs could not be covered. Thus, the startup can still use the progressive launch strategy as a weapon to weaken or expel the copycat. However, different from our main model, the copycat strategically adjusts the imitation efficiency to avoid intense price competition. Specifically, if the level of crowdfunding quality provision λ is large, i.e., $\lambda > \frac{4}{7}$, the copycat would voluntarily copy only a partial function of the original product. Otherwise, the copycat would do its utmost to copy the original product.

Endogenous imitation efficiency helps the copycat overcome adverse crowdfunding product effects in a way, in turn, affects the startup's optimal decisions in the crowdfunding stage. We summarize the equilibrium outcomes in Proposition EC.1.

Proposition EC.1. *There are five possible equilibrium cases under crowdfunding. Table EC.1 summarizes the results for each equilibrium case.*

Proof of Proposition EC.1 On the basis of Lemma EC.1, we have following cases in the crowdfunding stage.

Case 1: $\frac{\alpha}{4} \leq \frac{K_s}{(v+q)X_H}$. In this case, the crowdfunding strategy is not feasible, since the startup fails to reach the funding goal even though the market demand is in high state.

Table EC.1 Equilibrium Cases

Case	Product	Imitation	λ^*	p_{s1}^{C*}	p_{s2}^{C*}	δ_c^*	p_c^{C*}
CMF	Full	-	1	$\frac{v+q}{2}$	$\frac{q}{2}$	-	-
CMP	Preliminary	-	$\frac{\kappa^{-1}(1)}{\delta_c}$	$\frac{q\kappa^{-1}(1)}{2\delta_c}+\frac{v}{2}$	$\frac{q}{2}$	-	-
CDF	Full	Partial	1	$\frac{v+q}{2}$	$\frac{q}{4}$	$\frac{4}{7}$	$\frac{q}{14}$
CDPF	Preliminary	Full	$\frac{4K_s}{\alpha q X_H}-\frac{v}{q}(\le\frac{4}{7})$	$\frac{v+q\lambda^*}{2}$	$\frac{2(1-\lambda^*)}{4-\lambda^*}q$	1	$\frac{\lambda^*(\lambda^*-1)}{\lambda^*-4}q$
CDPP	Preliminary	Partial	$\frac{4K_s}{\alpha q X_H}-\frac{v}{q}(>\frac{4}{7})$	$\frac{v+q\lambda^*}{2}$	$\frac{q}{4}$	$\frac{4}{7\lambda^*}$	$\frac{q}{14}$

Case 2: $\frac{\alpha}{4}>\frac{K_s}{(v+q)X_H}$ **and** $\frac{K_c}{qX_H}\ge\frac{1}{48}$**.** In this case, the copycat does not enter the market. Thus, the objective function is

$$\max_{\lambda\in\left[\frac{4K_s}{\alpha qX_H}-\frac{v}{q},1\right]} \quad \Pi_s^C=\beta\left(\left(\frac{1}{4}\alpha\lambda q+\frac{1}{4}q+\frac{1}{4}\alpha v\right)X_H-K_s\right),$$

and the optimal decision is $\lambda^*=1$.

Case 3: $\frac{K_s}{(v+q)X_H}<\frac{\alpha}{4}$ **and** $\frac{4K_s}{\alpha qX_H}-\frac{v}{q}>\frac{4}{7}$ **and** $\frac{K_c}{qX_H}<\frac{1}{48}$**.** In this case, the copycat enters the market and the lowest feasible level of crowdfunding quality provision $\frac{4K_s}{\alpha qX_H}-\frac{v}{q}>\frac{4}{7}$. The objective function is

$$\max_{\lambda\in\left[\frac{4K_s}{\alpha qX_H}-\frac{v}{q},1\right]} \quad \Pi_s^C=\beta\left(\left(\frac{1}{4}\alpha\lambda q+\frac{7}{48}q+\frac{1}{4}\alpha v\right)X_H-K_s\right),$$

and the optimal decision is $\lambda^*=1$.

Case 4: $\frac{4K_s}{\alpha qX_H}-\frac{v}{q}<\frac{4}{7}$ **and** $\frac{K_c}{qX_H}<\frac{1}{48}$ **and** $\frac{\kappa^{-1}(1)}{\delta_c}<\frac{4K_s}{\alpha qX_H}-\frac{v}{q}$**.** The copycat enters the market since the startup can only choose $\lambda>\frac{\kappa^{-1}(1)}{\delta_c}$. Thus, the objective function is

$$\max_{\lambda}\quad \Pi_s^C=\begin{cases}\beta\left(\left(\frac{1}{4}\alpha\lambda q+\frac{4(1-\lambda)}{(4-\lambda)^2}q+\frac{1}{4}\alpha v\right)X_H-K_s\right), & \lambda\in\left[\frac{4K_s}{\alpha qX_H}-\frac{v}{q},\frac{4}{7}\right]\\ \beta\left(\left(\frac{1}{4}\alpha\lambda q+\frac{7}{48}q+\frac{1}{4}\alpha v\right)X_H-K_s\right) & \lambda\in\left(\frac{4}{7},1\right],\end{cases}$$

and it is continuous at $\lambda=\frac{4}{7}$. It is easy to see that the optimal solution should be $\lambda=1$ if $\lambda\in\left(\frac{4}{7},1\right]$. Suppose the optimal solution for the case $\lambda\in\left[\frac{4K_s}{\alpha qX_H}-\frac{v}{q},\frac{4}{7}\right]$ is λ_1, then the gap between two optimal cases, i.e.,

$$\left(\frac{4(1-\lambda_1)}{(4-\lambda_1)^2}-\frac{7}{48}+\frac{\alpha}{4}(\lambda_1-1)\right)\beta qX_H,$$

achieves its maximum in $\lambda_1=\frac{4K_s}{\alpha qX_H}-\frac{v}{q}$ under the condition $\frac{\alpha}{4}\lambda_1+\frac{4(1-\lambda_1)}{(4-\lambda_1)^2}>\frac{\alpha}{4}+\frac{7}{48}$. Otherwise, the optimal solution is $\lambda^*=1$.

Case 5: $\frac{4K_s}{\alpha qX_H}-\frac{v}{q}<\frac{4}{7}$ **and** $K_c<\frac{1}{48}qX_H$ **and** $\frac{\kappa^{-1}(1)}{\delta_c}\ge\frac{4K_s}{\alpha qX_H}-\frac{v}{q}$**.** The copycat enters the market if the startup chooses $\lambda>\frac{\kappa^{-1}(1)}{\delta_c}$. Thus, the objective function is

$$\max_{\lambda}\begin{cases}\beta\left(\left(\frac{1}{4}\alpha\lambda q+\frac{1}{4}q+\frac{1}{4}\alpha v\right)X_H-K_s\right), & \lambda\in\left[\frac{4K_s}{\alpha qX_H}-\frac{v}{q},\frac{\kappa^{-1}(1)}{\delta_c}\right]\\ \beta\left(\left(\frac{1}{4}\alpha\lambda q+\frac{4(1-\lambda)}{(4-\lambda)^2}q+\frac{1}{4}\alpha v\right)X_H-K_s\right), & \lambda\in\left(\frac{\kappa^{-1}(1)}{\delta_c},\frac{4}{7}\right]\\ \beta\left(\left(\frac{1}{4}\alpha\lambda q+\frac{7}{48}q+\frac{1}{4}\alpha v\right)X_H-K_s\right), & \lambda\in\left(\frac{4}{7},1\right]\end{cases}$$

and it is continuous at $\lambda=\frac{4}{7}$. It is easy to see that the optimal solution should be $\lambda=1$ and $\lambda=\frac{\kappa^{-1}(1)}{\delta_c}$ if $\lambda\in\left(\frac{4}{7},1\right]$ and $\lambda\in\left[\frac{4K_s}{\alpha qX_H},\frac{\kappa^{-1}(1)}{\delta_c}\right]$, respectively. Suppose the optimal solution for the case $\lambda\in\left(\frac{\kappa^{-1}(1)}{\delta_c},\frac{4}{7}\right]$ is λ_1, then the gap between the second and the third optimal cases, i.e.,

$$\left(\frac{4(1-\lambda_1)}{(4-\lambda_1)^2}-\frac{7}{48}+\frac{\alpha}{4}(\lambda_1-1)\right)\beta qX_H,$$

is the same as that in Case 4. Thus, if there exists an optimal solution λ_1 such that $\lambda \in \left(\frac{\kappa^{-1}(1)}{\delta_c}, \frac{4}{7}\right]$, it should be $\lambda_1 \to \frac{\kappa^{-1}(1)}{\delta_c}$. However, the second case is dominated by the first case at $\lambda = \frac{\kappa^{-1}(1)}{\delta_c}$. Thus, it is equivalent to compare the first and the third optimal cases. To summarize, if $\frac{\alpha\kappa^{-1}(1)}{4\delta_c} + \frac{1}{4} \geq \frac{\alpha}{4} + \frac{7}{48}$, then the optimal solution is $\lambda^* = \frac{\kappa^{-1}(1)}{\delta_c}$; otherwise, the optimal solution is $\lambda^* = 1$.

■

Proposition EC.1 confirms the result in Proposition 2. By and large, our results in the main model are robust, e.g., the startup may strategically introduce a preliminary or full version of the final product during the campaign. Compared to our previous results, Proposition EC.1 presents three differences. First, when the startup chooses a full version of the final product and accommodates imitation, the copycat strategically adjusts the imitation efficiency level to $\frac{4}{7}$, e.g., case CDF. Second, the copycat may copy the original product with full or partial strength if the startup introduces a preliminary crowdfunding version. Third, the startup would not choose the level of crowdfunding quality provision which balances profits from two markets, i.e., $\lambda = \lambda_s$. To explain this result, observe that a threatening copycat such that imitation efficiency is endogenous reduces the room for adopting a balanced progressive launch strategy. The startup thus chooses either a low-quality crowdfunding product to weaken the copycat or a full version and accommodate imitation.

B.3. Long-lived Backers

Here we consider long-lived backers who will stay in the retail market if they abstain from the crowdfunding campaign. Hereafter, we use superscript L to denote notations with long-lived backers. In line with the existing crowdfunding literature (Hu et al. 2015, Candoğan et al. 2024, Bolandifar et al. 2023), we assume that consumers are myopic and preclude strategic waiting behavior.[3] Consumers who choose not to back the project simply become potential buyers in the retail market; they do not engage in strategic waiting by deliberately postponing their purchase decision. This assumption enhances the analytical tractability, allowing us to focus on the complex dynamics of competition. Moreover, assuming that consumers can predict potential copycat entry and crowdfunding project success probability is excessively strong. Upon re-solving the crowdfunding model, we obtain Proposition EC.2.

PROPOSITION EC.2. *The equilibrium results with long-lived backers is summarized in Table EC.2, where λ_s^L is the unique solution to* $\frac{\alpha}{4} + \frac{(2+\alpha)^2\delta_c(2+\lambda\delta_c)}{(1+\alpha)(4-\lambda\delta_c)^3} = 0$.

Table EC.2 Equilibrium Cases with Long-lived Backers

Case	Product	λ^*	p_{s1}^{L*}	p_{s2}^{L*}	p_c^{L*}
CMF	Full	1	$\frac{v+q}{2}$	$\frac{(2+\alpha)q}{4(1+\alpha)}$	-
CMP	Preliminary	$\frac{1}{\delta_c}\kappa^{-1}\left(\frac{4(1+\alpha)}{(2+\alpha)^2}\right)$	$\frac{q}{2\delta_c}\kappa^{-1}\left(\frac{4(1+\alpha)}{(2+\alpha)^2}\right) + \frac{v}{2}$	$\frac{(2+\alpha)q}{4(1+\alpha)}$	-
CDF	Full	1	$\frac{v+q}{2}$	$\frac{(2+\alpha)(1-\delta_c)}{(1+\alpha)(4-\delta_c)}q$	$\frac{\delta_c(2+\alpha)(1-\delta_c)}{2(1+\alpha)(4-\delta_c)}q$
CDP	Preliminary	$\left(\frac{4K_s}{\alpha q X_H} - \frac{v}{q}\right) \vee \lambda_s^L$	$\frac{v+q\lambda^*}{2}$	$\frac{(2+\alpha)(1-\delta_c\lambda^*)}{(1+\alpha)(4-\delta_c\lambda^*)}q$	$\frac{\delta_c\lambda^*(2+\alpha)(1-\delta_c\lambda^*)}{2(1+\alpha)(4-\delta_c\lambda^*)}q$

[3] In the context of group buying, which also employs the all-or-nothing mechanism like crowdfunding, Ming and Tunca (2022) have empirically shown that consumers' strategic waiting behavior is not significant.

Proof of Proposition EC.2 Regardless of the crowdfunding quality provision chosen, the optimal crowdfunding price remains $\frac{v+\lambda q}{2}$. Therefore, half of hardcore fans would back the project, and the others stay in the retail market. Moreover, $\hat{\theta}^{C*} = \frac{2-\lambda\delta_c}{4-\lambda\delta_c} < \frac{1}{2}$, which means that the startup would cover both segments in equilibrium, and $\hat{\theta}^L = \hat{\theta}^C$. In the duopoly case, both firms compete for their own market share with their respective objectives given as follows:

$$\begin{cases} \max\limits_{p_{s2}^L} \quad p_{s2}^L((1-\hat{\theta}^L)+\alpha(1/2-\hat{\theta}^L))X_H; \\ \max\limits_{p_c^L} \quad p_c^L(1+\alpha)\left(\hat{\theta}^L - \dfrac{p_c^L}{\delta q}\right)X_H - K_c, \quad \text{s.t.} \qquad p_c^L(1+\alpha)\left(\hat{\theta}^L - \dfrac{p_c^L}{\delta q}\right)X_H \geq K_c, \\ \qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\quad \delta = \lambda\delta_c \vee \delta_r. \end{cases}$$

Solving this problem, we have

$$p_{s2}^{LD*} = \frac{(2+\alpha)(1-\lambda\delta_c)}{(1+\alpha)(4-\lambda\delta_c)}q, \quad p_c^{L*} = \frac{\lambda\delta_c(2+\alpha)(1-\lambda\delta_c)}{2(1+\alpha)(4-\lambda\delta_c)}q,$$

$$\Pi_{s2}^{LD*} = \frac{(2+\alpha)^2(1-\lambda\delta_c)}{(1+\alpha)(4-\lambda\delta_c)^2}qX_H, \quad \Pi_c^{L*} = \frac{\lambda\delta_c(2+\alpha)^2(1-\lambda\delta_c)}{4(1+\alpha)(4-\lambda\delta_c)^2}qX_H - K_c.$$

Therefore, there exists a crowdfunding imitation efficiency threshold $\kappa^{-1}\left(\frac{4(1+\alpha)}{(2+\alpha)^2}\right)$, below which the copycat would not enter the market even though the startup offers full version initially. And to deter imitation, the startup should select λ below $\lambda = \kappa^{-1}\left(\frac{4(1+\alpha)}{(2+\alpha)^2}\right)/\delta_c$. By solving the crowdfunding problem similar to our main model, we can obtain the corresponding equilibrium results.

■

Similar to Proposition 2, there are four equilibrium cases with long-lived backers. When backers stay in the retail market instead of exiting, both the startup and the copycat intentionally adjust their prices to compete for these consumers. Consequently, retail prices are lower in both monopoly and duopoly cases compared to those without long-lived backers. Both the startup and the copycat enjoy higher retail profits. This leads to two outcomes: First, market entry becomes easier for the copycat, and to deter this, the startup must opt for a lower crowdfunding quality provision, i.e., $\lambda = \frac{1}{\delta_c}\kappa^{-1}\left(\frac{4(1+\alpha)}{(2+\alpha)^2}\right)$. Second, when determining the optimal progressive launch strategy, the startup assigns more weight to the retail market compared to scenarios without long-lived backers. Overall, accounting for long-lived backers does not significantly alter the optimal progressive launch strategy, and our key insights are preserved.

B.4. Single-version Strategy

In this section, we explore the single-version strategy. Differing from the progressive launch strategy discussed before, the startup chooses λ at the beginning and releases the same product across both stages, with its quality set at λq. Clearly, the single-version strategy is a special case of the progressive launch strategy. The equilibrium outcome under single-version strategy is summarized in Proposition EC.3.

PROPOSITION EC.3. *Crowdfunding strategy is feasible for the startup iff* $\alpha > \frac{4K_s}{(v+q)X_H}$. *Under this condition,*

(a) *if* $\Pi_s^{CM}|_{\lambda=1/\kappa(\delta_c)} < \Pi_s^{CD}|_{\lambda=1}$ *or* $\frac{4K_s}{\alpha q X_H} - \frac{v}{q} > 1/\kappa(\delta_c)$, $\lambda^* = 1$;

(b) *if* $\Pi_s^{CM}|_{\lambda=1/\kappa(\delta_c)} \geq \Pi_s^{CD}|_{\lambda=1}$ *and* $\frac{4K_s}{\alpha q X_H} - \frac{v}{q} \leq 1/\kappa(\delta_c)$, $\lambda^* = 1/\kappa(\delta_c)$.

Proof of Proposition EC.3 **Duopoly case.** Under the single-version strategy, given the identical quality between crowdfunding and retail versions, the optimal choice for the copycat is to target the crowdfunding product. The startup and the copycat simultaneously choose p_{s2}^C and p_c^C respectively to maximize their own profits, that is,

$$\begin{cases} \max\limits_{p_{s2}^C} \quad p_{s2}^C(1-\hat{\theta}^C)X_H; \\ \max\limits_{p_c^C} \quad p_c^C\left(\hat{\theta}^C - \dfrac{p_c^C}{\delta_c\lambda q}\right)X_H - K_c, \quad \text{s.t.} \qquad p_c^C\left(\hat{\theta}^C - \dfrac{p_c^C}{\delta_c\lambda q}\right)X_H \geq K_c. \end{cases}$$

It is easily found that the first-order condition with respect to p_{s2}^C and p_c^C yields the equilibrium outcomes, and the copycat enters the market only when $\Pi_c^{C*} > 0$, i.e., $\frac{\lambda\delta_c(1-\delta_c)}{(4-\delta_c)^2}qX_H - K_c > 0$. Anticipating this outcome, the startup can choose $\lambda \leq 1/\kappa(\delta_c)$ to deter the entry or $\lambda > 1/\kappa(\delta_c)$ and accommodate imitation.

Monopoly case. When $\lambda > 1/\kappa(\delta_c)$, the copycat does not enter the market, and the startup chooses p_{s2}^C to maximize the profit, that is,

$$\max_{p_{s2}^C} p_{s2}^C\left(1 - \frac{p_{s2}^C}{\lambda q}\right)X_H.$$

It is easily found that the first-order condition with respect to p_{s2}^C yields the subgame equilibrium outcome. The first period objective function can be rewritten as

$$\begin{aligned} \max_{\lambda} \quad \Pi_s^C = & \begin{cases} \beta\left(\left(\frac{1}{4}\alpha\lambda q + \frac{1}{4}\lambda q + \frac{1}{4}\alpha v\right)X_H - K_s\right) & \text{if} \quad \lambda \in [0, 1/\kappa(\delta_c)]; \\ \beta\left(\left(\frac{1}{4}\alpha\lambda q + \frac{4\lambda(1-\delta_c)}{(\delta_c-4)^2}q + \frac{1}{4}\alpha v\right)X_H - K_s\right) & \text{if} \quad \lambda \in (1/\kappa(\delta_c), 1], \end{cases} \\ \text{s.t.} \quad & \frac{1}{4}\alpha(v+\lambda q)X_H \geq K_s. \end{aligned}$$

Obviously, if $\frac{1}{4}\alpha(v+q)X_H < K_s$, crowdfunding strategy is infeasible. Under both monopoly and duopoly cases, the startup prefers to select a higher λ, i.e., $\lambda^* = 1$ for duopoly case, and $\lambda^* = 1/\kappa(\delta_c)$ for monopoly case. By comparing profits in these two cases, we can complete the proof of this proposition.

■

With the single-version strategy, the startup is unable to leverage λ to combat the copycat in the same way it can under the progressive launch strategy. In the case of copycat entry, a lower λ also harms the startup itself, placing it at a disadvantage in the competition. Therefore, it will opt for the full version. The maximum λ that can prevent copycat entry is $1/\kappa(\delta_c)$, which is lower than that under the progressive launch strategy. This is because the copycat enjoys higher profits under single-version strategy. Clearly, from the startup's perspective, the single-version strategy is dominated by the progressive launch strategy. Moreover, the single-version strategy may also disadvantage consumers if K_c is high, resulting in a lose-lose-lose scenario for the startup, consumers, and the society. Since it encourages the startup to choose a preliminary version, whereas the progressive launch strategy motivates the startup to select the full version.

B.5. A Two-Stage Bank Financing Model

In our introduction, we defined retail imitation risk and crowdfunding imitation risk and analyzed why crowdfunding imitation risk is more severe than retail imitation risk. In the model setup, we capture this by assuming that the retail imitation efficiency δ_r is smaller than the crowdfunding imitation efficiency δ_c. This is consistent with reality, as crowdfunding copycats typically have more time to arrange production due to the long lead time between a successful crowdfunding campaign and retail market entry. Consequently, crowdfunding copycats can often offer more competitive products compared to retailing copycats.

However, some crowdfunding copycats may not focus on improving replica quality to compete more effectively. In this case, the distinction is that under retailing, the startup secures a longer period of monopoly profits, whereas under crowdfunding, the copycat can enter the market quickly, allowing the startup to obtain only a portion of these profits. To capture this, we model the bank financing strategy as a two-stage game. In the first stage, the startup can monopolize the entire market, with its market size denoted as $\overline{\alpha} > \alpha$. In the second stage, the startup and a copycat compete in the remaining market of size $1 + \alpha - \overline{\alpha}$. The copycat's imitation efficiency under both crowdfunding and bank financing are assumed to be the same for both analytical clarity and expositional brevity, which we denote as δ. We solve this game to characterize the optimal bank financing strategy, which is stated in the following proposition.

PROPOSITION EC.4. *The bank charges an interest rate $r^* = \frac{1}{\beta} - 1$. Denote the following thresholds:*

$$\beta_4 = \frac{4(\delta-4)^2 K_s}{(\overline{\alpha}\delta^2 - 16\alpha(\delta-1) + 8(\overline{\alpha}-2)\delta + 16)\, qX_H}.$$

(*a*) *When $\kappa(\delta) \le \frac{1}{1+\alpha-\overline{\alpha}}$ and $\beta > \beta_1$, the startup sets price $p_{s1}^{B*} = p_{s2}^{B*} = \frac{q}{2}$ and the copycat does not enter the market.*

(*b*) *When $\kappa(\delta) > \frac{1}{1+\alpha-\overline{\alpha}}$ and $\beta > \beta_4$, the startup sets $p_{s1}^{B*} = \frac{q}{2}$ and $p_{s2}^{B*} = \frac{2(1-\delta)}{4-\delta}q$ and the copycat enters with $p_c^{B*} = \frac{\delta(1-\delta)}{4-\delta}q$.*

(*c*) *Otherwise, bank financing is infeasible.*

We summarize several findings that differ from the benchmark model. First, the copycat's entry decision is not affected by the project's success probability. This is because the copycat also observes the true market potential before making its entry decision; entry only occurs when the imitation efficiency is sufficiently high. Second, regardless of whether the copycat enters, the project requires a certain minimum success probability to secure bank financing. However, the threat of imitation makes this condition stricter (i.e., $\beta_4 > \beta_1$). We next compare bank financing and crowdfunding to discuss the optimal funding choice.

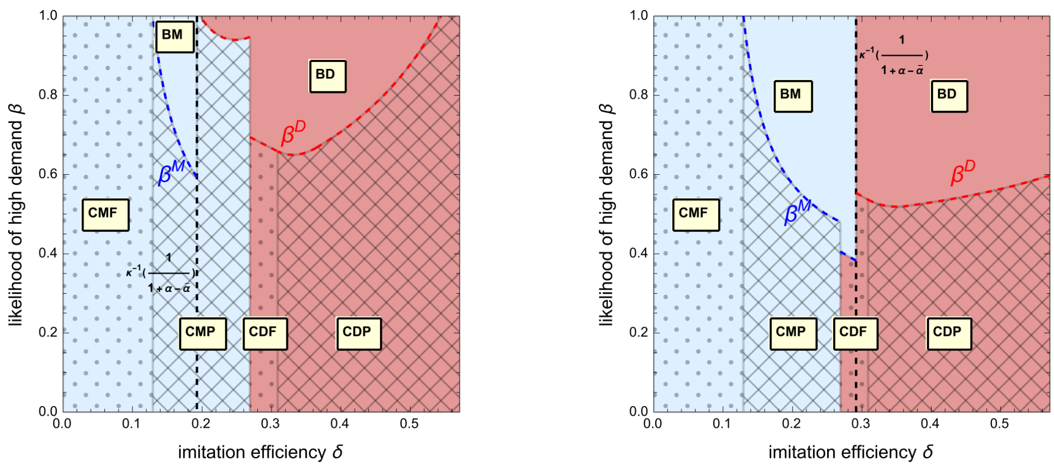
PROPOSITION EC.5. *The following statements hold:*

(*a*) *When $\delta \in (0, \kappa^{-1}(1)]$, crowdfunding outperforms bank financing.*

(*b*) *When $\delta \in \left[\kappa^{-1}(1), \kappa^{-1}\left(\frac{1}{1+\alpha-\overline{\alpha}}\right)\right)$, crowdfunding (bank financing) performs better iff $\beta < \beta^M$ ($\beta > \beta^M$).*

(*c*) *When $\delta \in \left[\kappa^{-1}\left(\frac{1}{1+\alpha-\overline{\alpha}}\right), \frac{4}{7}\right)$, crowdfunding (bank financing) performs better iff $\beta < \beta^D$ ($\beta > \beta^D$).*

Proposition EC.5 yields several conclusions distinct from those in Proposition 5. The optimal funding choice no longer exhibits a non-monotonic relationship with the project's success probability, β. For projects with a high success rate, startups should adopt the conservative bank financing strategy to secure a portion of the market early, thereby preventing copycats from expropriating excessive profits. Conversely, for projects with a low success rate, crowdfunding is optimal for hedging against demand risk. Moreover, we also analyze how $\overline{\alpha}$ influences the optimal funding choice. As illustrated in Figure EC.2, a larger $\overline{\alpha}$ diminishes the risk-hedging function of crowdfunding while simultaneously enhancing the value of bank financing as a counter-imitation strategy.



(a) $\overline{\alpha}-\alpha=0.3$ (b) $\overline{\alpha}-\alpha=0.5$

Figure EC.2 The Impact of Likelihood of High Demand and Imitation Efficiency on Optimal Funding Choice

B.6. Platform Against Copycats

Our main model explores how startups can combat copycats via different financing strategies. We highlight that startups can mitigate the crowdfunding imitation risk via employing a progressive launch strategy. However, crowdfunding platforms can also assist startups in combating copycats. From an operational perspective, platforms typically charge startups a fixed fee. For example, Kickstarter and Indiegogo collect a 5% fee from the funds collected for creators (Kickstarter 2024, Indiegogo 2024). We remark that lower platform fees can, in some cases, help startups combat copycats. In case CDP, a startup without financial constraints should release a low-quality preliminary version to deter copycats via persuading them that imitation is unprofitable. However, to raise enough money, the startup is forced to choose a suboptimal boundary solution. Hence, lower platform fees can help relax the financial constraints of the startup, enabling the startup to choose an optimal interior solution. In practice, platforms can impose different fees for various types of projects, with those more susceptible to imitation, such as tabletop games or video games, being charged lower fees. Another method with a similar effect is deferred payment (of platform fee), where platforms allow the startup to pay platform fees later, thus helping to relax financial constraints.

Platforms can also assist startups in combating copycats by managing crowdfunding product information. The visibility or openness of a crowdfunding platform is positively correlated with the imitation risk. Platforms with higher visibility can help startups attract more supporters, thereby increasing the chances of successful fundraising. However, the downside of high visibility is that opportunistic copycats are more likely to notice successful projects, resulting in a higher imitation risk. Kickstarter and Indiegogo are two examples of open crowdfunding platforms where all projects seeking funding are accessible to the public. Consequently, projects on these two platforms are the most likely to succeed, but also the most susceptible to being copied. By contrast, semi-open crowdfunding platforms like Crowdfunder or Microventures allow the public to see only basic information about active campaigns, with full access requiring membership (Cowden and Young 2020). Closed crowdfunding platforms, such as Funding Circle or CircleUp, provide the highest level of protection for product information, requiring backers to verify their identity and intentions to gain membership (Cowden and Young 2020). By managing information about crowdfunding products, platforms can help startups mitigate imitation risk, although this approach may negatively affect the performance of crowdfunding campaigns.

B.7. Uniformly Distributed Market Demand

Suppose the market size X follows a uniform distribution, i.e., $X \sim U[0, \overline{X}]$, rather than a Bernoulli distribution. As Proposition EC.6 shows, our main results under bank financing continue to hold when X follows a uniform distribution.

PROPOSITION EC.6. *The equilibrium profiles are as follows.*

(i) If $\frac{8K_s}{(1+\alpha)q} < \overline{X} \le X_c$, r^* *is the solution to*

$$K_s = \frac{(\alpha+1)q}{4}\int_0^{X_r^{BM}} X dF(X) + K_s(1+r)\int_{X_r^{BM}}^{\overline{X}} dF(X).$$

The startup chooses $p_s^{B*} = \frac{q}{2}$, *and the copycat does not enter the market.*

(ii) If $\overline{X} > \left(\frac{(4-\delta_r)^2 K_s}{2(1-\delta_r)(1+\alpha)q} \vee X_c\right)$, r^* *is the solution to*

$$K_s = \frac{4(1-\delta_r)(\alpha+1)q}{(4-\delta_r)^2}\int_0^{X_r^{BD}} X dF(X) + K_s(1+r)\int_{X_r^{BD}}^{\overline{X}} dF(X).$$

The startup and the copycat choose $p_s^{B*} = \frac{2(1-\delta_r)}{4-\delta_r}q$ *and* $p_c^{B*} = \frac{\delta_r(1-\delta_r)}{4-\delta_r}q$, *respectively.*

(iii) Otherwise, bank financing is infeasible.

Proof of Proposition EC.6 We prove this proposition via backward induction. Suppose the bank financing strategy is feasible and the bank charges the interest rate r, the startup chooses the price p_s^B to optimize the profit, that is,

$$\max_{p_s^B} \Pi_s^B = \begin{cases} \Pi_s^{BM} = \mathbb{E}\left[\left((1+\alpha)p_s^B\left(1-\frac{p_s^B}{q}\right)X - K_s(1+r)\right)^+\right] & \text{if } \Pi_c^B \le 0; \\ \Pi_s^{BD} = \mathbb{E}\left[\left((1+\alpha)p_s^B(1-\hat{\theta}^B)X - K_s(1+r)\right)^+\right] & \text{if } \Pi_c^B > 0. \end{cases}$$

Regardless of the interest rate r charged, the first-order condition yields the optimal price decisions $p_s^{BM} = \frac{q}{2}$ and $p_s^{BD} = \frac{2(1-\delta_r)}{(4-\delta_r)}q$. Let X_r^{BM} and X_r^{BD} denote the thresholds where $(1+\alpha)p_s^{BM}\left(1-\frac{p_s^{BM}}{q}\right)X - K_s(1+r) = 0$ and $(1+\alpha)p_s^{BD}(1-\hat{\theta}^B)X - K_s(1+r) = 0$, respectively. Obviously, it is profitable for the startup only when the market demand is high enough. Let X_c denotes the threshold where $\Pi_c^{B*} = 0$, the subgame equilibrium is:

(i) if $\bar{X} > (X_r^{BD} \vee X_c)$, copycat enters the market, and $p_s^{B*} = p_s^{BD}$;

(ii) if $X_r^{BM} < \bar{X} \le X_c$, copycat does not enter the market, and $p_s^{B*} = p_s^{BM}$;

(iii) otherwise, bank financing is infeasible.

Anticipating the startup's optimal pricing decision, the bank decides whether to offer the loan and charges the interest rate r according to the competitive credit pricing equation, if $\bar{X} \le X_c$,

$$K_s = \mathbb{E}\left[\min\left\{(\alpha+1)p_s^{B*}\left(1-\frac{p_s^{B*}}{q}\right)X, K_s(1+r)\right\}\right]$$
$$= \begin{cases} \frac{(\alpha+1)q}{4}\int_0^{X_r^{BM}} X dF(X) + K_s(1+r)\int_{X_r^{BM}}^{\overline{X}} dF(X), & \text{if } X_r < \overline{X} \\ \frac{(\alpha+1)q}{4}\int_0^{\overline{X}} X dF(X) = \frac{(\alpha+1)q}{8}\overline{X}, & \text{if } X_r \ge \overline{X} \end{cases}.$$

If $X_r^{BM} < \overline{X}$, the derivative of RHS is

$$\frac{\partial \text{RHS}}{\partial r} = K_s\left[(1-F(X_r^{BM})) - (1+r)f(X_r^{BM})\frac{\partial X_r^{BM}}{\partial r}\right] + \frac{(\alpha+1)q}{4}X_r^{BM}f(X_r^{BM})\frac{\partial X_r^{BM}}{\partial r}$$
$$= K_s(1-F(X_r^{BM})) > 0.$$

Note that RHS is continuous at $X_r^{BM} = \overline{X}$, then monotonicity yields the following results.

1. If $\frac{8K_s}{(1+\alpha)q} < \overline{X} \le X_c$, then r^* is the solution to

$$K_s = \frac{(\alpha+1)q}{4}\int_0^{X_r^{BM}} XdF(X) + K_s(1+r)\int_{X_r^{BM}}^{\overline{X}} dF(X).$$

   And, the optimal profit can be rewritten as

$$\Pi_s^{B*} = \frac{(\alpha+1)q}{4}\int_0^{\overline{X}} XdF(X) - K_s = \frac{(\alpha+1)q\overline{X}}{8} - K_s.$$

2. Otherwise, bank financing is infeasible.

The case $\bar{X} > X_c$ can be proved in a similar way.

■

Comparing the case of uniform distribution to the case of Bernoulli distribution, we find that our primary conclusions regarding bank financing remain robust. Similarly, the startup targets the high realization of market demand. When $\bar{X}$ is sufficiently high, bank financing is feasible but induces copycat entry. At intermediate values of $\bar{X}$, bank financing remains feasible without retail imitation risk. Notably, there exists a parallel phenomenon where bank financing becomes infeasible at relatively high values of $\bar{X}$.

We then study the equilibrium under crowdfunding. The equilibrium of the subgame remains the same as that in the case of the Bernoulli distribution. Thus, we omit its proof. On the basis of the equilibrium of the subgame, the copycat enters the market only when $\Pi_c^{C*} > 0$, i.e., $\frac{\delta_c\lambda q(1-\delta_c\lambda)\hat{X}}{(\delta_c\lambda-4)^2} > K_c$, where $\hat{X}$ is the realization of X. Based on the assumption $\delta_c \le \frac{4}{7}$, Π_c^{C*} increases in λ. Thus, there exists $\lambda = \frac{\kappa^{-1}(1)}{\delta_c}$ such that $\frac{\delta_c\lambda q(1-\delta_c\lambda)\overline{X}}{(\delta_c\lambda-4)^2} = K_c$. Given $\lambda \le \frac{\kappa^{-1}(1)}{\delta_c}$, the copycat will not enter the market even when the market demand is in the high state.

The startup chooses λ and p_{s1}^C to maximize the expected profit in the crowdfunding stage, that is,

$$\max_{\lambda, p_{s1}^C} \quad \Pi_s^C = \int_{\frac{K_s}{\alpha p_{s1}^C\left(1-\frac{p_{s1}^C}{v+\lambda q}\right)}}^{\overline{X}} \left[\alpha p_{s1}^C\left(1-\frac{p_{s1}^C}{v+\lambda q}\right)X - K_s + \Pi_{s2}^*\right]dF(X),$$

where the lower bound of the integral captures the financial constraint due to the all-or-nothing mechanism. This optimization problem is complicated in the presence of joint decisions. However, the following lemma can help us rewritten it as a single-variable optimization problem.

Lemma EC.2. *$p_{s1}^{C*} = \frac{v+\lambda q}{2}$ is still the optimal solution to the above optimization problem.*

Proof of Lemma EC.2 This is equivalent to prove that for any λ, p_{s1}^{C*} is the optimal solution. Note that Π_{s2}^* is independent of p_{s1}^C. Suppose λ is given, our task is to find the optimal p_{s1}^C. And if we can find a p_{s1}^C that minimizes $\frac{K_s}{\alpha p_{s1}^C\left(1-\frac{p_{s1}^C}{v+\lambda q}\right)}$ and maximizes $\alpha p_{s1}^C\left(1-\frac{p_{s1}^C}{v+\lambda q}\right)$ simultaneously. Then this solution also maximizes the whole objective function. And based on the proof of Proposition 2, p_{s1}^{C*} satisfies these conditions and is thus the optimal solution regardless of any λ chosen.

■

The objective function thus can also be rewritten as

$$\max_{\lambda} \quad \Pi_s^C = \frac{1}{\overline{X}} \int_{\frac{4K_s}{\alpha(v+\lambda q)}}^{\overline{X}} \left(\frac{\alpha(v+\lambda q)}{4} X - K_s + \Pi_{s2}^* \right) dX.$$

Let $X_s(\lambda) = \frac{4K_s}{\alpha(v+\lambda q)}$ and $X_c(\lambda) = \frac{(\delta_c\lambda-4)^2 K_c}{\delta_c \lambda q(1-\delta_c\lambda)}$ denote the thresholds where $\frac{\alpha(v+\lambda q)}{4} X - K_s = 0$ and $\Pi_c^* = K_c$, respectively. The startup or the copycat will not enter the market if the state $X < X_s(\lambda)$ or $X \le X_c(\lambda)$, respectively. These definitions helps us truncate the integral region and focus on the feasible region without the financial constraint. Particularly, $\frac{X_s}{X_c}(\lambda)$ decreases in λ. Let λ_{sc} denotes the threshold where $\frac{X_s}{X_c} = 1$, we have the following cases.

Case 1: $\frac{\alpha}{4} \le \frac{K_s}{(v+q)\overline{X}}$. In this case, the crowdfunding strategy is not feasible, since the startup fails to reach the funding goal even though the market demand is in high state.

Case 2: $\frac{\alpha}{4} > \frac{K_s}{(v+q)\overline{X}}$ and $K_c \ge \frac{\delta_c(1-\delta_c)}{(\delta_c-4)^2} q\overline{X}$. In this case, the copycat does not enter the market even though the market demand is in high state. Thus, the objective function is

$$\max_{\lambda \in \left[\frac{4K_s}{\alpha q \overline{X}} - \frac{v}{q}, 1\right]} \Pi_s^C = \frac{1}{\overline{X}} \int_{X_s(\lambda)}^{\overline{X}} \left(\alpha \frac{v+\lambda q}{4} X - K_s + \frac{1}{4} qX \right) dX.$$

Case 3: $\frac{\alpha}{4} > \frac{K_s}{(v+q)\overline{X}}$ and $K_c < \frac{\delta_c(1-\delta_c)}{(\delta_c-4)^2} q\overline{X}$ and $\frac{X_s}{X_c}(\lambda = 1) > 1$. The copycat enters the market as long as the startup needs to cover the fixed costs, i.e., $X_c(\lambda) < X_s(\lambda)$ for any $\lambda \in \left[\frac{4K_s}{\alpha q \overline{X}} - \frac{v}{q}, 1\right]$. The objective function is

$$\max_{\lambda \in \left[\frac{4K_s}{\alpha q \overline{X}} - \frac{v}{q}, 1\right]} \Pi_s^C = \frac{1}{\overline{X}} \int_{X_s(\lambda)}^{\overline{X}} \left(\alpha \frac{v+\lambda q}{4} X - K_s + \frac{4(1-\delta_c\lambda)}{(\delta_c\lambda-4)^2} qX \right) dX.$$

Case 4: $\frac{\alpha}{4} > \frac{K_s}{(v+q)\overline{X}}$ and $K_c < \frac{\delta_c(1-\delta_c)}{(\delta_c-4)^2} q\overline{X}$ and $\frac{X_s}{X_c}\left(\lambda = \frac{4K_s}{\alpha q \overline{X}} - \frac{v}{q}\right) < 1$. The copycat enters the market only when the realized market demand is larger enough, e.g., $\hat{X} > X_c(\lambda)$. On the basis of this assumption and the monotonicity of X_c in λ, $X_c\left(\lambda = \frac{4K_s}{\alpha q \overline{X}} - \frac{v}{q}\right) > \overline{X}$, i.e., $\frac{4K_s}{\alpha q \overline{X}} - \frac{v}{q} < \frac{\kappa^{-1}(1)}{\delta_c}$. The objective function is

$$\max_{\lambda} \Pi_s^C = \left\{ \begin{array}{ll} \frac{1}{\overline{X}} \int_{X_s(\lambda)}^{\overline{X}} \left(\alpha \frac{v+\lambda q}{4} X - K_s + \frac{1}{4} qX\right) dX, & \lambda \in \left[\frac{4K_s}{\alpha q \overline{X}} - \frac{v}{q}, \frac{\kappa^{-1}(1)}{\delta_c}\right] \\ \frac{1}{\overline{X}} \int_{X_s(\lambda)}^{X_c(\lambda)} \left(\alpha \frac{v+\lambda q}{4} X - K_s + \frac{1}{4} qX\right) dX + \frac{1}{\overline{X}} \int_{X_c(\lambda)}^{\overline{X}} \left(\alpha \frac{v+\lambda q}{4} X - K_s + \frac{4(1-\delta_c\lambda)}{(\delta_c\lambda-4)^2} qX\right) dX, & \lambda \in \left(\frac{\kappa^{-1}(1)}{\delta_c}, 1\right] \end{array} \right\}.$$

Case 5: $\frac{\alpha}{4} > \frac{K_s}{(v+q)\overline{X}}$ and $K_c < \frac{\delta_c(1-\delta_c)}{(\delta_c-4)^2} q\overline{X}$ and $\frac{X_s}{X_c}\left(\lambda = \frac{4K_s}{\alpha q \overline{X}} - \frac{v}{q}\right) > 1$ and $\frac{X_s}{X_c}(\lambda = 1) < 1$. And on the basis of the monotonicity of X_c in λ, $\frac{4K_s}{\alpha q \overline{X}} - \frac{v}{q} > \frac{\kappa^{-1}(1)}{\delta_c}$. When $\lambda \in \left[\frac{4K_s}{\alpha q \overline{X}} - \frac{v}{q}, \lambda_{sc}\right]$, the objective function is the same as the case 3. When $\lambda \in (\lambda_{sc}, 1]$, the objective function is the same as the second part of the case 4. The overall objective function is

$$\max_{\lambda} \Pi_s^C = \left\{ \begin{array}{ll} \frac{1}{\overline{X}} \int_{X_s(\lambda)}^{\overline{X}} \left(\alpha \frac{v+\lambda q}{4} X - K_s + \frac{4(1-\delta_c\lambda)}{(\delta_c\lambda-4)^2} qX\right) dX, & \lambda \in \left[\frac{4K_s}{\alpha q \overline{X}} - \frac{v}{q}, \lambda_{sc}\right] \\ \frac{1}{\overline{X}} \int_{X_s(\lambda)}^{X_c(\lambda)} \left(\alpha \frac{v+\lambda q}{4} X - K_s + \frac{1}{4} qX\right) dX + \frac{1}{\overline{X}} \int_{X_c(\lambda)}^{\overline{X}} \left(\alpha \frac{v+\lambda q}{4} X - K_s + \frac{4(1-\delta_c\lambda)}{(\delta_c\lambda-4)^2} qX\right) dX, & \lambda \in (\lambda_{sc}, 1] \end{array} \right\}.$$

The integral in the retail stage's objective function increases the complexity of the problem, making the analytical approach intractable. Therefore, we conduct extensive studies with numerous instances. For each instance, we obtain the startup's optimal decision λ^* and expected profits Π_s^{C*}. In the sequel, we focus on $\alpha \in (0, 1]$ and $\delta_c \in \left(0, \frac{4}{7}\right]$. Figure EC.4 illustrates our main results on this matter. Note that Figure EC.4, (a) and (b) focus on the effects of the crowdfunding market share and imitation efficiency on the startup's decision λ^*, and Figure EC.4, (c) - (f) show the effects of the crowdfunding market share and imitation efficiency on the startup's and the copycat's expected profits.

By and large, our previous findings in Section 2 are robust, e.g., our results from Proposition 2-4 are qualitatively retained. For example, in Figure EC.4 (a) and (b), we observe that the startup has an incentive to choose a preliminary crowdfunding version to weaken or expel the copycat. Hence, our result from Proposition 2 is qualitatively retained. Similarly, Figure EC.4, (a) and (b) support the robustness of our results in Proposition 3 with respect to the sensitivity analysis of λ^* in α and δ_c. Moreover, observations drawn from the startup's and the copycat's expected profit curves in Figure EC.4, (c) - (f) are also consistent with Proposition 4.

Apart from confirming the robustness of our main results, the numerical analysis also highlights several additional observations that complement our previous results: (1) The startup targets high realization in the case of uniform distribution rather than only the high state of market demand in the case of Bernoulli distribution. The objective function is now continuous since the startup cannot directly switch from the monopoly case to the duopoly case via the progressive launch strategy. (2) The level of crowdfunding quality provision $\lambda = \frac{4K_s}{\alpha q X} - \frac{v}{q}$ cannot be the equilibrium decision in the case of uniform distribution. This is because the probability that the market demand is exactly in the high state is zero. Thus, some non-monotone results in Corollary 1 may not hold in the case of uniform distribution.

Finally, we investigate the optimal funding choice when the market share X is uniformly distributed. The crowdfunding market proportion α and the imitation efficiency δ_c play a crucial role in determining the optimal funding choice. Specifically, if the crowdfunding market is large ($\alpha \geq 1$), e.g., Figure EC.3 (b), our results from Proposition 5 are qualitatively retained. Moreover, if the crowdfunding market is small ($\alpha < 1$), e.g., Figure EC.3 (a), crowdfunding may not be a feasible option, and bank financing may be the more dominant choice.

(a) Small α (b) Large α

Figure EC.3 The Impact of Crowdfunding Imitation Efficiency on Optimal Funding Choice

References

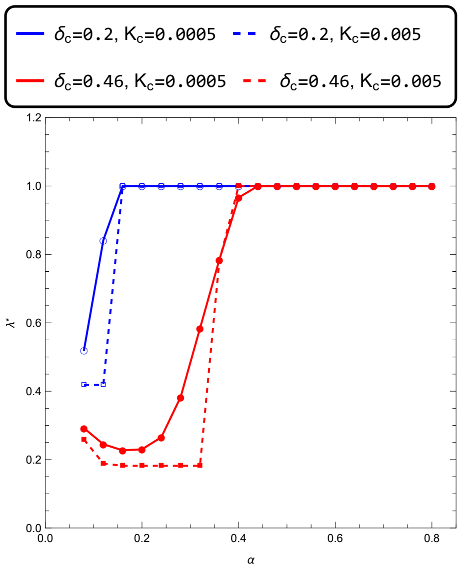
Bolandifar, E., Z. Chen, P. Kouvelis, W. Zhou. 2023. Quality signaling through crowdfunding pricing. *Manufacturing & Service Operations Management* **25**(2) 668–685.

Candoğan, S. T., P. B. Cornelius, B. Gokpinar, E. Körpeoğlu, C. S. Tang. 2024. Product development in crowdfunding: Theoretical and empirical analysis. *Manufacturing & Service Operations Management* .

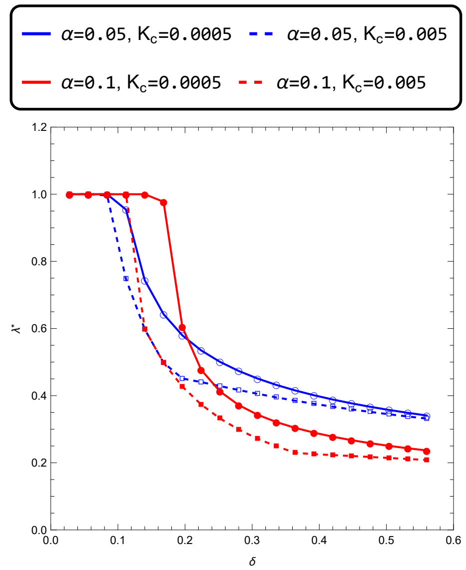
Cowden, B. J., S. L. Young. 2020. The copycat conundrum: The double-edged sword of crowdfunding. *Business Horizons* **63**(4) 541–551.

Gao, S. Y., W. S. Lim, C. S. Tang. 2017. Entry of copycats of luxury brands. *Marketing Science* **36**(2) 272–289.

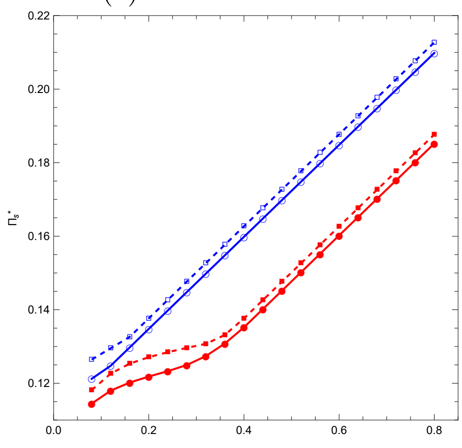
Hu, M., X. Li, M. Shi. 2015. Product and pricing decisions in crowdfunding. *Marketing Science* **34**(3) 331–345.



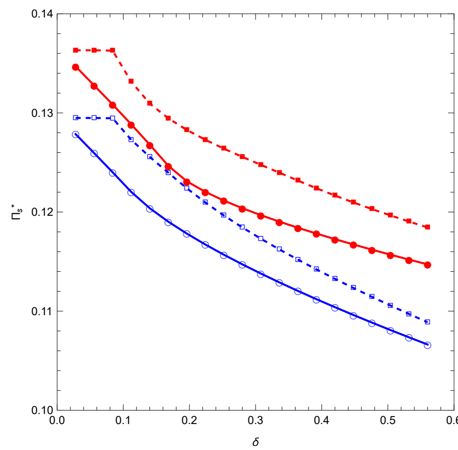
(a) Effect of α on λ^*



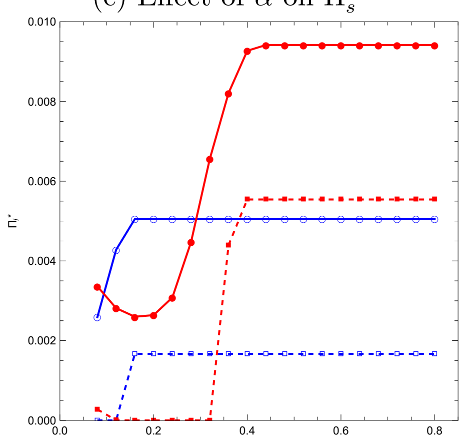
(b) Effect of δ_c on λ^*



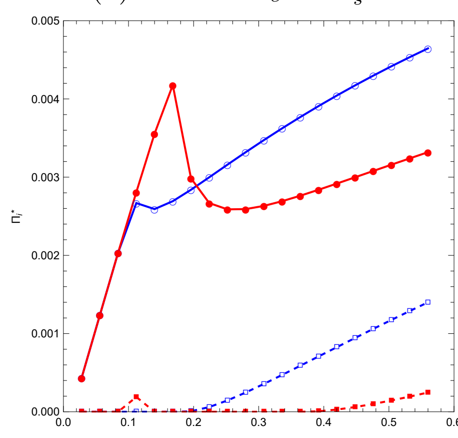
(c) Effect of α on Π_s^{C*}



(d) Effect of δ_c on Π_s^{C*}



(e) Effect of α on Π_c^{C*}



(f) Effect of δ_c on Π_c^{C*}

Figure EC.4 The Impact of Crowdfunding Market Share and Crowdfunding Imitation Efficiency

Indiegogo. 2024. Fees & Pricing for Campaigners: How much does Indiegogo cost? https://support.indiegogo.com/hc/en-us/articles/204456408-Fees-Pricing-for-Campaigners-How-much-does-Indiegogo-cost.

Key, S. 2017. In Today's Market, Do Patents Even Matter? https://www.forbes.com/sites/stephenkey/2017/11/13/in-todays-market-do-patents-even-matter/?sh=12a7e05e56f3.

Kickstarter. 2024. Kickstarter Fees: A Comprehensive Guide for Creators. https://updates.kickstarter.com/kickstarter-fees-a-comprehensive-guide-for-creators/.

Millward, S. 2014. Xiaomi rips off a Kickstarter project to give your smartphone an extra, configurable button. https://www.techinasia.com/new-xiaomi-mikey-not-very-original.

Ming, L., T. I. Tunca. 2022. Consumer equilibrium, demand effects, and efficiency in group buying. *Manufacturing & Service Operations Management* **24**(3) 1437–1456.