

Investment Origination and Screening: Separation or Integration?

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Abstract

Financial institutions source investment projects and then screen them. Some institutions, such as banks, commonly have the two separate divisions for the two activities, while others, such as venture capitals, often assign them to same officers. I present a model of sourcing and screening with moral hazard problem. In the baseline setting, in which the sourced projects are on average profitable as common in banking, the two activities are in conflict with each other and the efficient outcome requires separation of the two activities. It is shown that if the sourced projects are assumed to be unprofitable on average, the two activities are not in conflict and they can be efficiently assigned to one division. Other contractibility issues are also discussed.

1 Introduction

Financial institutions initiate investment projects and evaluate them to allocate resources accordingly. Banks and venture capital firms are prime examples of such entities (Udell, 1989; Sahlman, 1990). Within financial institutions, two primary organizational structures prevail. The first type, mirroring banks, entails distinct sections for origination and screening operations. Conversely, the second type, akin to venture capital firms, integrates both operations into a unified section. This article aims to delve into the fundamental reasons for the simultaneous existence of these two distinct types of financial institutions.

This article centers on the incentive structure governing the origination and screening operations. I develop a moral hazard model to elucidate these operations. The first operation, known as sourcing or origination of investment projects, involves unobservable efforts by the assigned agent, which can enhance the probability of success. In the second operation, screening, the agent's efforts can distinguish between successful and failing projects. This effort is assumed to be observable.

In the model, the institution assigns the two operations to either a single agent or two distinct agents. Depending on certain parameter sets, the two operations may either align with each other or be in conflict. The optimal organizational arrangement varies based on the incentive structure of the operations. When the two operations align, a unified section is preferable. Conversely, when they are in conflict, separate sections are optimal.

The qualitative characteristic of the parameter sets favoring a unified section is that a majority of originated projects are unprofitable, leading to a default decision of rejection. This scenario mirrors the practices of venture capital firms, where partners are typically responsible for both origination and screening operations (Gompers et al., 2020). Conversely, the qualitative feature of parameter sets favoring separate sections is that most originated projects are profitable, resulting in a default decision of approval. This aligns with the practices of banks, which commonly maintain an independent risk evaluation section (Udell, 1989; Heider and Inderst, 2012; Berg, 2015).

This work contributes to the literature of efficient bank organization (Udell, 1989; Hoshi, 1996; Berg, 2015). In particular, Berg (2015) empirically demonstrates that involvement in risk management effectively reduces loan default rates. Furthermore, their findings suggest that the cost-benefit analysis favors such involvement, particularly when default rates are high. Despite the high failure rate of startups, this study offers insights into why risk management practices similar to those in banks are not commonly adopted in venture capital firms.

While not explicitly modeled, this article provides insights into job rotation within banks. Hertzberg et al. has demonstrated the utility of job rotation in mitigating agency problems in banks. In contrast, this paper highlights how job rotation within banks can impede the linkage between investment outcomes and the compensation of bank officers responsible for loan evaluations.

This article also relates to the theoretical literature on double moral hazard models (Hirao, 1993; Schmitz, 2005; Khalil et al., 2006). These works, assuming that the actions at both stages are unobservable, show that separation and unification can arise as the optimal organization. This article provides an example of models in which the second-stage action is observable and different organizational types can arise as the optimal.

2 Model

There is a principal, who wants to assign the tasks of sourcing and screening of investment projects. The principal can hire two agents and assign the tasks separately or hire one person and assign the two tasks in the integrated manner.

I first describe the environment for the case of separation.

2.1 Separation

There are entrepreneurs who each has an investment project which requires $I > 0$ units of initial investment to be undertaken. A project is either good or bad; if it is good, its payoff is $R > I$, and if it is bad, its payoff is 0.

The agent who is hired for project origination can make effort to improve the profitability of originated projects. The cost for making an effort for the origination is denoted by $\gamma_O > 0$. The agent is assumed to find a project regardless of his effort, but the probability of being good is p_H

if he makes an effort for origination, while it is $p_L < p_H$ if he does not. The origination effort by the agent is unobservable, and hence not contractible. The instruments to encourage the agent to make efforts for origination is limited and the only available one is pay contingent on if the project is approved or declined. Let w_A and w_D denote the pay for the originating agent in the case of the approval and the decline respectively.

Once a project is originated, the principal can assign the task of screening to another agent. The agent hired for the task can conduct screening of the project at the cost $\gamma_S > 0$. The screening is, for the simple exposition, assumed to perfectly reveal the type of the project. The screening activity is assumed to be observable and contractible. The pay for the screening agent is denoted by w_S .

The timing of actions is as follows. First, the principal offer the contract pay (w_A, w_D, w_S) and hire the agents. Next, the first agent decides if he make efforts for origination and a project is originated. Then, the second agent decides if he make efforts for screening or not. Finally, the principal choose if he approve or decline the project, and the project yields outcome if approved.

I assume that the labor market is competitive and the principal can make a take-it-or-leave-it offer. Therefore, the equilibrium condition is given by the three participation constraints for the originating agent, the screening agent, and the incentive compatibility conditions for the two agents, the principal and the optimality of the contract (w_A, w_D, w_S) for the principal.

The following assumption is used throughout the article:

Assumption 1. $R - I - \gamma_O - \gamma_S > 0$.

This assumes that the gains from trade with the origination and screening efforts, $p_H[R - I] - \gamma_O - \gamma_S$ is positive for some high enough p_H .

2.2 Integration

The environment is identical to the separation case except that the origination and screening are done by one agent. Therefore, the equilibrium conditions for the case of integration are given by the two participation constraints for the agent and the principal and the incentive compatibility conditions for the agent and the principal, and the optimality of the contract (w_A, w_D, w_S) for the principal.

3 Results

3.1 Separation

First, I solve for the separation equilibrium. The participation constraint for the screening agent is given by

$$-\gamma_S + w_S \geq 0. \quad (1)$$

This simply requires the payoff when the agent makes an effort is higher than the value for the outside option, 0.

The incentive compatibility constraint for the originating agent is

$$-\gamma_O + p_H w_A + (1 - p_H) w_D \geq p_L w_A + (1 - p_L) w_D, \quad (2)$$

which requires that the payoff for originating effort is higher than that for no effort. The participation constraint for the originating agent requires that the left hand side of the equation (2) is nonnegative, and hence redundant.

In this case, the incentive induced by the contract is simple. As in the equation (1) and (2), the incentive for screening is induced by w_S , while that for origination is induced by (w_A, w_D) . In this separation setting, the incentive for the agents can be controlled independently and easily.

The participation constraint and the optimality condition for the principal requires the profit for the principal,

$$-w_S + p_H [R - I - w_A] + (1 - p_H) [-w_D], \quad (3)$$

is nonnegative and maximized.

Therefore, the equilibrium contract (w_S, w_A, w_D) can be characterized as the solution to the optimization problem which maximizes the objective function (3) being subject to (1) and (2).

The problem is easily solvable and the equilibrium contract satisfies

$$(w_S, w_A, w_D) = \left(\gamma_S, \frac{\gamma_O}{\Delta p}, 0 \right), \quad (4)$$

and the equilibrium profit is $-\gamma_S + p_H \left[R - I - \frac{\gamma_O}{\Delta p} \right]$, which is denoted by Π_{OS}^{sep} henceforth.

3.1.1 Contracts that incentivize only one or none of origination and screening efforts

The principal might seek to not induce the agents to make efforts for both of origination and screening. There are three cases: only origination effort, only screening effort, or none of them. First, in this model, it is impossible to incentivize only the origination effort. The reason is simple.

The agent is willing to make an effort for the origination only when it improves the probability of approval by the principal. Without screening, the principal cannot distinguish if the agent has made an effort or not, and thus the screening effort cannot influence the principal's approval decision. Therefore, the contracts that induces only the origination effort is infeasible.

The second possibility is inducing only the screening effort. In this case, the contract must satisfy the incentive compatibility constraint (1). The resulting profit from the contract is

$$-\gamma_S + p_L[R - I]. \quad (5)$$

The profit is denoted by Π_S henceforth.

The last case is the one in which neither of origination nor screening is induced. The principal's profit, which is denoted by Π_N , is given by

$$\Pi_N = \max\{p_L R - I, 0\}. \quad (6)$$

This can be higher than the profit from the optimal contract with the origination and screening efforts, Π_{OS}^{sep} .

3.2 Integration

When one agent operates the both of origination and screening, the incentive created by the contract (w_S, w_A, w_D) is more complicated. Here, all the components of the contract affect both of the origination and screening incentives.

How these incentives are set at the equilibrium depends on the default investment decision, by which I mean the decision by the principal when the screening operation is not conducted. Suppose that the default investment decision is approval. That means that the screening, if conducted, increases the probability of declining the project. In this case, the incentive for screening is in conflict with that for originating. In this model, the originating effort increases the probability of success, and the contractibility induces that it must be incentivized by the pay for approval. Therefore, giving incentive to one operation gives disincentive for the other operation.

These incentives at the equilibrium depends on the default investment decision, which refers to the principal's decision when the agent chooses not to conduct the screening operation. Suppose that the default investment decision is approval. In such a case, conducting the screening process would lead to a higher chance of rejecting the project. Here lies a conflict between the incentives for screening and originating. The originating effort contributes to increasing the probability of project success, and the contractibility dictates that it should be incentivized through the pay for approval. On the other hand, incentivizing the screening process creates a disincentive for the originating effort.

The default investment decision, whether it is approval or decline, depends on the probabilities

of the project being good, p_H and p_L . Intuitively, when the probability is high, the principal is more likely to choose approval. It turns out that there are three possible cases: i) when p_H and p_L are both high, the default decision is always approval, ii) when p_H is high but p_L is low, the default decision is approval if the originating effort is made, and it is decline otherwise, and iii) when p_H and p_L are both low, the default decision is always decline. These probabilities are categorized into high and low by a threshold value, denoted as \bar{p} , whose expression is introduced soon.

In the following, I first describe the case (i) and (iii), followed by case (ii).

Case(i): Always Approval

First, the contract must give enough incentive for the agent to conduct screening:

$$-\gamma_S + w_S + p_H w_A + (1 - p_H)w_D \geq w_A. \quad (7)$$

The left hand side is the payoff for conducting screening, which is the total of the effort cost $-\gamma_S$, the pay for the effort w_S , and the expected pay for approval and decline, $p_H w_A + (1 - p_H)w_D$. The incentive compatibility constraint requires it must be higher than the payoff for not conducting screening. Since the principal always approves projects in this case, the payoff is just w_A .

Another incentive which the contract must provide is for origination. The incentive compatibility constraint for this is

$$-\gamma_O + [-\gamma_S + w_S + p_H w_A + (1 - p_H)w_D] \geq \max\{w_A, -\gamma_S + w_S + p_L w_A + (1 - p_L)w_D\}. \quad (8)$$

This condition takes care of two ways of deviation. The first is to not make efforts for origination nor screening. In this case, again, since the principal's default decision is approval, the payoff is w_A . The second way of deviation is to not make efforts for origination but make efforts for screening. In this case, the agent receives $-\gamma_S + w_S + p_L w_A + (1 - p_L)w_D$.

The profit maximizing contract is given by

$$(w_S, w_A, w_D) = \left(\gamma_S + (1 - p_L) \frac{\gamma_O}{\Delta p}, \frac{\gamma_O}{\Delta p}, 0 \right), \quad (9)$$

and the equilibrium profit is $-\gamma_S - (1 - p_L) \frac{\gamma_O}{\Delta p} + p_H \left[R - I - \frac{\gamma_O}{\Delta p} \right]$, which is denoted by $\Pi_I^{(i)}$. It is easy to see that $\Pi_{OS} > \Pi_I^{(i)}$ always holds. Thus, the contract of this kind cannot be optimal.

Case(iii): Always Decline

The incentive compatibility constraint for screening in this case is

$$-\gamma_S + w_S + p_H w_A + (1 - p_H)w_D \geq w_D. \quad (10)$$

Because the default investment decision is always decline, the value for screening in the left hand side must be higher than the pay for the case of decline, w_D , in the right hand side.

The incentive compatibility constraint for the origination is

$$-\gamma_O + [-\gamma_S + w_S + p_H w_A + (1 - p_H)w_D] \geq \max\{w_D, -\gamma_S + w_S + p_L w_A + (1 - p_L)w_D\}. \quad (11)$$

It is easy to see this condition is sufficient for the incentive compatibility condition for screening above. The optimality condition is simplified to $w_A = \gamma_O/\Delta p$, $w_D = 0$, and

$$w_S \geq \gamma_S - p_L \frac{\gamma_O}{\Delta p}. \quad (12)$$

Therefore, the optimal contract in this class is given by

$$(w_S, w_A, w_D) = \left(\max \left\{ 0, \gamma_S - p_L \frac{\gamma_O}{\Delta p} \right\}, \frac{\gamma_O}{\Delta p}, 0 \right), \quad (13)$$

and the optimal profit for this case, $\Pi_I^{(iii)}$, is given by

$$\Pi_I^{(iii)} = \min \left\{ 0, -\gamma_S + p_L \frac{\gamma_O}{\Delta p} \right\} + p_H \left[R - I - \frac{\gamma_O}{\Delta p} \right]. \quad (14)$$

In this case, $\Pi_I^{(iii)} > \Pi_{OS}$ always holds.

Case(ii): Approval and Decline

The optimal contract for this case maximizes the principal's profit subject to the incentive compatibility constraint for screening (7) and that for origination (11). Again, this is easily solvable and the optimal contract satisfies

$$(w_S, w_A, w_D) = \left(\gamma_S + (1 - p_H) \frac{\gamma_O}{\Delta p}, \frac{\gamma_O}{\Delta p}, 0 \right). \quad (15)$$

The optimal profit for this case, $\Pi_I^{(ii)}$, is given by

$$\Pi_I^{(ii)} = -\gamma_S - (1 - p_H) \frac{\gamma_O}{\Delta p} + p_H \left[R - I - \frac{\gamma_O}{\Delta p} \right]. \quad (16)$$

It is easy to see that $\Pi_{OS} > \Pi_I^{(ii)}$ always holds. Thus, the contract of this kind cannot be optimal.

3.3 Optimal Contract without Integration

How is the type of optimal contract related with the success probability (p_L, p_H) ? First, to get the idea of the model, let us restrict the attention to the case in which the I-type contract is not

available. Then, we compare the profits of the three types of contracts:

$$\Pi_N = p_L R - I \quad (17)$$

$$\Pi_S = -\gamma_S + p_L[R - I] \quad (18)$$

$$\Pi_{OS} = -\gamma_S + p_H[R - I - \gamma_O/\Delta p]. \quad (19)$$

In the following, I work not with (p_L, p_H) , but with $(\Delta p, p_H)$, for tractability. The next example describes how the type of optimal contract is related with the probability parameter $(\Delta p, p_H)$.

Example 1. The parameter is set as follows:

$$R = 2, I = 1, \gamma_O = \gamma_S = 0.2. \quad (20)$$

The N-type is optimal if

$$\Pi_N \geq \Pi_S, \Pi_N \geq \Pi_{OS}, \text{ and } \Pi_N \geq 0. \quad (21)$$

The set of $(\Delta p, p_H)$ for which the N-type is optimal is depicted in the $(\Delta p, p_H)$ -plane as the shaded area in Figure 1. It is located in the top left corner, where p_H is high and Δp is low. This is intuitive, because the N-type is advantageous relative to the other types when p_L is high. That is exactly when p_H is high and Δp is low.

The S-type is optimal if

$$\Pi_S \geq \Pi_N, \Pi_S \geq \Pi_{OS}, \text{ and } \Pi_S \geq 0. \quad (22)$$

The set of $(\Delta p, p_H)$ for which the S-type is optimal is depicted as the shaded area in Figure 2. The area is located where p_L is not too high so that it is profitable to conduct screening, but not too low so that it is profitable to invest, and Δp is not too high so that the origination is not profitable.

Figure 3, which is for the OS-type, is similarly depicted. The area is located at the top right corner, where both of Δp and p_H are high. That is where the origination and screening efforts are worthwhile.

Figure 4 shows the areas for the three types in the $(\Delta p, p_H)$ -plane.

The following proposition tells that, for the N-type and the OS-type, there always exist some $(\Delta p, p_H)$ for which each of them is optimal, while not always for the S-type.

Proposition 1. *Suppose that the I-type contract is not available. Under Assumption 1, (i) there exists some $(\Delta p, p_H)$ for which the N-type contract is optimal; (ii) there exists some $(\Delta p, p_H)$ for which the OS-type contract is optimal; (iii) if $\frac{1-\gamma_S}{I}R - I > 0$, there exists some $(\Delta p, p_H)$ for which the S-type contract is optimal.*

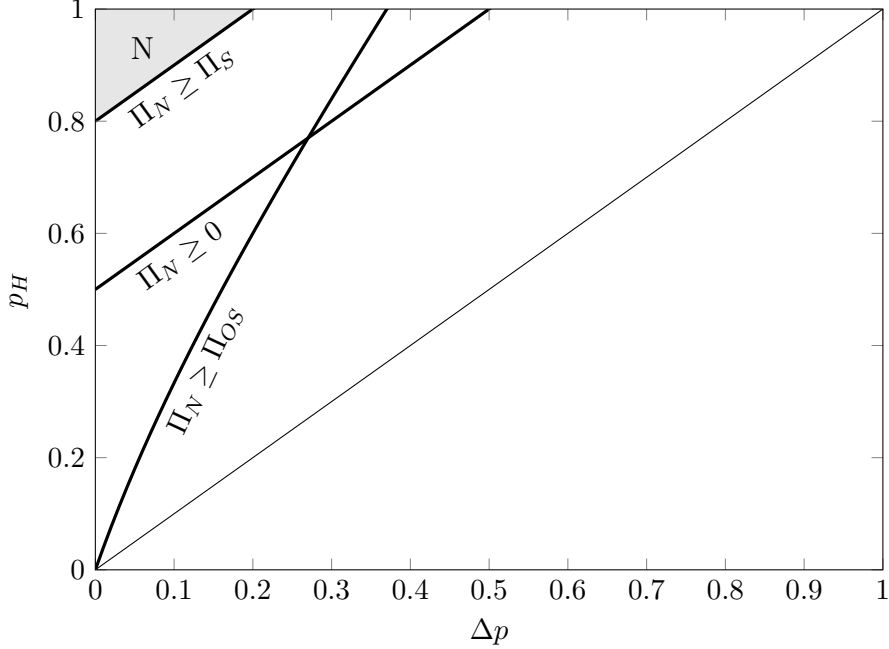


Figure 1: The set of $(\Delta p, p_H)$ for which the N-type is optimal

Under Assumption 1, the N-type is optimal for $(\Delta p, p_H) = (0, 1)$ and the OS-type is optimal for $(\Delta p, p_H) = (1, 1)$. This establishes the first and the second statement of the proposition. The existence in the third statement depends on if the two areas defined by $\Pi_S \geq \Pi_N$ and $\Pi_S \geq 0$ have an intersection. That means that if $\Pi_S \geq 0$ holds when $\Pi_S = \Pi_N$, then the existence is obtained. The condition in the statement requires that: when $\Pi_S = \Pi_N$, $\Pi_S = \frac{I - \gamma_S}{I} R - I$. Figure 5 show the case in which the condition does not hold and the S-type is not optimal at any $(\Delta p, p_H)$.

3.4 With Integration

Now, I introduce the I-type contract. It is feasible when the default investment decision is always decline: $p_H R - I - \gamma_O / \Delta p \leq 0$. As we have already seen, if the I-type is feasible, it is better than the OS-type. Therefore, the area in which the OS-type is optimal is the intersection of the area in Figure 3 and that defined by $p_H R - I - \gamma_O / \Delta p \geq 0$. This is depicted in Figure 6.

The conditions for the optimality of the I-type contract is

$$\Pi_I \geq \Pi_N, \Pi_I \geq \Pi_S, \Pi_I \geq \Pi_{OS}, \Pi_I \geq 0, \text{ and } p_H R - I - \gamma_O / \Delta p \geq 0. \quad (23)$$

The set of $(\Delta p, p_H)$ for which the I-type contract is optimal is drawn in Figure 7. The boundary defined by the condition $\Pi_I \geq \Pi_S$ has a kink at $(\Delta p, p_H) = (0.2, 0.4)$. It is because the profit Π_I has a kink: $\Pi_I = \min \left\{ 0, -\gamma_S + p_L \frac{\gamma_O}{\Delta p} \right\} + p_H \left[R - I - \frac{\gamma_O}{\Delta p} \right]$. This set is larger than the intersection of the area in Figure 3 and that defined by $p_H R - I - \gamma_O / \Delta p \leq 0$. Its left boundary is located

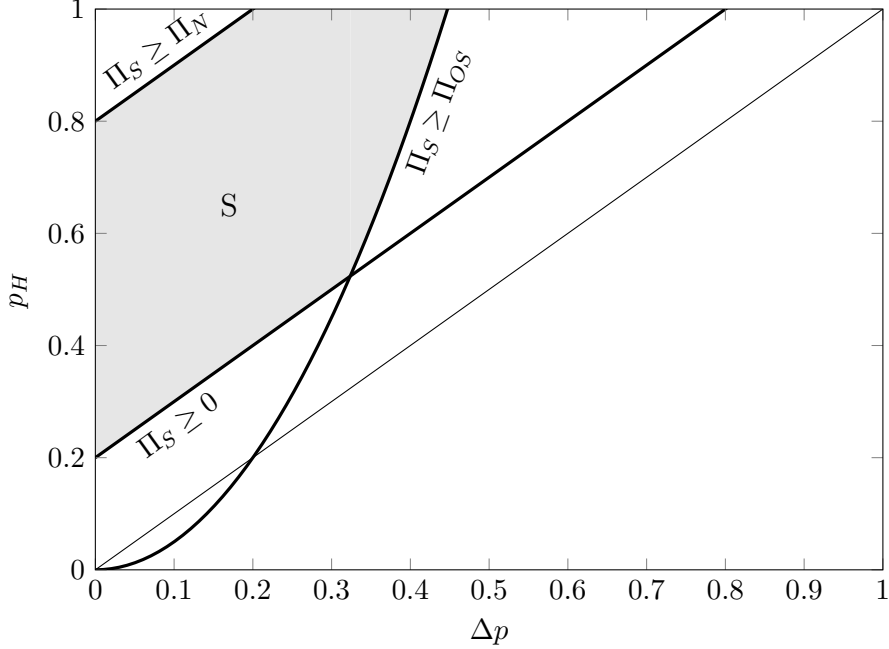


Figure 2: The set of $(\Delta p, p_H)$ for which the S-type is optimal

more left because $\Pi_I > \Pi_{OS}$.

Consequently, as shown in Figure 8, the $(\Delta p, p_H)$ for which the I-type contract is optimal is smaller than the same set when the I-type is not available, which is depicted in Figure 2.

Figure 9 shows the four areas together.

The following proposition is similar to Proposition 1. It tells when the area of each type of contract is nonempty.

Proposition 2. *Under Assumption 1, (i) there exists some $(\Delta p, p_H)$ for which the N-type contract is optimal; (ii) there exists some $(\Delta p, p_H)$ for which the OS-type contract is optimal; (iii) if $\frac{I-\gamma_S}{I}R - I > 0$, there exists some $(\Delta p, p_H)$ for which the S-type contract is optimal; (iv) if $\frac{I-\gamma_S}{I}R - I > 0$, there exists some $(\Delta p, p_H)$ for which the I-type contract is optimal.*

The first three statements are qualitatively the same as those in Proposition 1. The fourth statement is about the optimality of the I-type contract. The same condition as the one in the third statement turns out to be sufficient for the existence. Why is the existence result for the S-type and the I-type conditional, while that for the N-type and the OS-type not? That is because the S-type and the I-type tend to be optimal for relatively low p_H . When the effort cost γ_S is set high, the profitability of those contracts for low p_H (and p_L) is reduced soon, while the profitability of the N-type and the OS-type is kept by Assumption 1.

Now I state the main result, which actually directly follows from the equilibrium conditions.

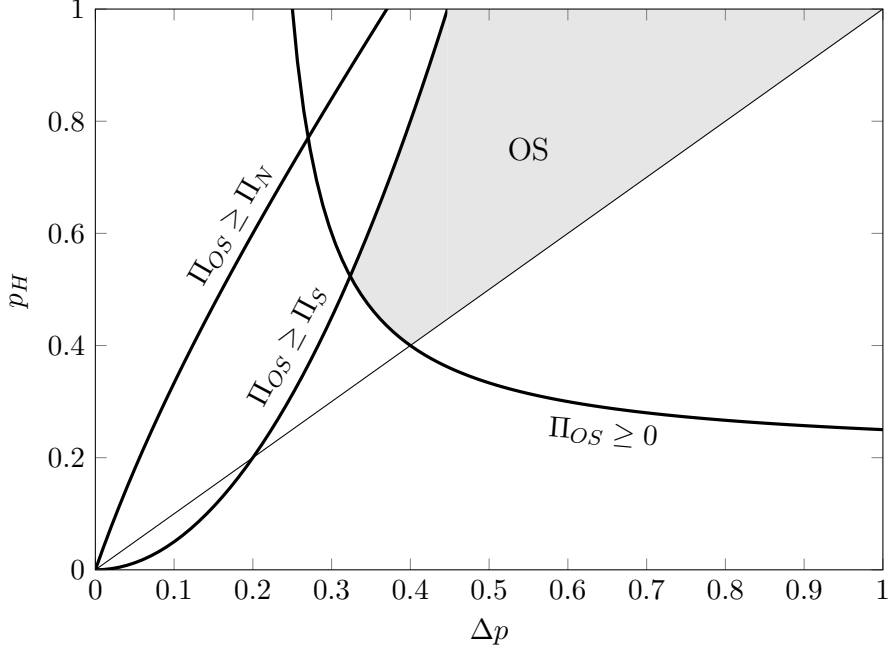


Figure 3: The set of $(\Delta p, p_H)$ for which the OS-type is optimal when the I-type is not available

Proposition 3. *Suppose that Assumption 1 and $\frac{I-\gamma s}{I}R - I > 0$ hold. Let A_{OS} denote the set of $(\Delta p, p_H)$ for which the OS-type contract is optimal, and let A_I denote the set of $(\Delta p, p_H)$ for which the I-type contract is optimal. Then, in the $(\Delta p, p_H)$ -plane, the set A_{OS} is located above the downward sloping curve defined by $p_H R - I - \gamma_O/\Delta p = 0$, and the set A_I is located below the curve.*

The proposition tells that how the optimal type of contract is related to the success probability parameters $(\Delta p, p_H)$. The OS-type tends to be optimal for high p_H and Δp and the I-type tends to be optimal for relatively low p_H and Δp and the I-type. The relationship with p_H is intuitive. When p_H is high, the default investment decision is approval when the origination effort is made. In this case, the origination incentive and the screening incentive are in conflict with each other, and thus it is desirable to assign the two tasks into different agents. If p_H is so low that the default investment decision is always decline, then the two incentives are in line with each other, and it is waste of resource to assign the two tasks to different agents. By assigning the two tasks to one agent, the principal can economize the incentive cost.

It is difficult to interpret the relationship with Δp . When p_H is low, Δp is restricted to be low. Therefore, it is not distinguishable in this model if the locational difference in terms of Δp arises from the economics nature of these contract types or it is just a by-product of locational difference in terms of p_H .

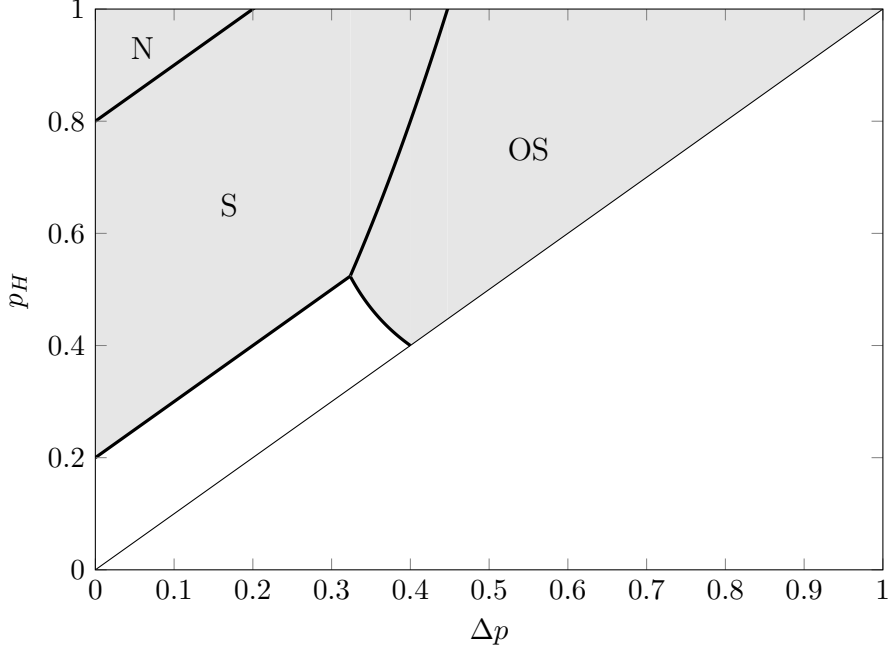


Figure 4: Optimal type in $(\Delta p, p_H)$ -plane when the I-type is not available

4 Discussion

It is common among banks to have an independent risk evaluation division (Heider and Inderst, 2012). On the other hand, it is reported the venture capitals often assign the origination task and the screening task to same partners (Gompers et al., 2020). The model explains the two possible causes of this observed difference.

The first is profitability of projects. As Proposition 3 states, when the probability parameters $(p_H, \Delta p)$ are low and located below the curve defined by $p_H R - I - \gamma_O / \Delta p = 0$, the optimal contract is I-type. This is when profitable projects are relatively rare and the default investment decisions are always declining.

The intuition behind the result is in the incentive alignment between the origination effort and the screening effort. The two efforts are aligned only when the default investment decision is always declining. In this case, since the origination effort is rewarded if the project is invested, it can be rewarded only if the screening effort is made. Therefore, the agent who made the origination effort tends to be willing to make the screening effort.

If the default investment decision is not always declining, the two efforts are not aligned. After the origination effort is made, the screening effort creates the possibility of declining the project. Therefore, the agent is not willing to screen the project, and the principal need to pay more to the agent to create enough incentive.

The difference between two cases is similar to the difference between banks and venture capitals.

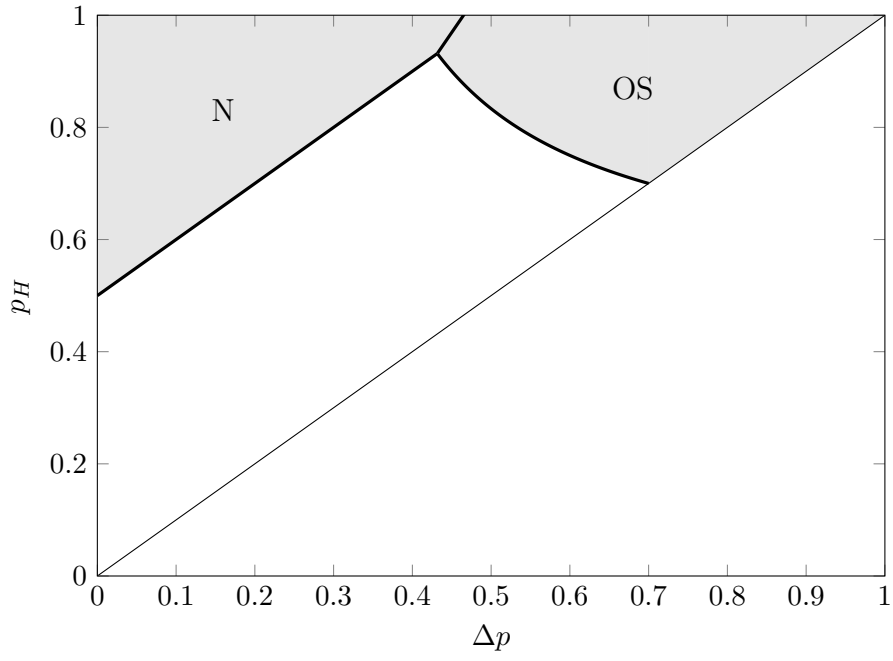


Figure 5: Optimal type in $(\Delta p, p_H)$ -plane when the I-type is not available; the case of the S-type is not optimal anywhere

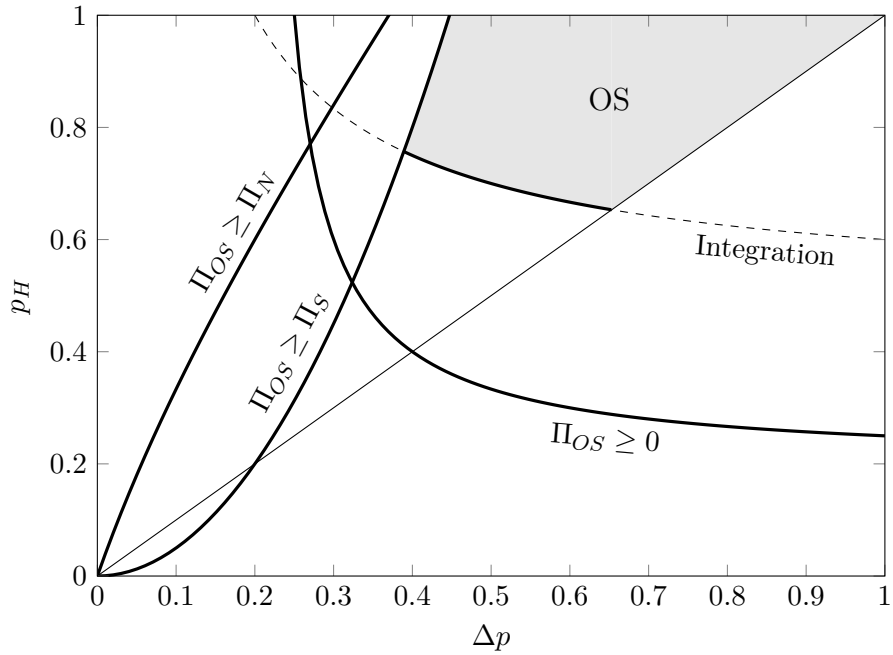


Figure 6: The set of $(\Delta p, p_H)$ for which the OS-type is optimal

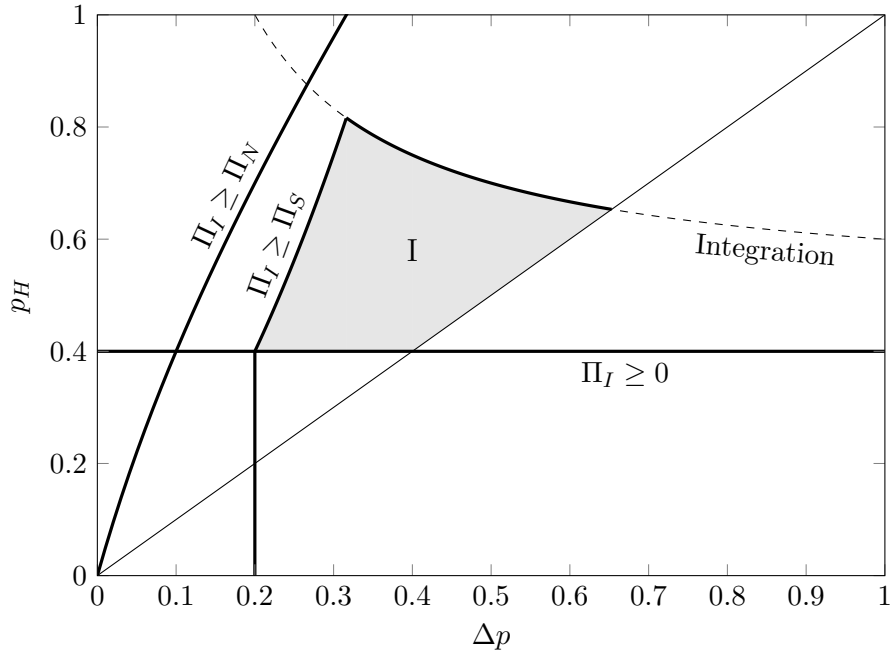


Figure 7: The set of $(\Delta p, p_H)$ for which the I-type is optimal

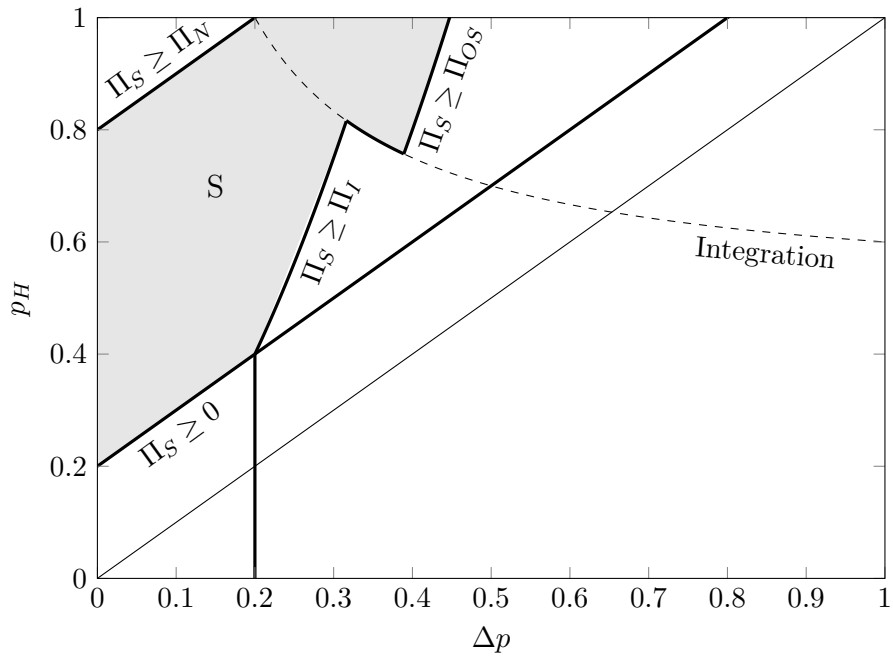


Figure 8: The set of $(\Delta p, p_H)$ for which the S-type is optimal

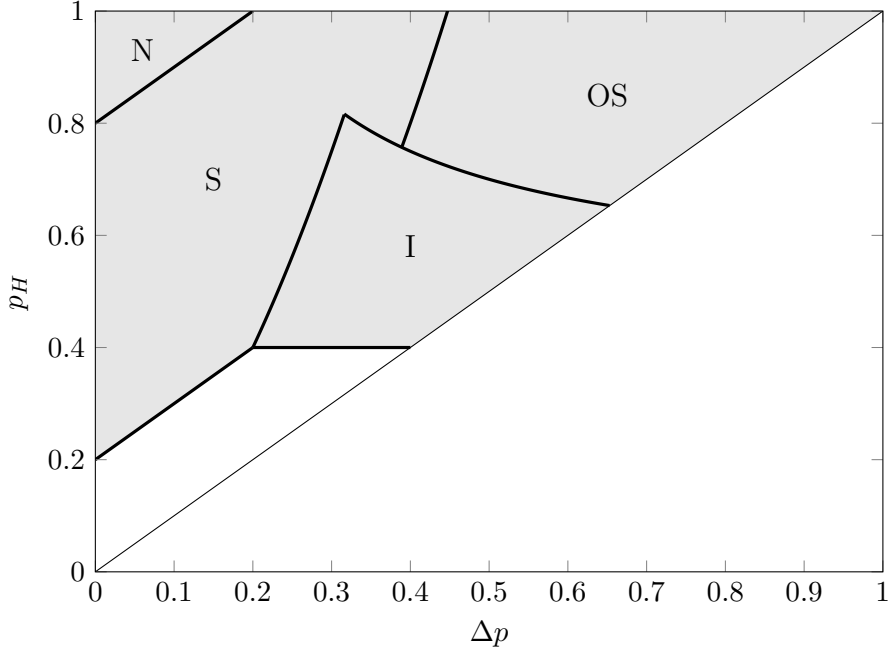


Figure 9: Optimal type in $(\Delta p, p_H)$ -plane

It is reported that many of originated projects are invested in banks, while most projects are eventually declined in venture capital investments.

The second is contractibility. The model operates under the assumption that rewards for the agent cannot depend on project outcomes. This assumption mirrors common practices in the banking industry, where many bankers are compensated based on the quantity of loans they originate. In some banks, job rotation is introduced, which reduces the duration a banker spends working as a loan originator, and it makes difficult to tie the compensation to project performances.

In contrast, partners in the venture capital industry typically have longer tenures than bankers. It is worth noting that their compensation is often tied to the success of the projects they invest in.

The main message of the model is the following. Either one of the two features are lacked, it is desirable to employ the integrated organization. In banking industry, both of the two features are present and it is desirable to operate under the separated setting.

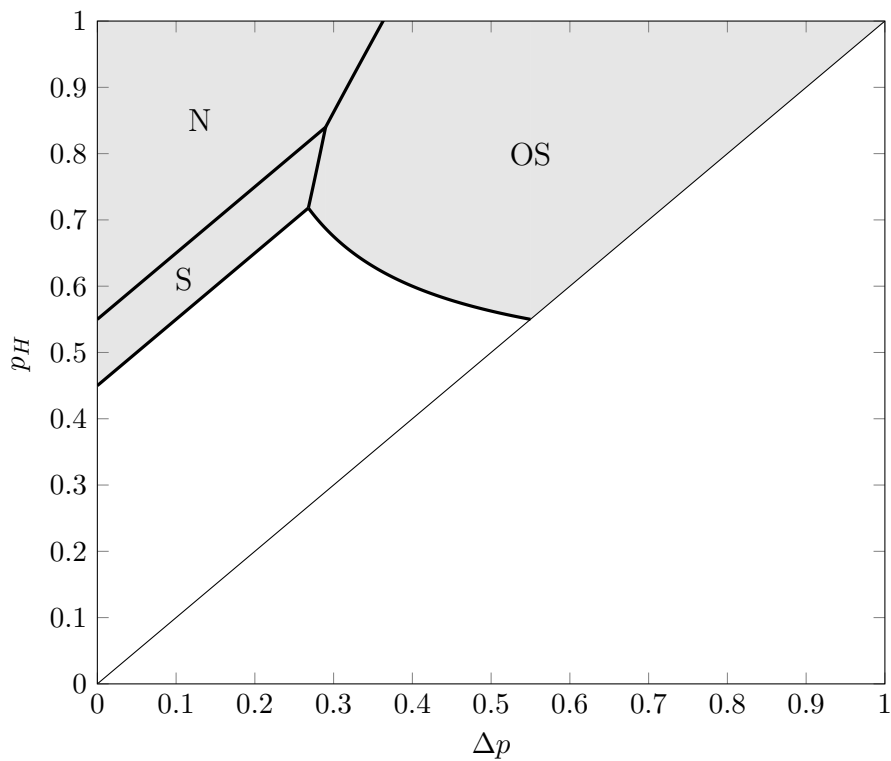
5 Conclusion

Investment institutions adopt diverse organizational structures. The article elucidates this phenomenon by leveraging a model that focuses on the origination and screening of investment projects. In one scenario, origination and screening activities are at odds with each other, making it preferable to employ a segmented organizational structure, akin to the approach in the banking industry.

On the other hand, when these two activities are in alignment, an integrated organizational structure, similar to the one employed in the venture capital industry, is more desirable. The root of this disparity can be attributed to factors such as project profitability and contractibility.

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