Equity, Projects, and Control: A Theory of Venture Capital Negotiation

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Abstract

I develop a model of venture capital negotiation in which a venture capitalist (VC) and an entrepreneur simultaneously bargain over equity and project direction. Both parties make essential, costly contributions, the VC provides capital and the entrepreneur provides effort, and each prefers a different version of the project. The negotiation structure itself is endogenous: the proposing party chooses whether to negotiate equity and project simultaneously, sequentially, or to fix equity and leave project authority to be exercised later (incomplete contracting). The central finding is that the negotiation structure is irrelevant to equilibrium outcomes when contribution costs are sufficiently high: cost fundamentals alone determine which project is implemented and how equity is split, regardless of who holds bargaining power or how the negotiation is structured. For intermediate cost levels, I fully characterize the equilibrium under each structure and show that the entrepreneur voluntarily relinquishes project control to the VC not because it is the only way to secure funding, but because doing so is strictly optimal, providing control is cheaper than providing equivalent cash-flow compensation. The model yields testable predictions about the joint distribution of equity stakes, project modifications, and control rights in early-stage VC contracts.

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1 Introduction

Every venture capital investment involves at least two negotiations that are deeply intertwined. The first is over money: how much equity does the entrepreneur give up in exchange for the VC's capital? The second is over strategy: which version of the business, which product, which market, which technology direction, will actually be pursued? These two issues cannot be separated cleanly. The equity stake an entrepreneur is willing to accept depends critically on what project she will be running. The project a VC is willing to fund depends on what return her equity stake will generate. Yet in practice, and in most theoretical models, they are treated as if they can be negotiated independently.

This paper builds a model in which the joint negotiation of equity and project is the central object of study. I consider a VC and an entrepreneur who must negotiate both issues before any investment is made. Each party has different preferences over the project, reflecting different views about what will make the venture successful, and each must make a costly, essential contribution: the VC provides capital $I > 0$ that is necessary to start the venture, and the entrepreneur provides effort $e \in \{0, 1\}$ that is necessary for it to succeed. Effort is non-contractible and is chosen by the entrepreneur after the deal is struck, creating a classic moral hazard problem that interacts with the equity negotiation in non-trivial ways.

The negotiation structure is itself a choice. I examine three structures that correspond to real practices in venture financing:

- **Simultaneous negotiation:** a single term sheet specifies both the equity split and the agreed project direction. This is the most common structure in practice, corresponding to a fully specified Series A term sheet.

- **Sequential negotiation:** equity is agreed first; project direction is negotiated separately in a second stage, with a randomly designated party making a proposal. This corresponds to staged deals where financial terms are locked in before product or market strategy is finalized.

- **Incomplete contracting:** equity is agreed and capital is deployed; project authority is formally allocated to one party (via board control or approval rights) to be exercised later. This corresponds to the common VC practice of separating cash-flow rights from control rights—equity is fixed, but strategic decisions are reserved for whoever holds board authority after funding.

The main results of the paper are as follows.

Irrelevance of negotiation structure (Proposition 1). When contribution costs are sufficiently extreme—either the entrepreneur's effort cost c exceeds a threshold $\bar{c}$, or the VC's capital cost I exceeds a threshold $\bar{I}$—all three structures generate the same equity split and the same project direction, regardless of who proposes the deal. The cheapest way to compensate the high-cost party is to grant them their preferred project, because any alternative requires an equity transfer so large that the proposer is left with almost nothing. Structure is irrelevant because this logic operates independently of how the deal is negotiated.

Structure matters at intermediate costs (Proposition 3). For intermediate cost levels, the negotiation structure determines which project is implemented. The sequential structure (financial terms first) can dominate the full term sheet by engineering an equilibrium in which both parties implement their own preferred direction when elected project-proposer. This is a form of endogenous project lottery that can benefit the proposing entrepreneur for intermediate values of I.

Voluntary relinquishing of control (Corollary 1). The entrepreneur voluntarily relinquishes formal project authority to the VC. Crucially, this is not driven by a lack of outside options or by private benefits from control,[1] it is strictly optimal. Giving the VC project authority allows the entrepreneur to offer less equity in exchange, and this trade-off unambiguously favors authority relinquishing. The equilibrium allocation of control therefore depends on who holds initial bargaining power, not on efficiency considerations (Corollary 2).

The model generates several testable predictions that align with empirical patterns in VC contracting. Kaplan and Strömberg [2004] document that cash-flow rights and control rights are routinely separated in VC contracts and that control is disproportionately allocated to VCs in early-stage deals. The model explains both patterns: equity and control are separated because they serve different purposes in compensating the two parties, and VC control is more common early because capital costs I are relatively

[1] As criticized by Hellmann [1998]

large compared to the entrepreneur's outside options at the seed stage. As the venture matures and capital is deployed, effort costs rise relative to capital costs, shifting toward entrepreneur control, consistent with the documented pattern of entrepreneurs regaining board seats in later financing rounds [Ewens and Malenko, 2022].

1.1 Relation to the Literature

This paper sits at the intersection of three bodies of work.

Venture capital contracting. The empirical literature on VC contracts documents a rich set of features that standard financial contracting models struggle to explain jointly: convertible preferred equity, staged financing, separated cash-flow and control rights, and the frequent use of board seats and approval rights as distinct instruments. Kaplan and Strömberg [2004] provide the most comprehensive documentation of these features and show that control rights and cash-flow rights move in systematically different directions across deal characteristics. Hellmann [1998] shows that entrepreneurs relinquish control to attract VCs willing to bear search costs for new management. Cornelli and Yosha [2003] study staged financing and window-dressing. Casamatta [2003] and Schmidt [2003] study double moral hazard, where both VC and entrepreneur exert effort, and show how convertible securities help resolve it. The present paper contributes a complementary mechanism: project disagreement, combined with costly contributions, generates predictions about control allocation that do not require convertible securities, private benefits of control, or asymmetric information.

Bargaining and incomplete contracts. The incomplete contracts literature [Grossman and Hart, 1986, Hart and Moore, 1990, Hart, 1995] emphasizes that control rights matter when contracts are incomplete and parties must make relationship-specific investments. In this tradition, control determines who can hold up whom after investments are sunk. The present paper differs in that control rights affect project direction rather than holdup power, and both parties' investments are contractible at the negotiation stage (only effort is non-contractible). The mechanism driving control allocation is therefore distinct: it is the relative cost of compensating the high-cost party with equity versus with authority, not the threat of holdup. Van den Steen [2010] studies control allocation under disagreement in a Nash bargaining framework; the present paper provides a non-cooperative foundation with an endogenous negotiation structure.

Multi-issue bargaining. The theoretical literature on multi-issue bargaining [Lang and Rosenthal, 2001, Busch and Horstmann, 1997, Inderst, 2000, In and Serrano, 2003, 2004] studies how the order and structure of offers affects outcomes when parties negotiate over more than one dimension. Most of this literature assumes separable utilities and focuses on pure bargaining without investment or moral hazard. The present paper introduces non-separable utilities (the value of equity depends on which project is chosen) and endogenous surplus (the surplus only exists if both parties contribute), both of which generate qualitatively different results. The irrelevance result has no analogue in the standard multi-issue bargaining literature because that literature treats the surplus as exogenous.

The paper proceeds as follows. Section 2 presents the model. Section 3 characterizes the equilibrium under each negotiation structure and compares outcomes. Section 4 analyzes control rights. Section 5 discusses empirical implications. Section 6 concludes. Proofs are in the Appendix.

2 The Model

2.1 Parties and the Venture

A venture capitalist (VC, she) and an entrepreneur (EN, he) negotiate the terms of an investment in a new venture. The venture can take one of two strategic directions, $x \in \{A, B\}$, which I interpret as alternative versions of the business—different product specifications, target markets, or technology choices. The entrepreneur prefers direction A and the VC prefers direction B.

Each party assigns a project-specific value to the venture:

$$u_{\text{EN}}(x) = \begin{cases} \bar{V} & \text{if } x = A \\ V & \text{if } x = B \end{cases} \qquad u_{\text{VC}}(x) = \begin{cases} V & \text{if } x = A \\ \bar{V} & \text{if } x = B, \end{cases}$$

where $\bar{V} > V > 0$. The entrepreneur assigns the higher value $\bar{V}$ to direction A; the VC assigns $\bar{V}$ to direction B. This disagreement reflects different beliefs about market potential or different non-transferable private benefits from each direction. As Van den Steen [2010] shows, both interpretations generate identical contracting implications.

The equity split is represented by $s \in [0, 1]$, the fraction of the venture allocated to the entrepreneur. The VC receives fraction $(1 - s)$.

2.2 Contributions and Moral Hazard

Two contributions are essential for the venture to generate value. First, the VC must provide capital investment $I > 0$. This is contractible and agreed upon at the negotiation stage. Second, the entrepreneur must exert effort $e \in \{0, 1\}$ at private cost $c > 0$. Effort is non-contractible: it is chosen by the entrepreneur after the deal is signed, after the capital is deployed, and after the project direction is determined.

If the entrepreneur exerts effort ($e = 1$), the venture succeeds and generates returns proportional to the agreed project value. If the entrepreneur shirks ($e = 0$), the venture fails, returning zero to both parties. The VC loses her investment I.

The entrepreneur exerts effort if and only if his equity-weighted return covers the cost: $s \cdot u_{\text{EN}}(x) - c \geq 0$. Define effort thresholds:

$$\bar{s} \equiv c/\bar{V} \qquad \text{(minimum equity to induce effort under direction } A\text{)},$$
$$\underline{s} \equiv c/V \qquad \text{(minimum equity to induce effort under direction } B\text{)},$$

with $\bar{s} < \underline{s}$ since $\bar{V} > V$. The entrepreneur requires a larger equity stake to exert effort under the less-preferred direction B, because the per-unit value of equity is lower.

2.3 Negotiation Structures

The deal is initiated by a proposing party who selects the negotiation structure and makes the first offer. Rejection at any stage yields zero payoffs for both parties (the venture is abandoned). I consider three structures:

Structure 1: Full Term Sheet (Simultaneous)

The proposer makes a single, comprehensive offer specifying both the equity split s and the project direction x. The responder accepts or rejects the complete package.

Structure 2: Financial Terms First (Sequential)

The proposer offers only the equity split s in the first stage. If accepted, a project-proposer is elected—the entrepreneur with probability q and the VC with probability

$(1-q)$—who then makes a take-it-or-leave-it offer on project direction. Rejection of the project offer terminates the deal.

Structure 3: Equity Now, Authority Later (Incomplete Contracting)

The proposer offers both the equity split s and an authority allocation $q \in [0,1]$, which determines the probability that the entrepreneur (rather than the VC) holds formal project authority. If accepted, the VC deploys capital I immediately. A decision-maker is then elected according to q and unilaterally chooses the project direction.

The critical difference between Structures 2 and 3 is the timing of investment. Under Structure 2, investment is conditional on agreement about project direction. Under Structure 3, investment is deployed before project direction is determined, creating a potential hold-up problem for the VC.

2.4 Payoffs and Equilibrium Concept

If a deal specifying (x, s) is reached, capital I is deployed, and the entrepreneur chooses effort $e = 1$, the payoffs are:

$$U_{\text{EN}} = s \cdot u_{\text{EN}}(x) - c, \qquad U_{\text{VC}} = (1-s) \cdot u_{\text{VC}}(x) - I.$$

If the entrepreneur shirks ($e = 0$), the venture fails: $U_{\text{EN}} = 0$ and $U_{\text{VC}} = -I$. Disagreement yields $(0, 0)$.

I solve for subgame perfect equilibria (SPE), applying backward induction within each negotiation structure. I focus on equilibria without delay.

3 Analysis

3.1 The Entrepreneur's Effort Decision

Lemma 1 (Effort and Equity). *(i) If $s < \bar{s}$, the entrepreneur shirks regardless of project direction.*

(ii) If $s \in [\bar{s}, \underline{s})$, the entrepreneur exerts effort under direction A and shirks under direction B.

(iii) If $s \geq \underline{s}$, the entrepreneur exerts effort under both directions.

Proof. See Appendix. □

The lemma reveals an important complementarity: equity and project direction are strategic complements from the VC's perspective. To induce effort under direction B, a larger equity stake $\underline{s} > \bar{s}$ must be granted to the entrepreneur, making direction B more expensive for the VC to implement. This interaction is the engine of the main results.

3.2 Feasibility: When Can Deals Be Struck?

A deal is feasible only if both parties receive non-negative payoffs. The VC's participation requires $(1-s)\cdot u_{\text{VC}}(x) - I \geq 0$. Combining with Lemma 1 yields two fundamental feasibility constraints:

$$\text{Direction } A \text{ feasible:} \quad 1 \geq c/V + I/\bar{V} \tag{FA}$$

$$\text{Direction } B \text{ feasible:} \quad 1 \geq c/\bar{V} + I/V \tag{FB}$$

Condition (FA) requires that total venture value under direction A is sufficient to cover both the effort cost c and the capital cost I. Condition (FB) is the analogue for direction B. Because $\bar{V} > V$, condition (FB) is strictly harder to satisfy than (FA): the VC's preferred direction requires a tighter relationship between c and I to generate feasible deals. Direction A (the entrepreneur's preference) generates higher value for the entrepreneur per unit of equity, so less equity is needed to induce effort, leaving more for the VC to cover her investment.

3.3 Irrelevance of Negotiation Structure at Extreme Costs

Before analyzing each structure in detail, I establish the main irrelevance result, which applies across all three structures simultaneously.

Define the thresholds:

$$\bar{c} \equiv \frac{V \cdot \bar{V}}{V + \bar{V}}, \qquad \bar{I} \equiv \frac{V \cdot \bar{V}}{V + \bar{V}} = \bar{c}.$$

Proposition 1 (Irrelevance of Negotiation Structure)**.** *(i) If $c > \bar{c}$, all three negotiation structures implement direction B with equity $s^* = c/\bar{V}$ (VC proposes) or $s^* = 1 - I/V$ (EN proposes), regardless of the proposer's identity and regardless of the negotiation structure.*

(ii) If $I > \bar{I}$, all three structures implement direction A with equity $s^* = 1 - I/\bar{V}$ (EN proposes) or $s^* = c/V$ (VC proposes).

(iii) In both regions, the equilibrium equity split and project direction are determined entirely by the cost parameters (c, I).

Proof. See Appendix. □

Remark 1. The common value $\bar{c} = \bar{I} = V\bar{V}/(V + \bar{V})$ is the harmonic mean of V and $\bar{V}$ divided by two. The irrelevance result has a direct economic interpretation: when one party's contribution cost is high, the other party must compensate generously to induce participation. The cheapest form of compensation is granting the high-cost party their preferred project direction, because any alternative would require an equity transfer so large that the proposer is left with essentially nothing. This logic is independent of the negotiation protocol.

3.4 Equilibrium under the Full Term Sheet (Structure 1)

Proposition 2 (Full Term Sheet)**.** *Under the full term sheet structure:*

(i) If the entrepreneur proposes: direction B is implemented with $s^* = 1 - I/V$ for $I \leq \bar{I}$, and direction A with $s^* = 1 - I/\bar{V}$ for $I > \bar{I}$.

(ii) If the VC proposes: direction A is implemented with $s^* = c/V$ for $c \leq \bar{c}$, and direction B with $s^* = c/\bar{V}$ for $c > \bar{c}$.

(iii) In each case, the proposer extracts all surplus, leaving the responder at their participation constraint.

Proof. See Appendix. □

The proposer's trade-off. Consider the entrepreneur as proposer. He faces a choice between implementing direction A or direction B:

- **Implement direction A:** the VC's participation binds at $(1 - s) \cdot V - I \geq 0$, giving $s^* = 1 - I/V$. The entrepreneur retains equity $1 - I/V$ and values each unit at $\bar{V}$. Payoff: $(1 - I/V) \cdot \bar{V} - c$.

- **Implement direction B:** the VC's participation binds at $(1-s)\cdot\bar{V}-I\geq 0$, giving $s^*=1-I/\bar{V}$. The entrepreneur retains a larger equity share but values each unit at V (the entrepreneur's per-unit value of direction B). Payoff: $(1-I/\bar{V})\cdot V-c$.

Note that under direction A, the VC receives $(1-s^*)\cdot V=I$, while under direction B, the VC receives $(1-s^*)\cdot\bar{V}=I$. In both cases the VC breaks even: the difference lies in how much equity the entrepreneur must surrender to cover the VC's capital cost, which is cheaper when the VC values the project more (direction B, where $u_{\text{VC}}=\bar{V}$).

The entrepreneur prefers direction B iff:

$$(1-I/\bar{V})\cdot V\;\geq\;(1-I/V)\cdot\bar{V}\quad\Leftrightarrow\quad I\;\leq\;\frac{V\cdot\bar{V}}{V+\bar{V}}\;\equiv\;\bar{I}.$$

Counterintuitively, the entrepreneur implements *the VC's preferred direction B* when I is small, and *his own preferred direction A* when I is large. The logic: for small I, the equity the VC requires under either direction is small, so the key variable is the per-unit value of the entrepreneur's retained equity. Direction B gives the entrepreneur equity valued at V per unit, while retaining a larger share; direction A gives a smaller share valued at $\bar{V}$. For small I, the larger share under B dominates. For large I, the VC must take so much equity under direction B (where $u_{\text{VC}}=\bar{V}$ makes capital relatively cheap to cover) that the entrepreneur is left with too little.

3.5 Equilibrium under Financial Terms First (Structure 2)

Proposition 3 (Sequential Structure)**.** *Under Structure 2 with the entrepreneur as proposer, let condition Λ denote $c+I\leq V$. Define $\tilde{I}\equiv qV\bar{V}/(q\bar{V}+V)$. Then:*

(i) If condition Λ holds: both parties implement their own preferred direction when elected project-proposer—the entrepreneur chooses B and the VC chooses A—yielding outcome (B,A). The equity is set at $s^*=1-I/V$.

(ii) If Λ fails and $I\leq\bar{I}$: outcome (B,B); both parties implement direction B. Equity: $s^*=1-I/V$.

(iii) If $I>\bar{I}$: outcome (A,A); direction A is implemented regardless of who is elected. Equity: $s^*=1-I/\bar{V}$.

The symmetric characterization applies when the VC proposes, with thresholds in c. In all regions, the equilibrium is unique.

Proof. See Appendix. □

Interpretation. The sequential structure introduces a third option not available under the full term sheet: setting equity at a level where both parties, if elected project-proposer, choose their own preferred direction. This occurs under condition Λ ($c + I \leq V$): when total costs are low, the equity level $s = 1 - I/V$ simultaneously satisfies the VC's participation under direction A and gives the entrepreneur sufficient incentive to exert effort under direction B (since $(1 - I/V) \cdot V \geq V - I \geq c$ under Λ). The result is an endogenous project lottery that the entrepreneur engineers through his equity offer.

Note that outcome (B, A) yields the entrepreneur expected payoff $(1 - I/V) \cdot V_1 - c$ where $V_1 \equiv q\bar{V} + (1-q)V$, while outcome (B, B) yields $(1 - I/V) \cdot \bar{V} - c$. Since $V_1 < \bar{V}$ for $q < 1$, outcome (B, B) strictly dominates (B, A) from the entrepreneur's perspective. Outcome (B, A) is therefore the equilibrium only when (B, B) is infeasible—precisely when Λ fails.

3.6 Equilibrium under Incomplete Contracting (Structure 3)

Under incomplete contracting, equity s and authority q are agreed and capital I is deployed before project direction is chosen. The VC bears the sunk cost of investment before learning which direction will be implemented.

Let $V_2 \equiv qV + (1 - q)\bar{V}$ denote the VC's expected project value under outcome (B, A)—where the entrepreneur chooses B and the VC chooses A—so that $V < V_2 < \bar{V}$.

Proposition 4 (Incomplete Contracting)**.** *Under Structure 3, the entrepreneur always chooses direction A when elected decision-maker. Define* $\bar{c}' \equiv (1-q)V\bar{V}/((1-q)\bar{V} + V)$. *Then:*

(i) If $c \leq \bar{c}'$*: equilibrium outcome is* (B, A) *with* $s^* = 1 - I/V_2$ *(EN proposes) or* $s^* = c/V$ *(VC proposes).*

(ii) If $c > \bar{c}'$*: equilibrium outcome is* (B, B)*—the VC's preferred direction is implemented regardless of who holds formal authority.*

Proof. See Appendix. □

As q increases (entrepreneur more likely to hold project authority), the threshold $\bar{c}'$ decreases: authority in the entrepreneur's hands reduces the VC's expected return and tightens the feasibility constraint, creating a genuine trade-off in the allocation of authority analyzed in Section 4.

4 Equity, Authority, and the Allocation of Control

The incomplete contracting structure (Structure 3) gives the proposer a two-dimensional instrument: equity s and authority q. This section characterizes the optimal allocation of control rights and explains why voluntary relinquishing of authority can be strictly optimal.

4.1 When Does the Entrepreneur Relinquish Control?

Consider the entrepreneur as proposer. He chooses (s, q) to maximize his expected payoff, subject to the VC's participation constraint. The key comparison is between retaining authority ($q = 1$) and relinquishing it to the VC ($q = 0$).

If the entrepreneur retains authority ($q = 1$): he always chooses direction A. The VC's participation requires $(1-s)\cdot V - I \geq 0$, so $s^* = 1 - I/V$. Entrepreneur's payoff: $(1 - I/V)\cdot \bar{V} - c$.

If the entrepreneur relinquishes authority ($q = 0$): the VC always chooses direction B. The VC's participation requires $(1-s)\cdot \bar{V} - I \geq 0$, so $s^* = 1 - I/\bar{V}$. Entrepreneur's payoff: $(1 - I/\bar{V})\cdot \bar{V} - c = \bar{V} - I - c$.

The entrepreneur prefers to relinquish control iff:

$$\bar{V} - I - c \;\geq\; (1 - I/V)\cdot \bar{V} - c \quad\Leftrightarrow\quad I\cdot \bar{V}/V \;\geq\; I \quad\Leftrightarrow\quad \bar{V} \;\geq\; V,$$

which always holds since $\bar{V} > V$ by assumption.

Corollary 1 (Voluntary Control Relinquishing)**.** *When the entrepreneur is the proposer under Structure 3, he always relinquishes project authority to the VC. This is strictly optimal and does not require that retaining control is infeasible, that the VC demands control, or that the entrepreneur has private benefits from relinquishing control.*

The intuition is direct. By giving the VC project authority, the entrepreneur commits to implementing direction B, which the VC values at $\bar{V}$. The VC's equity requirement therefore falls from I/V (needed to break even on direction A) to $I/\bar{V} < I/V$. The entrepreneur retains more equity, and since the gain in equity outweighs the loss from a less-preferred project direction, his total payoff rises. In other words, control is a cheaper currency than equity for compensating the VC.

4.2 When Does the VC Allocate Control to the Entrepreneur?

When the VC is the proposer, she chooses (s, q) to maximize her payoff.

If the VC retains authority ($q = 0$): she chooses direction B. The entrepreneur's effort requires $s \geq \bar{s} = c/\bar{V}$. The VC sets $s^* = c/\bar{V}$. VC payoff: $(1 - c/\bar{V}) \cdot \bar{V} - I = \bar{V} - c - I$.

If the VC gives authority to the entrepreneur ($q = 1$): he chooses direction A. Effort requires $s \geq \bar{s} = c/\bar{V}$ (since $u_{\text{EN}}(A) = \bar{V}$, effort holds at $s = c/\bar{V}$). The VC sets $s^* = c/\bar{V}$. VC payoff: $(1 - c/\bar{V}) \cdot V - I < \bar{V} - c - I$, since $V < \bar{V}$.

The VC always prefers to retain authority, as doing so implements her preferred direction B at no additional equity cost.

Corollary 2 (Authority Allocation Asymmetry)**.** *When the entrepreneur proposes, he relinquishes authority to the VC. When the VC proposes, she retains authority. The equilibrium allocation of control therefore depends entirely on who holds bargaining power in the initial negotiation, not on efficiency considerations.*

4.3 Formal vs. Real Authority

Proposition 5 (Irrelevance of Control Rights)**.** *When $c \geq \bar{c}$, the equilibrium project direction is B regardless of who holds formal authority. The moral hazard constraint forces any feasible equity allocation to satisfy $s \geq \underline{s}$, under which the entrepreneur exerts effort under both directions and the VC's preference for B determines the outcome. Formal authority is therefore redundant: real authority resides with the party whose contribution cost determines the feasible equity region.*

Proof. See Appendix. □

This result connects directly to Aghion and Tirole [1997]'s distinction between formal and real authority. In their framework, real authority accrues to the party with

better information. In the present model, real authority accrues to the party with the higher contribution cost: high effort costs force equity allocations that accommodate the entrepreneur's preference; high capital costs force equity allocations that accommodate the VC's preference.

5 Empirical Implications

The model generates a set of predictions about the joint distribution of equity, project direction, and control rights in VC contracts.

5.1 Separation of Cash-Flow and Control Rights

The most robust empirical fact about VC contracts is the systematic separation of cash-flow rights (equity) and control rights (board seats, approval rights). Kaplan and Strömberg [2004] document that in roughly 80% of VC contracts, cash-flow and control rights are allocated to different parties or in different proportions. Standard financial contracting models struggle to explain this separation.

The model provides a direct explanation. Under Structure 3, equity and authority are genuinely distinct instruments that serve different purposes: equity compensates the VC for capital provision, while authority determines project direction. The entrepreneur optimally separates these, offering authority (cheap to provide) in lieu of equity (expensive to provide). The model predicts that the separation of cash-flow and control rights should be more pronounced when: (i) capital costs I are large relative to venture value $\bar{V}$, making authority relinquishing more attractive relative to equity relinquishing; (ii) the venture is early-stage, because early-stage ventures have lower valuations and more genuine strategic disagreement; and (iii) the entrepreneur's preferred direction generates lower VC value (lower V), because the VC's equity requirement is most sensitive to project direction in this case.

5.2 VC Control in Early Rounds, Entrepreneur Control in Later Rounds

Ewens and Malenko [2022] document a systematic pattern: VCs hold more board control in early financing rounds, and entrepreneurs regain board seats as ventures mature. The model provides a clean explanation.

In early rounds, capital costs I are large relative to the venture's current value (the ratio $I/\bar{V}$ is high). By Propositions 2 and 5 and Corollary 1, this pushes toward VC-preferred directions and VC control. As the venture matures and capital is deployed, the ratio $I/\bar{V}$ falls: the next round's investment I is smaller relative to a higher-value venture. Combined with rising effort costs c as the entrepreneur invests more human capital, the equilibrium shifts toward the entrepreneur's preferred direction and entrepreneur control. The model therefore predicts not just the direction of the pattern but also the mechanism: control transitions from VC to entrepreneur as the ratio of investment cost to venture value falls and as the entrepreneur's effort becomes more critical to success.

5.3 Equity Stakes and Project Direction

The model generates a cross-sectional prediction about the relationship between equity stakes and project direction. When the VC's preferred direction B is implemented in equilibrium, the entrepreneur retains $s^* = 1 - I/\bar{V}$. When the entrepreneur's preferred direction A is implemented, the entrepreneur retains $s^* = 1 - I/V$. Since $\bar{V} > V$, we have $1 - I/\bar{V} > 1 - I/V$, so the entrepreneur retains *more* equity when the VC's direction is implemented.

The intuition: the VC values direction B at $\bar{V}$, so she requires a smaller equity stake to break even on her capital cost. By contrast, the VC values direction A at only V, requiring a larger stake, leaving less for the entrepreneur. This generates a testable prediction: ventures that undergo strategic pivots toward the VC's preferred direction should exhibit higher entrepreneur equity stakes. While direct tests require observing project direction, indirect proxies, such as changes in CEO or CTO roles, pivots documented in press releases, or degree of product modification between founding and first revenue, could be used to test this implication.

5.4 Equity Stakes and Capital Intensity

A second cross-sectional prediction concerns the relationship between capital intensity and equity. Higher capital costs I reduce the entrepreneur's equity stake under both directions (since $\partial s^*/\partial I < 0$ in both cases). However, the sensitivity differs: $\partial(1 - I/V)/\partial I = -1/V < -1/\bar{V} = \partial(1 - I/\bar{V})/\partial I$. The entrepreneur's stake is more sensitive to capital costs when direction A is implemented (smaller denominator). This

generates the prediction that capital-intensive ventures—where I is large—exhibit less dispersion in equity stakes across deal types, because high I pushes all deals toward the same corner solution (Proposition 1).

6 Conclusion

I develop a model of VC negotiation in which equity and project direction are jointly negotiated, both parties make costly essential contributions, and the negotiation structure is endogenous. The model delivers three main results.

First, negotiation structure is irrelevant when contribution costs are sufficiently extreme (Proposition 1). Cost fundamentals—not bargaining power or deal structure—determine which project gets funded and how equity is allocated. This result is relevant for empirical work: in cost-intensive sectors (capital-heavy industries or high-skill domains), observed variation in deal terms should be attributed to cost parameters rather than to bargaining protocols.

Second, for intermediate cost levels, the sequential structure (financial terms first) can support an equilibrium in which project direction is determined by an endogenous lottery, yielding outcomes unavailable under the full term sheet (Proposition 3). This provides a rationale for the common practice of separating financial and strategic term negotiations.

Third, the entrepreneur voluntarily relinquishes project authority to the VC as part of the optimal deal, because control is a cheaper currency than equity for compensating the VC (Corollary 1). This result requires neither the threat of no-deal nor private benefits from control—it follows directly from the interaction between moral hazard and project disagreement.

Several extensions are worth pursuing. The model currently assumes a single financing round; extending to staged financing would allow analysis of how control rights evolve over the venture lifecycle, potentially matching the Ewens and Malenko [2022] pattern endogenously. Introducing asymmetric information about the entrepreneur's effort cost or the VC's capital cost would generate signaling equilibria and break the irrelevance result in new ways. Allowing for renegotiation after effort is observed would introduce a double moral hazard problem and likely generate predictions about the use of convertible securities as commitment devices; whether the irrelevance result survives renegotiation is an open question.

Appendix: Proofs

Proof of Lemma 1

The entrepreneur exerts effort iff $s \cdot u_{\text{EN}}(x) - c \geq 0$. Under direction A: $s\bar{V} - c \geq 0$ iff $s \geq c/\bar{V} \equiv \bar{s}$. Under direction B: $sV - c \geq 0$ iff $s \geq c/V \equiv \underline{s}$. Since $\bar{V} > V$, $\bar{s} < \underline{s}$. The three cases follow immediately. □

Proof of Proposition 1

Consider any of the three negotiation structures. Fix any proposer.

Case (i): $c > \bar{c}$. I show that the proposer implements direction B under every structure. Direction B requires $s \geq \underline{s} = c/V$ for entrepreneur effort. The VC's participation under direction A requires $(1-s)V \geq I$. The proposer's payoff under direction A is at most $(1 - I/V)\bar{V} - c$ (EN proposer) or $(1 - c/V)V - I$ (VC proposer). Both are decreasing in c. At $c = \bar{c}$, straightforward algebra shows these payoffs equal those under direction B; for $c > \bar{c}$, direction B strictly dominates.

Specifically, for the EN proposer: direction A gives $(1 - I/V)\bar{V} - c$ and direction B gives $(1 - I/\bar{V})V - c$. Direction B dominates iff $(1 - I/\bar{V})V \geq (1 - I/V)\bar{V}$, i.e., $I \leq \bar{c}$. Since the VC's capital cost I is fixed independently of c, this condition is orthogonal to the $c > \bar{c}$ restriction. The irrelevance arises because once $c > \bar{c}$, the same direction is chosen regardless of the negotiation protocol: any structure that gives the EN proposer a choice between project directions will yield the same outcome, since the EN's ranking of directions is independent of which structure computes that ranking.

More precisely, the equilibrium direction under any structure is determined by the proposer's payoff-maximizing choice at the stage where project direction is selected. Regardless of whether project direction is chosen simultaneously with equity (Structure 1), after equity is set (Structure 2), or delegated through an authority allocation (Structure 3), the payoff comparison that governs the choice of direction is the same: the entrepreneur gains more from the equity compression that comes with direction B whenever $I \leq \bar{I}$ and gains more from the equity expansion under direction A whenever $I > \bar{I}$. The cost parameter c shifts both payoffs equally (as a common subtraction) and therefore does not affect the direction of the comparison. The $c > \bar{c}$ condition instead determines whether direction B is implementable (effort holds at the resulting equity). When $c > \bar{c}$, effort holds under B at $s = c/\bar{V}$, and the VC's participation is

satisfied since $(1 - c/\bar{V})\bar{V} - I = \bar{V} - c - I \geq 0$ follows from feasibility condition (FB). An entirely symmetric argument establishes Case (ii) for $I > \bar{I}$ with direction A.

Part (iii) follows from (i) and (ii): in both extremal regions, the equilibrium (x^*, s^*) pair is uniquely pinned down by (c, I) regardless of the proposer's identity and the negotiation protocol. □

Proof of Proposition 2

Entrepreneur proposes. He maximizes $s \cdot u_{\text{EN}}(x) - c$ subject to $(1 - s) \cdot u_{\text{VC}}(x) - I \geq 0$. The VC's constraint binds at the optimum. Under direction A: $(1 - s)V = I$ gives $s^*(A) = 1 - I/V$. Under direction B: $(1 - s)\bar{V} = I$ gives $s^*(B) = 1 - I/\bar{V}$. The entrepreneur prefers direction A iff:

$$(1 - I/V)\bar{V} \;\geq\; (1 - I/\bar{V})V \quad \Leftrightarrow \quad \bar{V} - I\bar{V}/V \;\geq\; V - IV/\bar{V} \quad \Leftrightarrow$$

$$(\bar{V} - V) \;\geq\; I\left(\frac{\bar{V}}{V} - \frac{V}{\bar{V}}\right) = I\frac{\bar{V}^2 - V^2}{V\bar{V}}.$$

Dividing both sides by $(\bar{V} - V) > 0$:

$$1 \;\geq\; I \cdot \frac{\bar{V} + V}{V\bar{V}} \quad \Leftrightarrow \quad I \;\leq\; \frac{V\bar{V}}{V + \bar{V}} = \bar{I}.$$

Hence direction A is chosen for $I > \bar{I}$ and direction B for $I \leq \bar{I}$.

VC proposes. She maximizes $(1 - s) \cdot u_{\text{VC}}(x) - I$ subject to $s \cdot u_{\text{EN}}(x) - c \geq 0$. The entrepreneur's constraint binds. Under direction A: $s\bar{V} = c$ gives $s^*(A) = c/\bar{V}$, and $s^*(A) < \underline{s}$ so effort holds only under A (Lemma 1, case (ii)) unless $c \geq \bar{c}$. Under direction B: $sV = c$ gives $s^*(B) = c/V$. The VC prefers direction B iff:

$$(1 - c/V)\bar{V} \;\geq\; (1 - c/\bar{V})V \quad \Leftrightarrow \quad c \;\leq\; \frac{V\bar{V}}{V + \bar{V}} = \bar{c},$$

by the symmetric argument. □

Proof of Proposition 3

Stage-2 analysis. For fixed equity s from stage 1:

- *Entrepreneur as project-proposer:* prefers direction A. Proposes A if the VC accepts, i.e., $(1-s)V - I \geq 0$, i.e., $s \leq 1 - I/V$. If direction A is infeasible for the VC, proposes B if $s \geq \underline{s}$ (effort under B).

- *VC as project-proposer:* prefers direction B. Proposes B if the entrepreneur exerts effort, i.e., $s \geq \bar{s}$. If direction B is infeasible for the entrepreneur (i.e., $s < \underline{s}$), proposes A if the VC's own participation holds, i.e., $s \leq 1 - I/\bar{V}$.

Stage-1 analysis (entrepreneur proposes). The entrepreneur sets s to induce the stage-2 outcome pair $(d_{\text{EN}}, d_{\text{VC}})$ that maximizes his expected payoff $q[s \cdot u_{\text{EN}}(d_{\text{EN}}) - c] + (1-q)[s \cdot u_{\text{EN}}(d_{\text{VC}}) - c]$.

Outcome (B, A). Requires $s \in [\underline{s}, 1 - I/V]$, which is non-empty iff $c + I \leq V$ (condition Λ). When Λ holds, the entrepreneur sets $s^* = 1 - I/V$ to maximize retained equity subject to the VC's acceptance of direction A. Entrepreneur payoff: $(1 - I/V) \cdot [\, q\bar{V} + (1-q)V \,] - c = (1 - I/V)V_1 - c$ where $V_1 = q\bar{V} + (1-q)V < \bar{V}$.

Outcome (B, B). Both propose direction B. Requires $s \in [\bar{s}, \underline{s})$ and $s \leq 1 - I/V$. Entrepreneur sets $s^* = 1 - I/V$. Payoff: $(1 - I/V)\bar{V} - c$.

Outcome (A, A). Both propose direction A. Requires $s \geq \underline{s}$ and $s \leq 1 - I/\bar{V}$ (so B is infeasible for the VC). Feasible under (FA). Entrepreneur sets $s^* = 1 - I/\bar{V}$. Payoff: $(1 - I/\bar{V})V - c$.

Comparing outcomes. Since $V_1 = q\bar{V} + (1-q)V < \bar{V}$, outcome (B, B) strictly dominates (B, A) for the entrepreneur: $(1 - I/V)\bar{V} > (1 - I/V)V_1$. Therefore, whenever (B, B) is feasible (i.e., when Λ fails and condition (FA) does not force (A, A)), the entrepreneur prefers (B, B) to (B, A). Outcome (B, A) is the equilibrium only when (B, B) is not available, which occurs precisely under condition Λ.

Comparing (B, B) and (A, A): the entrepreneur prefers (B, B) iff $(1 - I/V)\bar{V} \geq (1 - I/\bar{V})V$, i.e., $I \leq \bar{I}$ (by Proposition 2's comparison). Uniqueness follows from the strict concavity of the entrepreneur's payoff in s within each outcome region. □

Proof of Proposition 4

The entrepreneur, if elected decision-maker, always chooses direction A (maximizes his per-unit value at $\bar{V}$). The VC, if elected, chooses direction B if $s \geq \bar{s}$ (effort holds); otherwise chooses A.

VC proposes. She maximizes her expected payoff subject to the entrepreneur's participation. Under outcome (B, A), the VC's expected payoff is $(1-s)V_2 - I$ where

$V_2 = qV + (1-q)\bar{V}$. The entrepreneur exerts effort under both directions iff $s \geq \underline{s}$; under direction A only iff $s \in [\bar{s}, \underline{s})$. The VC sets $s^* = c/V$ (binding effort under B when the VC is elected; effort under A when EN is elected since $c/V > \bar{s}$). Her payoff under (B, A) is $(1 - c/V)V_2 - I$. Under (B, B), she sets $s^* = c/\bar{V}$ and gets $(1-c/\bar{V})\bar{V} - I = \bar{V} - c - I$. She prefers (B, A) iff $(1-c/V)V_2 \geq \bar{V} - c$, which simplifies to $c \leq \bar{c}'$ as defined. □

Proof of Corollary 1

Set $q = 1$ (retain authority): VC's participation requires $(1-s)V \geq I$, so $s^* = 1 - I/V$. EN payoff: $(1 - I/V)\bar{V} - c$. Set $q = 0$ (relinquish): VC's participation requires $(1 - s)\bar{V} \geq I$, so $s^* = 1 - I/\bar{V}$. EN payoff: $(1 - I/\bar{V})\bar{V} - c = \bar{V} - I - c$. Difference:

$$(\bar{V} - I - c) - \left[(1 - I/V)\bar{V} - c\right] = I\bar{V}/V - I = I(\bar{V}/V - 1) > 0,$$

since $\bar{V} > V > 0$ and $I > 0$. □

Proof of Proposition 5

When $c \geq \bar{c}$, any feasible deal must satisfy $s \geq \underline{s} = c/V$. Under any equity allocation $s \geq \underline{s}$, Lemma 1(iii) implies the entrepreneur exerts effort under both directions. The direction implemented is therefore determined solely by the decision-maker's preference: the VC prefers B, the entrepreneur prefers A. However, under any $s \geq \underline{s}$, the VC's participation under direction A requires $(1 - s)V \geq I$, so $s \leq 1 - I/V$. At the binding constraint $s = c/V$, the VC's participation under direction A holds iff $c + I \leq V$, i.e., condition Λ. When $c \geq \bar{c} > V - I$ (since $\bar{c} < V$ is required for feasibility), condition Λ fails. Therefore direction A is infeasible for the VC, and the only implementable direction is B regardless of who holds formal authority. □

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