

Entrepreneurs' financing choice between Business Angels and Venture Capital firms

A trade-off between urgency and costs ^{*}

Andrea Odille Bosio[†] Samuele Guido Sozzani[‡]

September 2025

This Version: January 15, 2026

Preliminary draft, please do not cite or circulate

Abstract

This paper investigates the financing choice between Business Angels (BAs) and Venture Capitalists (VCs). We propose a theoretical framework where the decision is governed by financing urgency, defined as the risk of project failure while waiting for capital. Entrepreneurs must trade off the immediate liquidity provided by BAs against the superior efficiency and scaling capabilities of VCs. We test our predictions using a proprietary dataset of Italian ventures, exploiting institutional solvency constraints to identify binding survival risks. We find that liquidity crises and legal insolvency sharply increase the likelihood of BA financing. This effect persists even when controlling for deal size and firm quality, supporting a selection mechanism over an efficiency gap explanation. Our findings suggest that Business Angels provide strategic insurance, offering immediate liquidity to mitigate survival risk and preserve the option value of high-potential ventures.

Keywords: Business Angels; Venture Capital, Entrepreneurial Finance

JEL Codes: G24; L26; M13

^{*}**Acknowledgments:** We are thankful to the Italian Business Angels Association (IBAN) and the Italian Association of Venture Capital, Private Equity, and Private Debt (AIFI) for sharing their data with us. All errors and omissions are our own.

[†]Assistant Professor, University of Bergamo - Department of Management, Information, and Production Engineering, Dalmine (Italy). andreaodille.bosio@unibg.it

[‡]Postdoctoral Researcher, (Corresponding author), Politecnico di Milano - Department of Management, Economics and Industrial Engineering, Milan (Italy). samueleguido.sozzani@polimi.it

1 Introduction

Over the past decades, academic research has increasingly recognized the critical role of angel finance and its dynamic interaction with other sophisticated investors, notably venture capitalists (VCs) (Capizzi et al. (2022)). These private risk capital providers are fundamental to the entrepreneurial ecosystem, disproportionately contributing to innovation and job creation (Capizzi et al. (2022), Hellmann et al. (2021)). While the relationship between these two funding sources is often framed as one of substitution or complementarity (Hellmann and Thiele (2015), Capizzi et al. (2022)), the specific factors shaping an entrepreneur’s decision to seek immediate seed financing from Business Angels (BAs) rather than waiting for potentially larger Venture Capital rounds remain relatively underexplored.

Existing literature has extensively detailed investor types and their value-adding capabilities, characterizing BAs as early-stage specialists and VCs as later-stage generalists (Andrieu and Groh (2018), Fairchild (2011)). However, this perspective often overlooks a critical third dimension: time. For an entrepreneur facing a rapidly closing window of opportunity, the financing decision is not merely a choice between “Smart Money” and “Dumb Money”, or the classic “Rich versus King” trade-off between valuation and control (Wasserman (2006)). It is a decision governed by financing urgency. This paper investigates how the risk of project failure or obsolescence while waiting for capital dictates the choice between BAs and VCs. We propose that for many ventures, the immediate liquidity provided by BAs acts as strategic insurance, preserving the project’s option value even at the cost of higher dilution.

To address this dynamic problem, we develop a theoretical model that explicitly formalizes the decision path at time $t = 0$. The entrepreneur must weigh the benefit of securing immediate seed capital from BAs against the option value of delaying financing to seek investments from VCs. This decision is governed by θ , the urgency parameter, which encapsulates risks such as liquidity crises, competitive preemption, or idea obsolescence. Our model demonstrates that when urgency is high, it acts as a binding constraint that overrides standard quality signals: entrepreneurs ra-

tionally accept the additional costs of angel financing to mitigate the risk of the project never coming to fruition.

Additionally, a key question in entrepreneurial finance concerns whether Business Angels and Venture Capitalists operate as substitutes or complements. Early work emphasized their sequential complementarity: BAs provide seed capital and mentoring at the earliest stages, while VCs supply growth capital and professionalization capabilities as ventures mature (Hellmann and Thiele (2015)). However, recent empirical evidence reveals substantial heterogeneity in this relationship. Hellmann et al. (2021) find considerable support for the parallel streams hypothesis that angel investors and VCs are dynamic substitutes and that this substitute pattern is explained by a selection effect. Capizzi et al. (2022) show that BA financing can facilitate subsequent VC rounds through certification effects, but can also deter VCs when BA involvement signals negative information about venture quality or entrepreneur capability.

This ambiguity is directly addressed in our modeling approach, where we capture this duality through the exogenous parameter γ , which measures how BA involvement at $t = 0$ affects the probability of securing VC expansion financing at $t = 1$.

We test these predictions using a proprietary dataset of financing rounds in Italian firms. The Italian setting offers a unique advantage for identification: the strict capital maintenance rules of the Civil Code (Art. 2482-ter). Unlike general measures of “distress”, Italian law mandates immediate recapitalization or liquidation when a firm reports negative equity. This allows us to identify a “hard”, quasi-exogenous urgency constraint that is distinct from operational underperformance. We employ Probit and Ordered Probit estimators, along with Propensity Score Matching (PSM), to isolate the effect of urgency from firm quality and deal size.

This research advances our understanding of entrepreneurial finance in several dimensions. First, we contribute to the foundational literature by formalizing the critical trade-off between funding urgency (θ) and the consequences of ownership dilution (ρ), offering a mechanism that dictates the initial funding strategy. Second, by embedding the characteristics of seed-specialist

(BA) and generalist (VC) investors within a necessary staged financing context, our model highlights how investor specialization influences the entrepreneur’s initial decision (Andrieu and Groh (2018), Schwienbacher (2013)).

Third, our empirical findings advance the literature concerning the interrelationship between the angel and venture capital markets (Hellmann and Thiele (2015), Hellmann et al. (2021), Capizzi et al. (2022)). We show that BAs do not merely act as “investors of last resort” for low-quality firms, but provide a specific function of liquidity insurance for high-urgency ventures. Finally, by offering a formal theoretical grounding and robust empirical evidence, this study furnishes clear guidance for entrepreneurs facing complex early-stage fundraising dilemmas concerning value maximization versus dilution control (Wasserman (2006)).

The remainder of this paper is structured as follows: Section 2 presents the theoretical framework, detailing the model setup and the derivation of the entrepreneur’s optimal choice. Section 3 describes the dataset and the institutional setting. Section 4 defines the empirical strategy, while Section 5 presents the results and robustness checks. Section 6 concludes.

2 Theoretical Framework

2.1 The investment environment

In the model, an entrepreneur has an innovative venture that does not qualify for traditional debt financing. The entrepreneur has unique technological knowledge and is irreplaceable. The project lasts up to two periods, from time $t = 0$ to $t = 2$, and she needs seed capital at $t = 0$ and expansion financing at $t = 1$ in exchange for δ stakes in the company. The seed and expansion rounds are denoted I_0 and I_1 , respectively. Their amounts are known at time $t = 0$.

The entrepreneur has no initial wealth and only contributes knowledge and effort to the venture. She must receive expansion-stage financing from a VC firm. We consider an industry with two types of equity investors: business angels (BA, which we assimilate to specialized seed investors)

and generalist independent venture capitalists (VC). The entrepreneur must choose one of the two types at $t = 0$.

On the one hand, if the entrepreneur chooses BA financing, she receives immediate financial and non-monetary support. We assume that business angels have superior experience in building and developing start-up ventures; therefore, they provide higher-quality support and tighter monitoring than a generalist VC in the early stages. However, BAs cannot provide expansion capital, and the entrepreneur has to find a generalist VC willing to invest I_1 in the venture. The probability of matching with a VC depends on the venture having a growth option and the investor's willingness to co-invest with BAs, which can positively or negatively affect the decision. If the venture secures expansion stage financing, then the outcome R in $t = 2$ is certain. However, if the venture cannot obtain VC financing but has a growth option, then the BA can decide not to liquidate his stake and obtain a final payoff P .

On the other hand, if the entrepreneur decides to match with VC in the first round, she has to face the additional risk of failure because VCs are scarcer than BAs, and they require longer due diligence to approve financing. However, once secured I_0 , the VC can also provide I_1 in a favorable state, which leads to a final payoff R with certainty.

Both investors require a liquidation preference L if the project is in an unfavorable state. The state of the project at $t = 1$ depends on the entrepreneur's effort during the first period. We define G as the probability that the state of the project is favorable at $t = 1$. For simplification, let $G = e$, where e is the entrepreneur's effort. Thus, we have $e \in [0; 1]$. The entrepreneur determines her own effort at $t = 0$. Effort is costly, and we denote the cost of effort as follows:

$$cost(e) = c_i \frac{e^2}{2},$$

where c_i depends on the quality of support provided by the VC firm. An important feature of our model is that we distinguish between the quality of support of specialized seed-investors (BA) and independent venture capitalists (VC), where $c_{ba} < c_{vc}$.

2.1.1 Parameter assumptions

Consider a risk-neutral world with no discounting. All the payoffs are verifiable.

We assume that at $t = 1$ it is optimal to expand the venture if its state is favorable and to liquidate if its state is unfavorable. Formally, this is:

$$R - I_1 > P > L,$$

It is also assumed that the venture is profitable in a favorable state:

$$\forall e \in [0; 1], R > I_0 + I_1.$$

However, the liquidation value is lower than the initial investment. Hence, if liquidated, the seed-stage investor does not recover costs:

$$L < I_0.$$

This assumption is consistent with the nature of equity financing in startups, where recovery values are generally low.

2.2 Optimal contracts

At the seed financing stage, the entrepreneur chooses whether to obtain financing I_0 from either a specialized seed investor or a venture capitalist in exchange for an equity stake in the venture. This ownership stake affects claims on the final exit payoff.

If the company is in a favorable state and the investors do not liquidate the company, an investor, new in one case and the same in the other, makes a capital contribution I_1 . In return, they receive an equity stake in the company.

In summary, the contract has the following parameters:

- L defines the liquidation value for the seed stage investor

- δ indicates the stakes in the company
- P is the value of the company when it does not have a growth option
- γ is the parameter that indicates whether VCs are willing to invest in a company already backed by Business Angels

2.2.1 First-best condition

As the first best outcome, we consider an entrepreneur who aims to maximize project value. We denote the two choices as $S1$ and $S2$, respectively. The net present value (NPV) of the project under the two financing options is:

$$NPV_{S1} : e[(g + \gamma)(R - I_1) + (1 - g - \gamma)P - L] - c_{ba}\frac{e^2}{2} - (I_0 - L)$$

and

$$NPV_{S2} : (1 - \theta) \left\{ e[(R - I_1) - L] - c_{vc}\frac{e^2}{2} - (I_0 - L) \right\}$$

To obtain the maximized values for each strategy, we first derive the NPVs with respect to e and set it to zero, solving for e . Then, we substitute the optimal values for e back in the NPVs and we obtain that $S1 > S2$ when:

$$\frac{[(g + \gamma)(R - I_1) + (1 - g - \gamma)P - L]^2}{2c_{ba}} - (I_0 - L) > (1 - \theta) \left[\frac{(R - I_1 - L)^2}{2c_{vc}} - (I_0 - L) \right]$$

Solving for θ , we obtain :

$$\theta > 1 - \frac{\frac{[(g + \gamma)(R - I_1) + (1 - g - \gamma)P - L]^2}{2c_{ba}} - (I_0 - L)}{\frac{(R - I_1 - L)^2}{2c_{vc}} - (I_0 - L)}$$

Figure 1 illustrates the optimal financing frontier derived from the model. The curves represent the threshold urgency θ at which the entrepreneur is indifferent between the immediate Business Angel strategy and the delayed Venture Capital strategy. The area above each curve represents the region where financing urgency is binding, making BA the optimal choice. The curves slope

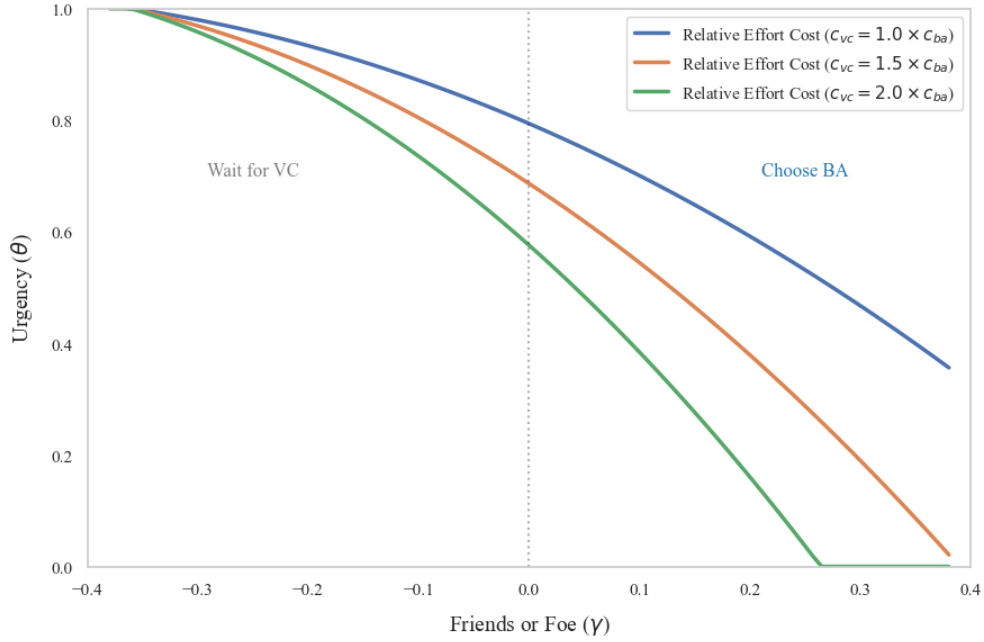


Figure 1: The Decision Boundary: BA vs VC

downward, indicating that as the “Friends or Foes” parameter γ increases, the threshold for choosing BA decreases. In the “Foes” region ($\gamma < 0$, left side), BA presence creates friction for future financing. Consequently, the entrepreneur views the BA as a costly “last resort” and will only select this path if the risk of immediate failure (θ) is extremely high. In the “Friend” region ($\gamma > 0$, right side), the BA acts as a certifier, increasing the probability of future success. This lowers the urgency threshold, making BA an attractive option even for firms with moderate time constraints.

2.2.2 Seed financing by a specialised seed investor

At $t = 1$, the specialized seed-financing BA receives private information about the state of the venture (favorable or unfavorable). The BA can choose to liquidate or continue with the venture despite the possibility of not securing expansion financing.

The VC firm can either back the company or leave it. The entrepreneur wants to maximize her utility and has full negotiation power because of the good prospects of her unique venture.

We find a semi-separating perfect Bayesian equilibrium: the strategy of the BA is always to

sell in the unfavorable state, but the decision to stay does not signal the presence of a growth option to the VC, which would like to invest only when it is present. However, if the BA liquidates its share, the VC perfectly learns about the state of the venture and does not invest.

2.2.3 Semi-separating equilibrium strategy

Because it is inefficient for the BA to stay with the venture in an unfavorable state, he will always liquidate. This strategy requires:

$$P \geq I_0 \text{ (PC).}$$

The BA's incentive constraint is as follows:

$$\delta_{ba}P > L \text{ (IC).}$$

where δ_{ba} is endogenously defined as:

$$\delta_{ba} = \frac{I_0 - (1 - e)L}{e[(g + \gamma)R + (1 - g - \gamma)P]}$$

Because the BAs's decision to stay does not provide any signal on the venture's growth potential, the VC computes the expected payoff according to the probabilities of the states. Therefore, VC firms require:

$$(g + \gamma)\delta_{vc}R + (1 - g - \gamma)\delta_{vc}P - I_1 \geq 0 \text{ (PC).}$$

where δ_{vc} is defined as:

$$\delta_{vc} = \frac{I_1}{(g + \gamma)R + (1 - g - \gamma)P}$$

Under this strategy, we can define the entrepreneur's share δ_E as:

$$\delta_E = 1 - \delta_{ba} - \delta_{vc} = 1 - \frac{I_0 - (1 - e)L}{e[(g + \gamma)R + (1 - g - \gamma)P]} - \frac{I_1}{(g + \gamma)R + (1 - g - \gamma)P}$$

Finally, the entrepreneur maximizes her profit by solving her utility function:

$$\begin{aligned}
U_E &= e\delta_E[(g + \gamma)R + (1 - g - \gamma)P] - c\frac{e^2}{2} \\
&= e \left[1 - \frac{I_0 - (1 - e)L}{e[(g + \gamma)R + (1 - g - \gamma)P]} - \frac{I_1}{(g + \gamma)R + (1 - g - \gamma)P} \right] [(g + \gamma)R + (1 - g - \gamma)P] - c\frac{e^2}{2} \\
&= e[(g + \gamma)R + (1 - g - \gamma)P] - [I_0 - (1 - e)L] - eI_1 - c\frac{e^2}{2} \\
&= e\{[(g + \gamma)R + (1 - g - \gamma)P] - I_1 - L\} - (I_0 - L) - c\frac{e^2}{2}
\end{aligned}$$

We derive for e , set it to zero, and then add back the optimal e to our utility function:

$$U_E^* = \frac{\{[(g + \gamma)R + (1 - g - \gamma)P] - I_1 - L\}^2}{2c_{ba}} - (I_0 - L)$$

Comparing the semi-separating equilibrium solution to the first-best condition, we observe that the marginal return is reduced by $(1 - g - \gamma)I_1$. This term represents the agency cost of the pooling equilibrium: the inefficient allocation of expansion capital to ‘mediocre’ firms that cannot be distinguished from high-growth firms.

2.2.4 Seed financing by a generalist investor

In this section, we consider the second strategy. The entrepreneur accepts incurring an extra risk θ to obtain seed financing from the VC. In this case, there are no fundraising constraints, and the VC firm can provide I_0 and I_1 . This implies that the VC firm will remain the unique investor until the venture matures and disinvests.

Unlike the BA case, the VC contract induces a separating equilibrium at $t = 1$ where only growth firms receive expansion capital. The contract specifies the claims on the liquidation proceedings, which are equal to L . Given that $I_0 > L$, the VC firm loses money in the bad state and refuses to further invest I_1 . Similar to the case discussed above, the investor’s rationale must be to continue the venture in a good state and liquidate it in a bad state. Therefore, the participation

constraint is as follows:

$$e(\delta_{vc}R - I_1) + (1 - e)L - I_0 \geq 0 \text{ (PC)}.$$

Solving for the equity share, δ_{vc} is endogenously defined as:

$$\delta_{vc} = \frac{I_0 + eI_1 - (1 - e)L}{eR}$$

Under this strategy, we can define the entrepreneur's share δ_E as:

$$\delta_E = 1 - \delta_{vc} = 1 - \frac{I_0 + eI_1 - (1 - e)L}{eR}$$

Finally, the entrepreneur considers this strategy and calculates her utility function:

$$\begin{aligned} U_E &= (1 - \theta) \left[\delta_E(eR) - c_{vc} \frac{e^2}{2} \right] \\ &= (1 - \theta) \left[\left(1 - \frac{I_0 + eI_1 - (1 - e)L}{eR} \right) (eR) - c_{vc} \frac{e^2}{2} \right] \\ &= (1 - \theta) \left[(eR - I_0 - eI_1 + L - eL) - c_{vc} \frac{e^2}{2} \right] \\ &= (1 - \theta) \left\{ e[R - I_1 - L] - (I_0 - L) - c_{vc} \frac{e^2}{2} \right\} \end{aligned}$$

We derive for e , set it to zero, and then add back the optimal e in our utility function:

$$U_E^* = (1 - \theta) \left\{ \frac{[(R - I_1 - L)]^2}{2c_{vc}} - (I_0 - L) \right\}$$

2.3 The Optimal Financing Choice

Having derived the entrepreneur's expected utility under both financing strategies, we can now determine the optimal choice at $t = 0$. The entrepreneur compares the utility of the Business Angel Strategy ($S1$), which offers immediate execution and lower effort costs but suffers from the “pooling tax” of asymmetric information, against the Venture Capital “Delayed” Strategy ($S2$), which offers efficient screening and scaling but carries the risk of project failure due to urgency.

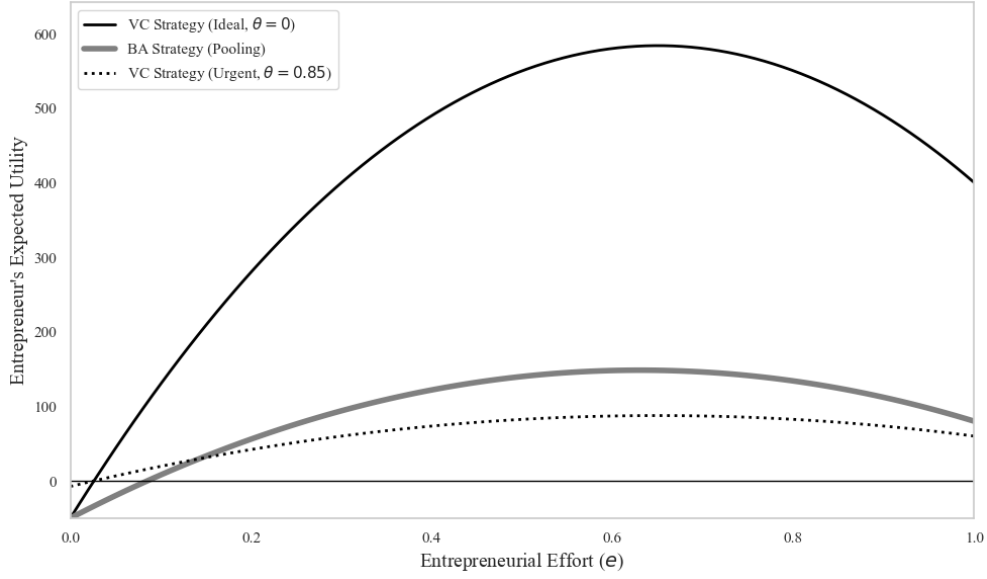


Figure 2: Impact of Urgency on Expected Utility

The entrepreneur selects Business Angel financing if and only if $U_{E,S1}^* > U_{E,S2}^*$. Substituting the equilibrium values derived in Sections 2.2.3 and 2.2.4, we obtain the fundamental decision rule:

$$\theta > 1 - \frac{\frac{[(g+\gamma)R+(1-g-\gamma)P-I_1-L]^2}{2c_{ba}} - (I_0 - L)}{\frac{(R-I_1-L)^2}{2c_{vc}} - (I_0 - L)} \quad (1)$$

We analyze the economic implications of this condition through the following lemmas.

Lemma 1: The Urgency Threshold. *There exists a unique threshold $\theta^* \in (0, 1)$ such that for all $\theta > \theta^*$, the entrepreneur chooses Business Angel financing.*

Intuition: The inequality (1) demonstrates that the decision is a trade-off between the **execution risk** of the VC strategy (captured by θ) and the inefficiency of the BA strategy (captured by the pooling tax and potential “Foes” effects). As urgency θ increases, the expected value of the VC option decreases linearly. Eventually, the risk of “dying on the vine” outweighs the cost of the BA’s pooling penalty, forcing the entrepreneur to accept the angel’s immediate liquidity.

Figure 2 illustrates the mechanism behind the threshold θ^* by plotting the entrepreneur’s expected utility as a function of effort (e). In the absence of urgency ($\theta = 0$), the Venture Capital strategy yields the highest utility, reflecting the VC’s superior screening and the absence of pooling inefficiencies. On the other hand, the utility under the Business Angel strategy is lower due to the

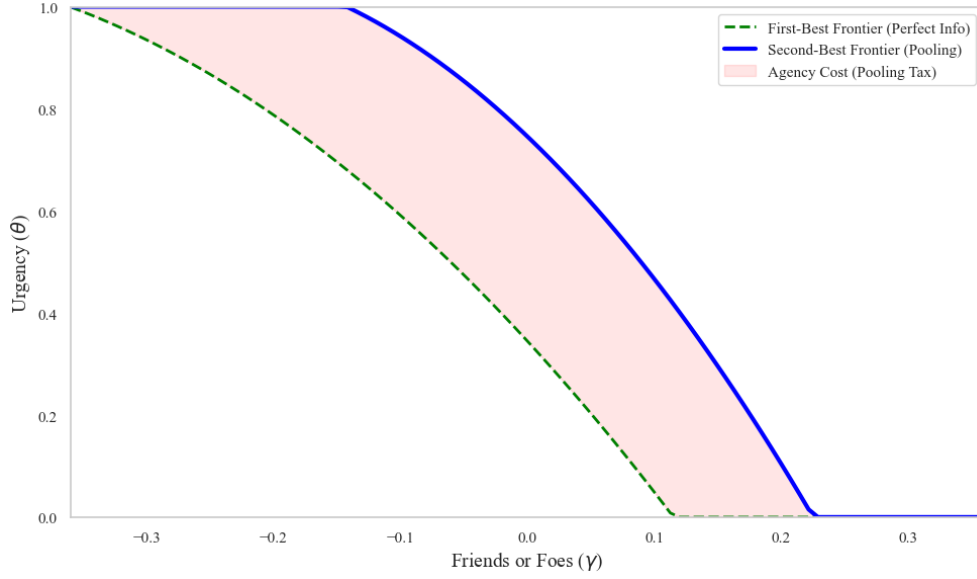


Figure 3: The Cost of Asymmetric Information

“pooling tax” associated with the VC’s inability to distinguish high-growth and mediocre firms at $t = 1$. Nevertheless, as urgency increases, the expected utility under $S2$ is discounted, to the point that its maximum value falls below the level obtained under the BA strategy. This visualizes the intuition of Lemma 1: despite the structural inefficiency of the semi-separating equilibrium, the Business Angel strategy becomes the rational choice when the execution risk of the VC strategy destroys sufficient value.

Figure 3 plots the optimal strategy frontier in the first-best scenario and in the semi-separating equilibrium as functions of urgency (θ) and reputation (γ). The area above the frontiers indicates where the BA strategy ($S1$) yields higher expected utility than the VC strategy ($S2$). As stated in Lemma 1, as urgency θ increases, the survival benefit of $S1$ eventually outweighs its costs, making it the optimal choice. However, the presence of asymmetric information shifts the frontier upward and to the right, penalizing the BA strategy. The shaded area between the two frontiers quantifies the agency costs of the semi-separating equilibrium. This region represents the set of entrepreneurs who would have optimally chosen $S1$ under the first-best condition but are instead forced to wait for VC to avoid the extra dilution (pooling tax) associated with asymmetric information.

Lemma 2: *The Unicorn Safety Net* For sufficiently high-value projects (large R), the cost of urgency dominates the cost of pooling. Consequently, high-quality ventures are strictly more likely

to choose BA financing when θ is binding.

Intuition: The term R appears quadratically in the numerator of the utility functions (due to the convexity of optimal effort). This implies that for high-potential “Unicorns,” the expected value lost due to urgency ($\theta \times \text{Value}$) is large. While high-quality firms prefer VCs in a frictionless world, they have the highest opportunity cost of failure. Therefore, they rationally accept the “expensive” terms of the BA (dilution and pooling) to insure against the risk of total loss.

Figure 4 plots the optimal strategy frontier in the semi-separating equilibrium as functions of urgency (θ) and project potential payoff (R) for three distinct values of the “Friends or Foe” parameter (γ). The area above the frontiers indicates where the Business Angel strategy ($S1$) yields a higher expected utility than the Venture Capital strategy ($S2$). Consistent with Lemma 2, the urgency threshold θ^* required to optimally choose $S1$ decreases as the potential payoff increases. For high-potential ventures, Business Angels function as strategic insurance against the risk of total loss. Although the BA strategy incurs additional agency costs (pooling tax), these costs are outweighed by the opportunity cost of failure. Furthermore, as stated in Lemma 3, the “Friends or Foe” parameter (γ) significantly shifts the frontier. When the relationship between VCs and BAs is positive (“Friends”), the BA strategy becomes attractive, even at lower levels of urgency. In contrast, when the relationship is negative (“Foe”), the region where $S1$ is viable shrinks, implying that entrepreneurs will choose this strategy only if they are facing extreme survival constraints.

Lemma 3: *The Reputation Shift* *The urgency threshold θ^* is strictly decreasing in the Business Angel’s reputation parameter γ .*

Intuition: The parameter γ captures the “Friends or Foes” effect. A positive γ (“Friend”) increases the expected payoff of the BA strategy by increasing the probability of securing expansion capital. This shifts the decision boundary downward (as shown in Figure 1), expanding the region where BA financing is optimal. Conversely, if $\gamma < 0$ (“Foes”), the BA strategy becomes a “last resort,” selected only when the urgency is extreme.

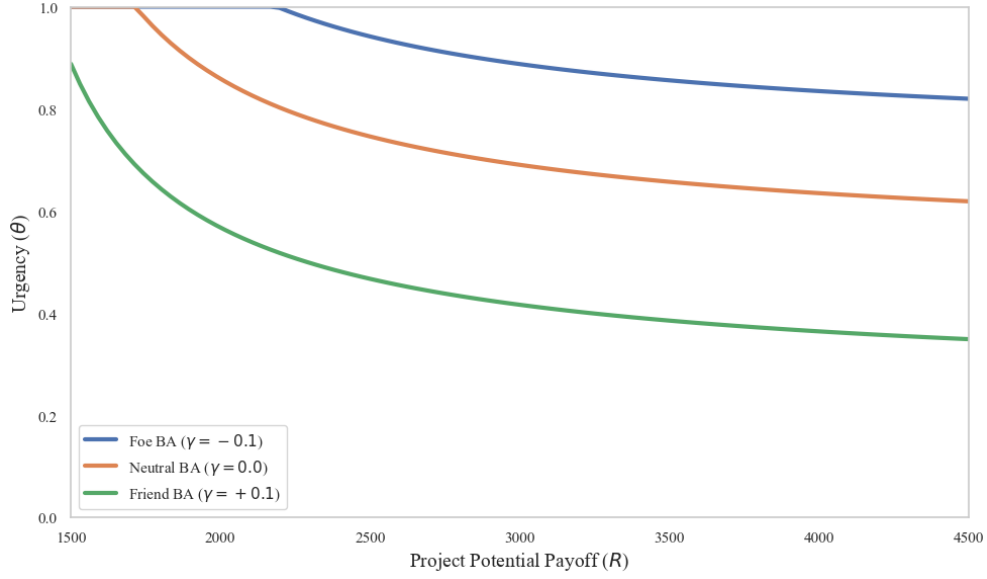


Figure 4: The Unicorn Safety Net

2.4 Testable Implications

The existing literature on early-stage financing presents a theoretical puzzle, predicting similar outcomes under opposing assumptions. On the one hand, models based on asymmetric information suggest a separating equilibrium where entrepreneurs with high-quality projects seek specialized early-stage investors (Business Angels) to signal quality, while those with lower-quality projects settle for generalists (VCs) (Schwienbacher, 2013; Chemmanur and Chen, 2014). On the other hand, value-add theories suggest that VCs concentrate on technologically sophisticated, knowledge-intensive industries where their ability to professionalize the firm yields the highest marginal return, leaving Angels to focus on less sophisticated ventures (Gompers et al., 2009). Our model resolves this tension by introducing urgency (θ) as the dominant mechanism. We posit that the financing decision is not driven solely by quality or value-add potential, but by the trade-off between the immediate liquidity provided by BAs and the option value of waiting for VCs. In light of the theoretical results derived in Section 2.3, we formulate the following testable hypotheses:

H1: The Urgency Hypothesis. Consistent with Lemma 1, the core prediction of our model is that financing urgency acts as a binding constraint. When projects face time-sensitive risks—such as rapid obsolescence, competitive preemption, or liquidity crises—entrepreneurs will

prioritize the immediate certainty of BA seed funding over the potential higher valuation of a future VC round.

- *Prediction:* Proxies for urgency, such as short cash runway or mandatory recapitalization requirements (e.g., negative equity under Art. 2482-ter), will be positively associated with BA financing.

H2: The Technology Hypothesis. While urgency drives the timing of the decision, the nature of the asset still influences the preferred partner. Consistent with [Chemmanur and Chen \(2014\)](#), we expect Venture Capitalists to target firms where they can add the most strategic value (lowering the effective cost of effort c_{vc}).

- *Prediction:* Indicators of technological sophistication (e.g., R&D intensity, patent counts, or high-tech sectors) will be positively associated with VC financing, provided that urgency is not binding.

H3: The Opportunity Cost of Failure (Mechanism). Lemma 2 implies that the threshold for choosing BA financing also depends on the project’s expected payoff (R). High-quality projects have a higher opportunity cost of failure; they have more to lose if the project “dies on the vine” while waiting for VC. Conversely, low-quality projects have a lower opportunity cost and may view BA financing as a “last resort”.

- *Prediction:* While urgency increases the probability of BA financing for all firms, the sensitivity to urgency will differ by quality. Low-quality firms, which typically wait for VCs, will exhibit a sharper shift toward BAs specifically when urgency becomes acute (a “panic” behavior), whereas high-quality firms may accept BA terms over a wider range of urgency levels to protect their upside.

H4: The Collateral Effect. Our model suggests that the payoff in the mediocre state (P) lower the effective cost of BA financing by relaxing the participation constraint in the semi-separating equilibrium. Tangible assets provide downside protection to investors, reducing the risk premium required.

- *Prediction:* Firms with higher asset tangibility are more likely to receive BA financing, as the presence of collateral mitigates the agency costs associated with the angel strategy.

3 Data and Descriptive Statistics

The main data used in this analysis are gathered from the Italian Business Angels Association (IBAN) and the Italian Association of Venture Capital, Private Equity, and Private Debt (AIFI)¹. We use their surveys from 2018 to 2024 to identify the universe of business angel and private venture capital deals over the period, amounting initially to 2,491 investments. For each deal, we observe the name and origin of the target firm, the name and type of the investors, and the amount invested. Since many observations report incomplete or ambiguous information on the target firms, all available information has been cross-checked with the Bureau van Dijk Orbis² database in order to uniquely identify the target companies. This procedure allows us to uniquely identify the target firm for all 2,491 deals.

We then perform a series of filtering steps to construct a clean sample of young Italian firms. We first drop firms that are not Italian or for which the founding date is missing, leaving 1,500 firms. We exclude firms that received VC financing prior to 2018 according to AIFI reports (104 firms), resulting in 1,396 firms. We also restrict the sample to firms younger than ten years at first investment. Finally, we drop firms for which it is not possible to reconstruct the chronological order of investments due to missing deal dates, obtaining a final sample of 1,271 firms involved in 1,829 deals.

The final sample comprises 1,271 firms involved in 1,829 financing deals between 2018 and 2024. We augment these investment data with firm-level accounting information from Bureau van Dijk Orbis³, covering the period 2016-2024. The inclusion of pre-investment accounting data (2016-2017) allows us to control for baseline firm characteristics prior to the first financing event.

¹Their annual reports have already been used by Bronzini et al. (2020)

²Bureau van Dijk. Retrieved from <https://orbis.bvdinfo.com/>

³Bureau van Dijk. Retrieved from <https://orbis.bvdinfo.com/>

This results in a panel of 8,026 firm-year observations.

3.1 Descriptive statistics

Table 1 presents the distribution of the 1,829 financing deals across rounds and investor types. The data show that 1,271 deals occur in the first financing round, representing 69.5% of all observed transactions. Second rounds account for 369 deals (20.2%), while subsequent rounds become progressively less frequent, with third rounds representing 7.3% of deals and fourth rounds or beyond accounting for only 3.1% collectively. Examining investor composition, Business Angels are involved in 546 deals (30% of total), Venture Capitalists in 797 deals (44%), and combined BA+VC transactions account for 486 deals (27%). Notably, Business Angel independent involvement is concentrated primarily in first rounds (466 out of 546 total BA deals), whereas Venture Capital participation is more evenly distributed across early rounds, consistent with VCs' role in providing both initial and expansion capital to growing ventures.

Table 1: Deals distribution across investor types and rounds

	Rounds						Total	%
	1	2	3	4	5	6		
BA	466	68	9	1	0	2	546	30
VC	510	182	73	22	9	1	797	44
BA + VC	295	119	51	19	2	0	486	27
Total	1271	369	133	42	11	3	1829	
%	69.5	20.2	7.3	2.3	0.6	0.2		

The geographic and sectoral distribution of first-round investments, shown in Table 2, reveals important patterns in the Italian early-stage financing landscape. From an industry perspective, knowledge-intensive services dominate the sample, with high-tech services accounting for 787 first-round deals (62% of the sample). Within this category, Business Angels finance 275 firms, Venture Capitalists finance 330 firms, and 182 firms receive combined BA+VC funding. The manufacturing sector shows a more modest presence, with 163 first-round deals distributed across different technology intensity levels. The chi-square test ($\chi(20) = 31.99$, $p = 0.043$) rejects independence between investor type and industry classification, providing preliminary evidence that Business Angels and Venture Capitalists may target ventures in different sectors.

The geographic distribution exhibits substantial concentration, with Lombardia accounting for 536 deals (42.2% of the sample), followed by Lazio with 121 deals (9.5%) and Emilia-Romagna with 66 deals (5.2%). This concentration reflects the traditional clustering of both entrepreneurial activity and financial capital in Northern Italy. The temporal distribution shows relatively stable deal flow across years, with observations ranging from 131 deals in 2019 to 216 deals in 2021.

Table 2: First round distribution across industries, regions, and years

Industry (HTEC)	1° Round	BA only	VC only	BA + VC	Region	Obs.	Year	Obs.
<u>Manufacturing</u>					Piemonte	114	2018	138
High-technology	43	18	17	8	Liguria	33	2019	131
Medium-high-technology	58	20	27	11	Lombardia	536	2020	200
Medium-low-technology	12	3	5	4	Abruzzo	14	2021	216
Low-technology	50	20	23	7	Molise	5	2022	206
<u>Knowledge-intensive services</u>					Campania	58	2023	189
Market services	73	34	27	12	Puglia	48	2024	191
High-tech services	787	275	330	182	Basilicata	3	Total	1,271
Financial services	26	6	7	13	Calabria	15		
Other services	43	11	21	11	Sicilia	23		
<u>Less Knowledge-intensive services</u>					Sardegna	15		
Market services	155	67	47	41	Bolzano	13		
Other services	5	3	1	1	Trento	27		
<u>Remaining</u>					Veneto	51		
Others	19	9	5	5	Friuli-Venezia Giulia	26		
					Emilia-Romagna	66		
					Toscana	71		
Total	1,271	466	510	295	Umbria	17		
Pearson $\chi^2(20) = 31.99$, Pr = 0.043					Marche	15		
					Lazio	121		
					Total	1,271		

3.2 Measuring Urgency

To empirically proxy for the urgency parameter θ , which is defined in our model as the risk of project termination while waiting for funding, we rely on two distinct measures that capture the immediate threat of firm survival: operational urgency (cash constraints) and institutional urgency (legal capital requirements).

We measure operational urgency using *cash runway*, defined as the number of months a firm can survive given its current cash balance and operating burn rate (Gompers, 1995; Davila et al.,

2003). This metric captures the entrepreneur’s economic time constraint: the finite window during which the venture can continue development without an external capital injection (Kerr et al., 2014). We define a firm as operationally urgent if its cash runway is less than 12 months.

In Italy, strict capital maintenance rules create a second, institutional form of urgency. Under Articles 2447 and 2482-ter of the Civil Code, if accumulated losses reduce share capital below the statutory minimum, directors must immediately call a shareholder meeting to recapitalize the firm or transform/liquidate it. This legal threshold is particularly critical as, in order to foster entrepreneurship, a new corporate form was introduced in 2012 that allows incorporation with nominal capital as low as €1 (Art. 2463-bis C.C.). For these capital-light ventures, the buffer against insolvency is virtually non-existent. To ensure our measure captures genuine distress rather than statutory features, we define institutional urgency strictly as negative shareholder equity. This condition universally signals that a firm has consumed all its paid-in capital and reserves, triggering the mandatory “recapitalize or liquidate” provisions of Art. 2482-ter regardless of the firm’s initial capital structure.

Finally, we construct a composite Urgency Index that combines these two dimensions. It is important to note that these risks are conceptually distinct: a firm may be liquid but legally insolvent (e.g., high cash reserves but massive accumulated losses triggering Art. 2482-ter), or legally solvent but illiquid (e.g., positive equity tied up in non-cash assets). By utilizing both, we capture the full spectrum of time-sensitive pressures that force entrepreneurs to seek immediate financing.

Table 3 presents descriptive statistics by first investor type. BA-backed firms exhibit significantly higher financing urgency: 71.8% have cash runway below 12 months compared to 24.3% of VC-backed firms ($p < 0.01$), and 9.0% face negative equity compared to 2.5% ($p < 0.01$). The composite urgency index averages 0.79 for BA firms versus 0.55 for VC firms. BA-backed firms are also smaller (mean assets: €1.21M vs €2.04M) and younger (mean age: 2.68 vs 3.07 years), consistent with BA specialization in early-stage financing. Tech sector representation is similar

Table 3: Urgency

		First Round			p-value
		BA only N=465	VC only N=510	BA+VC syndicated N=295	
Cash runway <12 months (0/1)		290 (72.0%)	243 (53.2%)	150 (54.7%)	<0.001
Negative equity (Art. 2482-ter) (0/1)		38 (9.0%)	12 (2.5%)	11 (3.9%)	<0.001
Urgency index (0-2): cash + equity	0	111 (27.5%)	212 (46.4%)	123 (44.9%)	<0.001
	1	263 (65.3%)	237 (51.9%)	141 (51.5%)	
	2	29 (7.2%)	8 (1.8%)	10 (3.6%)	
Runway Months		24.74 (110.95)	30.88 (85.81)	35.45 (133.83)	0.43
Operational distress (0/1)		294 (71.0%)	323 (69.2%)	194 (70.5%)	0.82
Log Assets		13.04 (1.47)	13.63 (1.40)	13.83 (1.32)	<0.001
Firm Age		2.68 (2.24)	3.07 (2.49)	3.07 (2.26)	0.016
Has Patents (0/1)		44 (9.7%)	69 (13.5%)	24 (8.1%)	0.030
High-tech Sector (ex. fin) (0/1)		309 (66.5%)	357 (70.0%)	194 (65.8%)	0.35
Local Financial Development		0.16 (0.04)	0.15 (0.05)	0.15 (0.05)	0.050

Data are presented as mean (SD) for continuous measures, and No. (%) for categorical measures. Groups are compared using Pearson's chi-square test.

across investor types (66.5% BA vs 70% VC), though patent ownership is lower among BA firms (9.7% vs 13.5%).

4 Empirical Framework

To test our hypotheses, we estimate the probability of Business Angel involvement in the firm's first equity financing round using a Probit model specification:

$$P(BA_{involved} = 1) = F(\alpha + \beta_1 UrgentCash_{i,t} + \beta_2 UrgentEquity_{i,t} + \beta_3 Distressed_{i,t} + X_{i,t} + \tau_t + \phi_j + \varepsilon_i)$$

where $BA_{involved}$ is a binary variable equal to 1 if firm i receives financing from a Business Angel (either alone or syndicated with VCs) in its first round. Our primary independent variables capture the two dimensions of financing urgency: $UrgentCash$ is a dummy variable equal to 1 if the firm's cash runway (cash and equivalents divided by monthly operating expenses) is less than 12 months; $UrgentEquity$ is a dummy variable equal to 1 if the firm reports negative shareholders'

equity. The latter condition triggers the mandatory recapitalization provisions of Art. 2482-ter of the Italian Civil Code, creating an immediate legal threat to survival.

We distinguish urgency from general operational quality by controlling for *Distressed*. Unlike the urgency measures, this variable incorporates lagged information where available: it flags firms with negative EBITDA or a revenue decline exceeding 10% relative to the previous year (or negative EBITDA in the current year for new firms). This ensures that our urgency measures capture the specific time-sensitivity of the funding need rather than general underperformance. The vector X includes standard firm-level controls: Log Assets, Firm Age, and Patent Ownership. We also control for *LocalFinancialDevelopment* (Guiso et al., 2004) and include year (τ_t) and industry fixed effects (ϕ_j). Standard errors are clustered at the regional level to account for geographic correlation in financing decisions.

A specific challenge in analyzing early-stage ventures is the lack of historical data: approximately 15% of the firms in our sample receive financing in their year of incorporation. Consequently, relying on lagged ($t - 1$) financial statements would result in a significant sample selection bias, excluding the youngest and potentially most urgent ventures. We therefore utilize financial data from the fiscal year of the investment ($t = 0$).

The impact of this methodological choice is partially mitigated by the pronounced seasonality of venture capital activity. Industry data consistently shows that, on average, 60% of deal closings are concentrated in the second half of the year.⁴ This effect is compounded by administrative lead times: the formalization of an equity injection requires notarized deeds and registration with the Business Register (Registro delle Imprese), a process that often delays the actual cash disbursement and accounting recognition until the very end of the fiscal year or the beginning of the next. Consequently, we believe that, for a substantial portion of our sample, the year-end financial

⁴Based on AIFI statistics for the 2018-2024 period, the proportion of deals closed in the second half (H2) ranged from 54% (2023) to 74% (2020). Data available at: <https://www.aifi.it/it/private-equity-e-venturecapital>

statements at $t = 0$ might capture the pre-investment operational status (burn rate and equity erosion) that triggered the financing decision, rather than the post-investment relief.

While using concurrent financial data typically raises concerns about reverse causality, in our setting this approach introduces a conservative bias that strengthens our findings. Successful equity financing mechanically increases a firm’s cash balance and shareholder equity. Thus, if reverse causality were driving the results, we would expect funded firms to appear less urgent (higher cash, positive equity) in their year-end statements. The fact that we observe a strong positive association between BA financing and urgency measures (low cash, negative equity) despite this “post-money” improvement suggests that the true pre-investment urgency was even more acute. Our estimates can therefore be interpreted as a lower bound of the true effect.

In the robustness test, we try to highlight how this decision affects the results and discuss alternative interpretations. Nevertheless, we will expand our empirical analysis with further robustness tests to fully address this concern.

5 Results and Discussion

Table 4 presents the probit estimates for the probability of Business Angel involvement in the firm’s first equity financing round. The dependent variable is a binary indicator equal to 1 if a BA is involved (either alone or syndicated) and 0 if the round is entirely funded by VCs. We report coefficients in the table and discuss economic magnitudes using Average Marginal Effects (AME) reported in Table 5.

We focus first on Column (1), our baseline specification. Consistent with Hypothesis 1, financing urgency is a strong and positive predictor of BA choice. Cash-constrained firms (runway < 12 months) are 10.4 percentage points more likely to receive BA financing ($p < 0.05$). Given the baseline BA probability of 60.4%, this represents a 17.2% increase. Similarly, firms with negative equity, which triggers the mandatory recapitalization requirements of Art. 2482-ter, are 19.6 percentage points more likely to choose a BA ($p < 0.01$), a 32.5% increase over the baseline.

Table 4: Baseline Estimates

VARIABLES	(1) BA Involved	(2) BA Involved	(3) BA Involved	(4) BA vs VC	(5) BA vs VC
Urgent Cash (0/1)	0.230** [2.47]	0.226** [2.53]		0.412*** [3.83]	0.406*** [3.80]
Urgent Equity (0/1)	0.527*** [4.12]	0.534*** [4.21]		0.646*** [4.19]	0.647*** [4.17]
Urgency Index == 1			0.220** [2.39]		
Urgency Index == 2			0.803*** [4.00]		
Distressed (0/1)		-0.002 [-0.02]	-0.003 [-0.03]	-0.065 [-0.77]	-0.056 [-0.65]
Tangibility	0.451** [2.23]	0.465** [2.27]	0.462** [2.25]	0.718*** [2.91]	0.731*** [3.01]
Log Assets	-0.047 [-1.48]	-0.044 [-1.35]	-0.044 [-1.35]	-0.153*** [-3.59]	-0.152*** [-3.55]
Firm Age	-0.024 [-1.27]	-0.023 [-1.22]	-0.023 [-1.21]	-0.030 [-1.13]	-0.028 [-1.06]
Has Patents (0/1)	-0.277 [-1.55]	-0.280 [-1.54]	-0.277 [-1.53]	-0.177 [-0.76]	-0.177 [-0.76]
Local Fin. Dev.	0.733 [1.05]	0.730 [1.03]	0.709 [1.01]	1.826*** [2.63]	
Constant	1.154*** [2.90]	1.136*** [2.69]	1.141*** [2.69]	2.298*** [4.45]	2.565*** [4.97]
Observations	1,130	1,117	1,117	847	847
SE Cluster	region	region	region	region	region
Fixed Effects	Y/I	Y/I	Y/I	Y/I	Y/I/R
Pseudo R ²	0.0552	0.0552	0.0555	0.134	0.131
Log Likelihood	-720	-712.2	-712	-507	-508.4

Probit estimates with standard errors clustered at regional level. T-statistic is reported in brackets, *** p<0.01, ** p<0.05, * p<0.1.

These urgency effects are economically large compared to standard firm characteristics. For context, a one-standard-deviation increase in firm size (log assets) decreases BA probability by only 2.3 pp (p=0.12, n.s.), while patent ownership decreases it by 9.2 pp (p=0.14, n.s.). This suggests that immediate survival constraints dominate traditional quality or innovation measures in determining early-stage investor selection.

We also find strong support for Hypothesis 4 regarding collateral. The coefficient for *Tangibility* is positive and significant across all specifications ($\beta = 0.451$, $p < 0.05$ in Column 1). This indicates that firms with higher asset tangibility are more likely to secure BA financing, consistent with our model's prediction that liquidation values (L and P) relax the angel's participation constraint by providing downside protection. Column (2) adds a control for operational distress (negative

Table 5: Baseline Estimates - Average Marginal Effects

VARIABLES	(1) BA Involved	(2) BA Involved	(3) BA Involved	(4) BA vs VC	(5) BA vs VC
Urgent Cash (0/1)	0.084** [2.47]	0.083** [2.52]		0.141*** [3.89]	0.139*** [3.86]
Urgent Equity (0/1)	0.192*** [4.14]	0.195*** [4.24]		0.220*** [4.28]	0.221*** [4.25]
Urgency Index == 1			0.082** [2.35]		
Urgency Index == 2			0.268*** [4.61]		
Distressed (0/1)		-0.001 [-0.02]	-0.001 [-0.03]	-0.022 [-0.77]	-0.019 [-0.65]
Tangibility	0.164** [2.26]	0.169** [2.30]	0.168** [2.29]	0.245*** [2.95]	0.250*** [3.05]
Obs.	1,130	1,117	1,117	847	847
SE Cluster	region	region	region	region	region
Fixed Effects	Y/I	Y/I	Y/I	Y/I	Y/I/R
Specification	AME	AME	AME	AME	AME
Pseudo R ²	0.0552	0.0552	0.0555	0.134	0.131
Log Likelihood	-720	-712.2	-712	-507	-508.4

Average marginal effects based on the Probit estimates presented in Table 4. Standard errors are clustered at the regional level. t-statistics in brackets. *** p<0.01, ** p<0.05, * p<0.1.

EBITDA or revenue decline). The coefficient is small and statistically insignificant ($\beta = -0.002$), while the urgency variables remain robust. This confirms that the mechanism driving BA choice is specifically time-sensitive survival risk (liquidity and solvency), not general operational under-performance.

Column (3) employs a composite urgency index to test the cumulative effect of these constraints. The results reveal a striking non-linearity: while facing a single constraint (Index=1) significantly increases the likelihood of BA financing ($\beta = 0.220$), facing simultaneous liquidity and solvency crises (Index=2) nearly quadruples the coefficient ($\beta = 0.803$). This suggests that urgency constraints are compounding: when a firm is both illiquid and legally insolvent, the “flight to safety” toward Business Angels becomes the overwhelming dominant strategy.

In Columns (4) and (5), we restrict the sample to the two main financing choices, excluding syndicated deals. Column (4) shows that the effects of urgency are even stronger: cash urgency and negative equity increase the probability of choosing a BA over a VC by substantial margins. Notably, in this binary setting, *Log Assets* becomes significant and negative, confirming that VCs

prefer larger, more mature entities when they invest alone.

Finally, Column (5) introduces region fixed effects to absorb unobserved geographic heterogeneity (absorbing the *Local Financial Development* variable). The stability of the coefficients confirms that our results are not driven by the clustering of VCs in specific financial hubs, such as Milan.

Collectively, these results strongly support the theoretical predictions of our model: financing urgency, whether operational or institutional, acts as a binding constraint that forces entrepreneurs to accept the immediate liquidity provided by Business Angels.

Table 6: Heterogeneity and Robustness

VARIABLES	(1) Quality	(2) Quality	(3) Size	(4) Tangibility	(5) BA + VC	(6) BA vs VC
Urgent Cash (0/1)	0.241*** [2.60]	0.343* [1.85]	0.245*** [2.76]	0.269*** [3.07]	-0.114 [-1.21]	0.422*** [3.80]
High Quality (0/1)	-0.210 [-0.81]	-0.122 [-0.39]	-0.210 [-0.81]	-0.211 [-0.81]	-0.165 [-0.75]	-0.164 [-0.57]
High Quality * Urgent Cash		-0.132 [-0.86]				
Urgent Equity (0/1)	0.498*** [3.91]	0.499*** [3.89]	0.482*** [3.67]	0.500*** [4.00]	-0.015 [-0.07]	0.573*** [3.60]
Distressed (0/1)	0.003 [0.03]	0.005 [0.06]	-0.003 [-0.03]	0.003 [0.04]	0.073 [0.89]	-0.070 [-0.84]
Tangibility	0.475** [2.56]	0.479*** [2.64]	0.488*** [2.63]	0.534* [1.78]	-0.240* [-1.82]	0.765*** [3.37]
Urgent Cash * Tangibility				-0.091 [-0.26]		
Log Assets	-0.054 [-1.58]	-0.053 [-1.56]		-0.053 [-1.64]	0.141*** [4.47]	-0.166*** [-3.81]
Log Asset (centered)			-0.018 [-0.43]			
Urgent Cash * Log Asset (cntrd)			-0.058 [-1.03]			
Firm Age	-0.024 [-1.26]	-0.024 [-1.25]	-0.023 [-1.23]	-0.025 [-1.25]	0.003 [0.22]	-0.033 [-1.31]
Constant	1.393*** [3.52]	1.314*** [3.21]	0.657*** [2.81]	1.366*** [4.20]	-3.174*** [-7.17]	2.786*** [5.78]
Obs.	1,117	1,117	1,117	1,117	1,096	847
Fixed Effects	Y/I/R	Y/I/R	Y/I/R	Y/I/R	Y/I/R	Y/I/R
Pseudo R ²	0.0668	0.0671	0.0674	0.0668	0.0694	0.148

Probit estimates with standard errors clustered at regional level. T-statistic is reported in brackets, *** p<0.01, ** p<0.05, * p<0.1.

In Table 6, we examine whether the effect of financing urgency varies across different types of firms. Column 1 first confirms that our main results are robust to the inclusion of a composite

High Quality indicator (capturing patents and high-tech status). Notably, the direct effect of quality is insignificant, while urgency remains the dominant predictor, reinforcing the view that survival constraints override standard quality signals in this context.

In Columns 2 through 4, we test for heterogeneity by interacting cash urgency with firm quality, size, and asset tangibility. Across all three specifications, the interaction terms are statistically indistinguishable from zero, while the direct effect of urgency remains positive and significant. This null result on the interactions is theoretically significant: it supports Lemma 2, suggesting that financing urgency acts as a universal binding constraint. When a firm faces a liquidity crisis, the pressure to secure immediate funding applies equally to “Unicorns” (high quality) and standard ventures, and to large and small firms alike. The “fear” of project failure appears to level the playing field, forcing all urgent entrepreneurs toward the Business Angel market regardless of their specific characteristics.

Column 5 investigates the determinants of syndication (deals involving both BAs and VCs). Crucially, neither cash urgency nor negative equity predicts syndication. Instead, syndication is strongly predicted by *Log Assets* ($\beta = 0.141$, $p < 0.10$) and negatively associated with *Tangibility* ($\beta = -0.240$, $p < 0.10$). This indicates that while urgency drives the source of funds (pushing firms toward BAs), it does not dictate the structure of the deal. Syndicates appear to form around larger, intangible-asset-heavy firms where risk-sharing between investors is beneficial, whereas urgent firms simply seek the nearest available lifeline.

Finally, Column 6 restricts the sample to the sharpest choice: pure BA versus pure VC financing. In this clean subsample, the coefficients for both cash urgency and negative equity increase in magnitude and significance, confirming that our findings are not driven by the ambiguity of mixed financing rounds.

In summary, the empirical evidence presented in Table 4 and Table 6 provide robust sup-

port for our core theoretical predictions. The persistent significance of liquidity and solvency constraints across all specifications, and their resilience to the inclusion of quality and size controls, provides decisive support for H1 (The Urgency Hypothesis). Furthermore, the consistent positive association between asset tangibility and BA involvement validates H4 (The Collateral Effect), confirming that liquidation values play a critical role in relaxing the angel’s participation constraint. Finally, regarding H3, the insignificance of the interaction terms in this specification points toward the dominance of the survival motive (Lemma 2): while project quality and size may influence investor choice in normal times, financing urgency acts as a universal binding constraint that overrides standard firm heterogeneity, shifting priorities toward Business Angels regardless of the venture’s potential.

5.1 Robustness Test

The decision to rely on financial data at $t = 0$ raises a potential concern regarding the direction of causality. It is possible that all firms have equal level of urgency at $t = -1$ and they are randomly financed by BAs or VCs. In $t = 0$, BA-backed firms appear urgent because Business Angels provide smaller capital injections than Venture Capitalists. In this scenario, if BAs are unable to fully resolve the target’s financial distress due to capital constraints, the observed correlation would reflect the difference in investment magnitude rather than ex-ante sorting.

The decision to rely on financial data at $t = 0$ raises a potential concern regarding the direction of causality. It is possible that all firms have equal levels of urgency ex-ante ($t = -1$) and are randomly financed by BAs or VCs. In this scenario, BA-backed firms might appear urgent at $t = 0$ simply because Business Angels provide smaller capital injections than Venture Capitalists. If BAs are unable to fully resolve the target’s financial distress due to capital constraints, the observed correlation would reflect the difference in investment magnitude (the “efficiency gap”) rather than ex-ante sorting.

Table 7 presents a series of robustness checks and mechanism tests designed to rule out alternative explanations related to deal efficiency and sample selection.

In Columns 1 and 2, we employ an Ordered Probit estimator to exploit the full granularity of investor types, defining the outcome on an ordinal scale from Venture Capital (1) to Syndicates (2) to Business Angels (3). Column 1 confirms that *Urgent Cash* and *Urgent Equity* significantly shift the financing outcome toward the Angel end of the spectrum ($p < 0.01$) in the full sample. Crucially, Column 2 introduces *Log Amount* to explicitly control for the size of the investment. Although *Log Amount* is negative and significant—confirming that larger deals are associated with VCs, *Urgent Equity* remains positive and highly significant ($p < 0.01$). *Urgent Cash* also retains significance ($p < 0.1$), indicating that the sorting of urgent firms to BAs is not merely a mechanical proxy for smaller check sizes.

Column 3 addresses concerns regarding the reliability of deal data by restricting the sample to firms exhibiting an “Implied Investment”, which is defined as a year-over-year increase in equity exceeding 5% of total assets.⁵ In this restricted subsample of confirmed, substantial capital raises, *Urgent Equity* remains positive and significant ($p < 0.05$). The significance of *Urgent Cash* fades in this specification, which is expected: firms selected for having successfully executed large capital injections have likely resolved their immediate cash runway constraints by year-end. However, the persistence of the equity result confirms that BAs are the primary investors willing to back firms emerging from deep insolvency.

Column 4 tests the timing of the urgency signal by using lagged independent variables ($t = -1$). The coefficients for lagged urgency are statistically insignificant, whereas *Tangibility* remains positive and significant. This partially supports our decision to focus on $t = 0$: the urgency driving BA financing is a recent, acute crisis (θ) rather than a chronic performance issue.

Finally, Column 5 presents the strictest test: a Propensity Score Matched sample of BA versus VC choices (excluding syndicated deals among the two), explicitly controlling for *Log Amount*. In this specification, the results are strongest: *Urgent Cash* is significant at the 5% level and *Urgent*

⁵Vanacker, Tom and Seghers, Arnout and Manigart, Sophie (2012)

Equity at the 1% level. This confirms that when comparing firms matched on observable characteristics (size and age), those facing liquidity or solvency crises are systematically and significantly more likely to be funded by Business Angels.

Table 7: Robustness

VARIABLES	(1) Baseline	(2) Amount Invested	(3) Implied Deal	(4) Lagged	(5) PSM
Urgent Cash (0/1)	0.299*** [3.79]	0.160* [1.78]	0.076 [0.69]		0.277** [1.99]
L.Urgent Cash (0/1)				0.076 [0.80]	
Urgent Equity (0/1)	0.496*** [4.01]	0.721*** [4.11]	0.442** [2.27]		0.939*** [3.73]
L.Urgent Equity (0/1)				-0.225 [-1.11]	
Log Amount		-0.227*** [-8.69]			-0.269*** [-6.77]
Distressed (0/1)	-0.027 [-0.37]	0.077 [1.07]	-0.128 [-1.24]		0.061 [0.71]
L.Distressed (0/1)				0.004 [0.04]	
Tangibility	0.563*** [2.91]	0.645*** [4.13]	0.228 [0.86]	0.528*** [3.33]	0.801*** [3.66]
Log Assets	-0.103*** [-2.98]	0.064 [1.57]	-0.004 [-0.12]	-0.035 [-0.91]	0.060 [1.13]
Firm Age	-0.025 [-1.25]	-0.023 [-1.03]	-0.017 [-0.34]	-0.074** [-2.50]	-0.044 [-1.35]
Local Fin. Dev.	1.208** [2.16]	1.365** [2.05]	0.838 [1.02]	1.447** [2.20]	1.554* [1.72]
Constant				1.203** [2.38]	1.153* [1.90]
Obs.	1,117	973	604	886	714
SE Cluster	region	region	region	region	region
Fixed Effects	Year/Industry	Year/Industry	Year/Industry	Year/Industry	Year/Industry
Pseudo R ²	0.0642	0.0987	0.0255	0.0549	0.1900
Log Likelihood	-1125.7	-953.6	-632.8	-560.6	-400.9

Columns from 1 to 3 are Ordered Probit estimates, columns 4-5 are Probit estimates. Standard errors are clustered at regional level, T-statistic is reported in brackets, *** p<0.01, ** p<0.05, * p<0.1.

6 Conclusions

This paper revisits the classic “Rich versus King” dilemma in entrepreneurial finance by introducing a critical third dimension: time. While the existing literature has largely focused on the trade-off between valuation and value-added services, we demonstrate that for many early-stage ventures, the primary driver of the financing decision is the urgency to secure survival. We develop a theoretical model that formalizes the trade-off between the immediate availability of seed funding from Business Angels and the potentially superior terms but uncertain timing of Venture Capital. Our model yields two key insights. First, the decision to accept BA financing is driven by the opportunity cost of failure: entrepreneurs with high-potential projects (Unicorns”) are rationally willing to accept the valuation penalty (“pooling tax”) of angel financing when faced with urgency, as they have the most to lose from “dying on the vine”. Second, when urgency becomes acute, it acts as a binding constraint that overrides standard quality signals, forcing a flight to safety. Empirically, we validate these predictions using a comprehensive dataset of Italian early-stage investments. We exploit the strict capital maintenance rules of the Italian Civil Code (Art. 2482-ter) to construct a precise measure of “institutional urgency”, defined as a state of negative equity that mandates immediate recapitalization or liquidation. Our results are robust and economically significant:

1. **The Urgency Channel:** Firms facing liquidity constraints (short cash runway) or legal insolvency (negative equity) are significantly more likely to choose Business Angels over Venture Capitalists. This result holds even when comparing angel deals against VC deals and controlling for the size of the investment, ruling out the alternative explanation that BAs simply provide smaller, less efficient capital injections.
2. **The Collateral Channel:** We find a persistent positive association between asset tangibility and BA financing. This confirms that liquidation values play a structural role in the angel market, acting as a substitute for the institutional screening mechanisms used by VCs.
3. **Selection vs. Treatment:** Our robustness checks, including Propensity Score Matching and split-sample analyses, confirm that these results are driven by ex-ante sorting. VCs ap-

pear to systematically screen out firms with deep legal or liquidity distress, leaving Business Angels to act as the primary liquidity providers for urgent ventures.

Our findings have important implications for both policy and practice. For policymakers, this study highlights the structural complementarity between the angel and VC markets. Business Angels do not merely “emulate” VCs on a smaller scale; they perform a distinct function as providers of liquidity insurance, absorbing survival risks that institutional investors are mandated to avoid. Policies that incentivize angel investing (such as tax breaks for seed investments) are therefore crucial not just for fostering innovation, but for preventing the premature liquidation of viable but distressed high-growth ventures. For entrepreneurs, our model provides a rational framework for navigating fundraising crises. It suggests that accepting the “expensive” terms of a Business Angel during a liquidity crunch is not necessarily a signal of low quality, but often a rational strategy to preserve the option value of the venture. Future research could further explore how this earlyurgency discount” affects the long-term capitalization table and exit outcomes of these firms.

References

- Andrieu, Guillaume, and Alexander Peter Groh.** 2012. “Entrepreneurs’ financing choice between independent and bank-affiliated venture capital firms.” *Journal of Corporate Finance* 18 (5): 1143–1167.
- Andrieu, Guillaume, and Alexander Peter Groh.** 2018. “Specialist versus generalist investors: Trading off support quality, investment horizon and control rights.” *European Economic Review* 101 459–478.
- Bronzini, Raffaello, Gianpaolo Caramellino, and Silvia Magri.** 2020. “Venture capitalists at work: A diff-in-diff approach at late-stages of the screening process.” *Journal of Business Venturing* 35 (3): 105968.
- Capizzi, Vincenzo, Annalisa Croce, and Francesca Tenca.** 2022. “Do business angels’ investments make it easier to raise follow-on venture capital financing? An analysis of the relevance of business angels’ investment practices.” *British Journal of Management* 33 (1): 306–326.
- Cavallo, Angelo, Antonio Ghezzi, Claudio Dell’Era, and Elena Pellizzoni.** 2019. “Fostering digital entrepreneurship from startup to scaleup: The role of venture capital funds and angel groups.” *Technological Forecasting and Social Change* 145 24–35.
- Chemmanur, Thomas J, and Zhaohui Chen.** 2014. “Venture capitalists versus angels: The dynamics of private firm financing contracts.” *The Review of Corporate Finance Studies* 3 (1-2): 39–86.
- Cipollone, Angela, and Paolo E Giordani.** 2019. “Entrepreneurs meet financiers: Evidence from the business angel market.” *Journal of Business Venturing* 34 (5): 105913.
- Davila, Antonio, George Foster, and Mahendra Gupta.** 2003. “Venture capital financing and the growth of startup firms.” *Journal of Business Venturing* 18 (6): 689–708.

- Elitzur, Ramy, and Arie Gavious.** 2003. “Contracting, signaling, and moral hazard: a model of entrepreneurs, ‘angels,’ and venture capitalists.” *Journal of Business Venturing* 18 (6): 709–725. [https://doi.org/10.1016/S0883-9026\(03\)00027-2](https://doi.org/10.1016/S0883-9026(03)00027-2).
- Fairchild, Richard.** 2011. “An entrepreneur’s choice of venture capitalist or angel-financing: A behavioral game-theoretic approach.” *Journal of Business Venturing* 26 (3): 359–374.
- Gompers, Paul.** 1995. “Optimal investment monitoring and the staging of venture capital.” *Journal of Finance* 50 (5): 1461–1490.
- Gompers, Paul, Anna Kovner, and Josh Lerner.** 2009. “Specialization and success: Evidence from venture capital.” *Journal of Economics & Management Strategy* 18 (3): 817–844.
- Guiso, Luigi, Paola Sapienza, and Luigi Zingales.** 2004. “Does local financial development matter?” *The Quarterly Journal of Economics* 119 (3): 929–969.
- Hellmann, Thomas, Paul Schure, and Dan H Vo.** 2021. “Angels and venture capitalists: Substitutes or complements?” *Journal of Financial Economics* 141 (2): 454–478.
- Hellmann, Thomas, and Veikko Thiele.** 2015. “Friends or foes? The interrelationship between angel and venture capital markets.” *Journal of Financial Economics* 115 (3): 639–653.
- Kerr, William R, Ramana Nanda, and Matthew Rhodes-Kropf.** 2014. “Entrepreneurship as experimentation.” *Journal of Economic Perspectives* 28 (3): 25–48.
- Kim, Jin-Hyuk, and Liad Wagman.** 2016. “Early-stage entrepreneurial financing: A signaling perspective.” *Journal of Banking & Finance* 67 12–22.
- Lerner, Josh, Antoinette Schoar, Stanislav Sokolinski, and Karen Wilson.** 2018. “The globalization of angel investments: Evidence across countries.” *Journal of Financial Economics* 127 (1): 1–20.
- Maus, Christoph, Andrea Greven, Niklas Kurth, and Malte Brettel.** 2024. “How do investor characteristics of business angels and venture capitalists predict the occurrence of co-investments?” *Journal of Business Economics* 94 (5): 763–811.

- Pelucco, Valerio, and Silvio Vismara.** 2025. “Where do angels come from?” *Journal of Corporate Finance* 102815.
- Rodano, Giacomo, Nicolas Serrano-Velarde, and Emanuele Tarantino.** 2016. “Bankruptcy law and bank financing.” *Journal of Financial Economics* 120 (2): 363–382.
- Schwienbacher, Armin.** 2007. “A theoretical analysis of optimal financing strategies for different types of capital-constrained entrepreneurs.” *Journal of Business Venturing* 22 (6): 753–781.
<https://doi.org/10.1016/j.jbusvent.2006.07.003>.
- Schwienbacher, Armin.** 2013. “The entrepreneur’s investor choice: The impact on later-stage firm development.” *Journal of Business Venturing* 28 (4): 528–545.
- Vanacker, Tom and Seghers, Arnout and Manigart, Sophie.** 2012. “Follow-on financing of venture capital backed companies.” In *The Oxford handbook of entrepreneurial finance*, edited by Cumming, Douglas 373–400, Oxford University Press, , <http://doi.org/10.1093/oxfordhb/9780195391596.013.0013>.
- Wasserman, Noam.** 2006. “Rich vs king: The entrepreneur’s dilemma.” In *Academy of Management Proceedings*, Volume 2006. 1–6, Academy of Management Briarcliff Manor, NY 10510.