

Equity or Independence: Capital Structure Decisions for Two Scaling SMEs in the Dallas-Fort Worth Innovation Ecosystem

Classroom Teaching Case Study

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Abstract: In January 2026, the founders of two Dallas-Fort Worth technology firms received identical term sheets from the same growth fund: \$12 million at a \$60 million post-money valuation, expiring in ten days. Maya Reyes leads Caprock Cyber-Physical Systems, a defense technology firm whose federally validated security platform faces overseas demand it cannot fund, at a moment when the federal SBIR program's authorization has lapsed and frozen her non-dilutive pathway. Daniel Okafor leads Helioterra Systems, a solar technology firm with established commercial economics whose international expansion depends on a seven-figure investment in global talent acquisition. The case places students inside both decisions simultaneously and asks them to determine when and whether an innovation-driven small or medium-sized enterprise should exchange equity for the capital to scale globally. Students apply signaling theory, the resource-based view, and real options reasoning to three viable capital pathways. No pathway is presented as correct.

Keywords: Access to Capital, Innovation-Driven, Signaling Theory, Resource-Based View, SBIR, Staged Financing, Dynamic Capabilities, Capital Structure

PART I: Teaching Case

The Ten-Day Window

The term sheet had been sitting unsigned in Maya Reyes's inbox since Monday, and it will expire in ten days. It was the second week of January 2026, and the offer to Caprock Cyber-Physical Systems was \$12 million at a \$60 million post-money valuation. Twenty percent of the company she had spent six years building, in exchange for the capital to field her austere environment security platform at three overseas installations her largest defense customer wanted operational by the next fiscal year. Fifteen weeks earlier, the decision would have been easier to refuse. But congressional authorization for the SBIR program had lapsed on September 30, and no new federal awards were moving. Her Phase II funding had validated the prototype; it could not fund the expansion. The pathway she had always assumed would carry Caprock to commercialization was, for the moment, legally frozen, and nobody in Washington could tell her when it would be free. Thirty miles west in Fort Worth, Daniel Okafor was reading an identical document from the same Dallas growth fund. Same twelve million. Same valuation. Same ten days. Helioterra Systems had what Caprock lacked: proven unit economics and paying commercial customers. It lacked what Caprock had: government validation. His constraint was people. Helioterra's international expansion depended on recruiting power electronics engineers from emerging talent markets faster than better-capitalized competitors, and the recruiting and compliance infrastructure alone carried a seven-figure price. The two founders had never met. By the end of January, each would sign or decline, and each could reasonably justify doing the opposite of the other.

Organizational Context

Early-stage capital in the United States entered 2026 priced at decade-high levels. The median Series A deal reached \$14.0 million against a median pre-money valuation of \$46.5 million through the third quarter of 2025, and by the fourth quarter the median Series A post-money

valuation had climbed to \$78.7 million, up 37 percent in a single year, while founder dilution held near its historical band of 19 to 20 percent (Carta, 2026; PitchBook-NVCA, 2025). Much of the premium flowed to artificial intelligence companies. For firms outside that category, including defense hardware and clean energy companies, headline medians overstated what the market would actually pay. The term sheets in front of Reyes and Okafor sat below the national median, which each founder read differently: fair pricing for non-AI risk, or an opening position that undervalued what they had built. National venture medians are not direct comparables. Sector, revenue, intellectual property, regulatory exposure, geography, customer concentration, and governance terms each carry more influence on valuation than headline benchmarks suggest.

The growth fund's managing partner described the reasoning behind offering identical terms to two materially different firms: "We are not saying the companies are identical. We are saying our risk-adjusted view of their next-stage opportunity supports the same ownership target." The fund's standard range is \$10 million to \$15 million for approximately 20 percent ownership in companies it believes could reach a defined revenue threshold within five years. Caprock's government-tested intellectual property and deployment opportunity represented a comparable risk-adjusted position to Helioterra's commercial traction and improving unit economics.

Dallas-Fort Worth ranks among the fastest-expanding innovation ecosystems in the United States, hosting more than 400 active startups and a venture community that raised more than \$3.8 billion in startup funding in the most recent reporting period (Dallas Regional Chamber, 2025). Federal non-dilutive funding, the traditional counterweight to equity for deep technology firms, had gone dark: SBIR and STTR authorizations expired on September 30, 2025, halting new awards across all federal agencies, with no reauthorization date in sight.

Caprock Cyber-Physical Systems, Dallas

Caprock Cyber-Physical Systems designs integrated physical and network security systems that protect defense personnel operating from austere locations, sites with limited infrastructure, unreliable power, and elevated threat exposure. Founded in 2020, the firm employs 34 people in Dallas, two-thirds of them engineers, a majority holding federal security clearances. Caprock's development has been financed almost entirely through the federal SBIR pipeline: a Phase I feasibility award followed by a Phase II award near the program's typical ceiling. Phase II validated the platform in field trials and produced the firm's most valuable assets: government-tested intellectual property and a workforce cleared to deploy it. What Phase II could not do, by design, is fund commercialization. That gap between a working prototype and a fielded product is where Caprock now stands, with its largest defense customer requesting deployment at three overseas installations and the SBIR pathway frozen.

Caprock's constraints compound each other. Revenue is thin and concentrated, drawn from the completed Phase II contract and two small pilot agreements. The clearance requirement that makes the workforce valuable also makes it expensive and slow to replace, so a hiring surge for overseas deployment cannot be improvised. Export control and security regulations govern where the platform can operate and who can service it, adding compliance costs to every international move. The customer's fiscal year timeline is not negotiable from Caprock's side: if the firm cannot commit to fielding within the window, the requirement will be filled another way. One ethical tension sits inside the term sheet. The growth fund may push Caprock toward a lucrative dual-use commercial market as a way to accelerate revenue growth and justify the valuation. Reyes believes that pivot would divert cleared personnel from the defense deployment at the exact moment when those personnel are already scarce, plus the deployment window is closing.

Helioterra Systems, Fort Worth

Helioterra Systems manufactures high-efficiency power electronics for commercial solar installations. Founded in 2019, the firm employs 61 people in Fort Worth. Unlike Caprock, Helioterra grew on commercial revenue: trailing twelve-month sales of \$9.4 million across a

diversified customer base, with unit economics that improved in each of the last three years. The firm's growth ceiling is not demand and not validation; it is engineering talent. Power electronics expertise is scarce in every market Helioterra competes in, and the firm's expansion model depends on building recruiting pipelines in emerging talent markets, where OECD-classified economies produce strong engineering graduates faster than local industries absorb them. Standing up that pipeline, including international recruiting infrastructure, immigration and compliance capacity, and relocation support, carries a seven-figure cost before the first hire arrives.

Helioterra's constraints are the mirror image of Caprock's. The firm has revenue, but no government validation, commercial credibility but no sole-source pathway, and a talent strategy that regulators and competitors both complicate. Cross-border hiring exposes the firm to changing immigration policies and raises reputational concerns regarding recruiting from developing economies, issues that Okafor considers important and that his board frequently discusses. Better-capitalized competitors are recruiting in the same markets, and every quarter of delay narrows the window in which Helioterra's cost position is an advantage rather than a memory. A concrete ethical disagreement exists on Helioterra's board. The growth fund favors rapid bulk recruitment from a specific country whose public universities heavily subsidize engineering education, maximizing hire volume within the fund's return timeline. Helioterra's board favors a partnership model that includes local training programs, remote work options for engineers who prefer to stay, and structured return pathways for those who relocate. Accepting the fund's capital would give the investor a board seat and approval rights that could force a resolution of this disagreement on the fund's preferred terms.

Table 1. Key Actors and Decision Authority

Actor	Role	Decision Authority
Maya Reyes	Caprock founder and CEO	Negotiates the financing and recommends a course of action to the board
Caprock independent board director	Evaluates dilution, mission risk, and investor control provisions	Votes on board approval of any signed term sheet
Caprock COO and security officer	Evaluates deployment requirements, cleared staffing, export controls, and customer deadlines	Advises founder on operational feasibility of each option
Defense customer acquisition representative	Controls the deployment requirement window	Cannot approve financing but determines whether the deployment commitment remains available
Daniel Okafor	Helioterra founder and CEO	Negotiates the financing and recommends a course of action to the board
Helioterra CFO	Evaluates cash flow, debt-service capacity, and the cost of delay	Advises founder on financial feasibility of each option
Helioterra chief people officer	Evaluates the international recruiting plan, immigration compliance, and employee implications	Advises founder on talent strategy and ethical exposure
Helioterra board chair	Evaluates control, growth expectations, and investor alignment	Leads board deliberation and approval process
Growth fund managing partner	Negotiates both term sheets	Controls whether the offers remain available after ten days
Outside legal counsel	Advises both firms	Reviews governance provisions, protective covenants, security restrictions, and closing conditions

Source: Authorial construction

Note. Each founder recommends an option, but the company's board must approve the signed term sheet. A financing round of this size ordinarily requires board approval and may require shareholder consent depending on the company's governing documents.

Table 2. The Term Sheet: Material Terms

Term	Provision
Investment amount	\$12 million in preferred shares
Pre-money valuation	\$48 million
Post-money valuation	\$60 million (20% founder dilution at headline)
Board representation	One investor seat on a five-member board
Liquidation preference	One-times non-participating; investor recoups investment before founders receive proceeds in a sale or liquidation
Investor approval rights	New debt above a stated threshold; sale of the company; issuance of securities senior to preferred shares; major changes to the annual operating budget
Employee option pool	Ten percent post-closing pool required; a pre-money pool increase would cause actual founder dilution to exceed the headline 20%
No-shop provision	Thirty days from signing; founders may not solicit or discuss alternative financing during this period
Expected closing timeline	Within sixty days of signing, subject to satisfactory due diligence, final legal documentation, and board approval; signing the term sheet does not guarantee that the company receives the funds

Source: Authorial construction

Note. Both Caprock and Helioterra received these identical terms. The no-shop provision creates meaningful risk: a founder who signs and enters exclusivity may fail to close if diligence surfaces an issue. Caprock's due diligence may be particularly demanding, covering intellectual property ownership, government rights, export controls, and customer concentration.

The Problem

The core challenge facing both founders is a single question with two parallel instances: when, and on what terms, should an innovation-driven SME exchange ownership for the capital required to scale globally? The question is not whether each firm needs approximately twelve million dollars; both do, and both know it. The question is whether this capital, at this price, with this partner, now, is the version of the trade each firm should accept.

The financial dimension sets the frame. Accepting the term sheet prices each company at \$60 million post-money and costs the founding teams 20 percent ownership, in line with prevailing dilution norms but permanent regardless of how the market moves later (Carta, 2026). Actual dilution may exceed 20 percent if a pre-money option pool increase is required at closing (see Table 2). Declining preserves ownership yet leaves each firm funding expansion from operations that cannot support it at the required pace.

The strategic dimension cuts differently for each firm. For Caprock, capital determines whether the firm graduates from a federally funded developer to a fielded defense supplier before its customer chooses another solution. For Helioterra, capital determines whether the talent pipeline is built while the firm's cost advantage still holds. The non-price terms carry weight alongside valuation. The fund's board seat and approval rights would give an outside voice in decisions that currently move at the speed of one founder's judgment, including the ethical disagreements each board is already navigating.

The Decision Point

Three pathways are open to each founder. Each is viable, defensible, and costly in a different currency. Students must recommend a financing strategy for both firms and explain why identical terms should or should not produce identical decisions.

Option 1: Accept the Full Equity Offer

Which innovation activities, product deployment, process development, workforce expansion, and market entry are only feasible if the company secures significant capital promptly? Additionally, what implications does investor governance have on how these activities are carried out? Each company signs the \$12 million term sheet at a \$60 million post-money valuation. The fund expects to close within sixty days, subject to satisfactory due diligence, final legal documentation, and board approval.

Advantages

Each company receives the fastest path to full capital. Caprock can commit resources to the three-installation deployment while the customer requirement remains open. Helioterra can establish recruiting and compliance infrastructure before competitors secure the strongest candidates. The investment signals institutional validation to customers, employees, and future investors. Both firms gain an experienced board member and financial partner.

Disadvantages

The existing shareholders experience permanent dilution, with actual founder dilution potentially exceeding the headline 20 percent if a pre-money option pool is required. The fund receives a board seat and approval rights over significant decisions. The offer may undervalue the companies relative to their future potential. Signing the term sheet creates a thirty-day no-shop period without guaranteeing that closing will occur.

Firm-Specific Tension

Caprock has the more consumable customer opportunity and may place greater value on control over security-sensitive decisions. The fund may pressure Caprock to pursue a dual-use commercial market that would divert cleared personnel from the defense deployment. Helioterra may have more ability to wait or borrow because it has commercial revenue, but delay could weaken its talent advantage. Accepting the fund's capital would give the investor grounds to resolve the recruiting ethics disagreement on the fund's preferred timeline and methodology.

Option 2: Negotiate Staged or Hybrid Financing

Is it possible for the firm to fund innovation incrementally by piloting deployments, gradually expanding international hires, and testing market entry, all while maintaining flexibility, control, and learning before making a full commitment? Each founder counters with a smaller initial equity tranche combined with milestone-based additional funding, venture debt, customer financing, or strategic investment. For example, the structure might provide \$6 million at closing and \$6 million after a customer commitment, deployment milestone, hiring target, or revenue threshold.

Advantages

Immediate founder dilution can be reduced. Capital can be matched to the timing of actual needs. Milestones create additional information before the full ownership decision is made. The approach may preserve greater founder control and reduce the risk of raising more capital than the firm can deploy effectively. Helioterra's commercial revenue may support a debt component. A strategic customer or partner may provide industry value beyond capital.

Disadvantages

The fund may refuse to restructure and withdraw the offer. Milestone financing creates uncertainty about the second tranche. Debt introduces repayment obligations and financial covenants. Caprock's limited revenue may make venture debt expensive or unavailable. A complex financing package could delay the customer deployment or recruiting plan. Strategic investors may create conflicts involving exclusivity, intellectual property, or future markets.

Firm-Specific Tension

A hybrid structure is more financially feasible for Helioterra because its commercial revenue can support debt service. Caprock might seek customer-funded development or milestone payments, but those arrangements could introduce customer concentration or intellectual property restrictions.

Option 3: Decline and Execute a Six-Month Independence Plan

Can the firm preserve ownership while continuing to innovate through revenue-funded improvement, customer-funded development, and partnership-based capability building?

Each company declines the current offer and follows a written, time-limited plan intended to improve its bargaining position or reach the next milestone without institutional equity. Caprock would pursue signed customer commitments, contracting support, strategic partnerships, and any renewed federal pathways as SBIR reauthorization progresses. Helioterra would phase the talent initiative using operating cash flow, explore receivables or equipment financing, and begin with a limited first cohort of international hires through an agency model.

Advantages

The founders preserve ownership and governance control. The firms gain additional information about policy, customers, market demand, and execution capability. Successful milestones could support a higher future valuation. The companies avoid becoming institutionally financed before determining whether that model fits their identities and missions. The plan creates capital discipline.

Disadvantages

The current fund may not return after the ten-day window closes. Market valuations may decline. Caprock could lose the overseas deployment requirement to a competitor. Helioterra could lose access to scarce engineering talent. Future investors may interpret declining as evidence that the companies were unable to close funding. Both firms risk being undercapitalized at the exact point when speed matters most.

Firm-Specific Tension

Caprock's option to wait may expire with the customer's fiscal year window. Once the customer chooses another supplier, the option holds little residual value. Helioterra may have a longer operational runway, but its competitive advantage can erode gradually and become difficult to observe until the damage is already done.

Table 3. Comparative Firm Profiles, January 2026

Dimension	Caprock Cyber-Physical Systems	Helioterra Systems
Founded / Location	2020, Dallas, TX	2019, Fort Worth, TX
Employees	34; majority cleared engineers	61; manufacturing and engineering
Sector	Defense technology, cyber-physical security	Clean energy, solar power electronics
Revenue posture	Phase II contract (completed) plus two pilots; thin and concentrated	\$9.4 million trailing twelve months; diversified commercial base

Validation type	Federal: SBIR Phase I and II, field trials	Commercial: paying customers, improving unit economics
Core scarce resource	Cleared workforce; government-tested intellectual property	Power electronics engineering talent
Expansion constraint	Capital to field at three overseas installations within customer fiscal year	Seven-figure cost to build international talent pipeline
Cash on hand	\$1.4 million	\$2.3 million
Monthly burn rate	\$195,000	Operating cash flow positive; \$1.5 million trailing twelve months
Current runway	Approximately 7 months	Operating cash flow positive; runway extends beyond twelve months
Primary external dependency	SBIR reauthorization timing; customer requirement window	Immigration policy; competitor recruiting in same markets
Primary innovation profile	Gov't validated, dual use, deployment orientation innovation.	Commercial market facing, talent and scale-oriented innovation.

Source: Authorial construction; firm figures are fictional and internally consistent with market data in Table 4

Table 4. Financial Capacity Summary, January 2026

Item	Detail
Caprock Cyber-Physical Systems	
Cash on hand	\$1.4 million
Monthly burn rate	\$195,000
Estimated runway at current burn	Approximately 7 months
Current revenue sources	Completed Phase II contract (\$1.6 million); two active pilot agreements (\$310,000 combined)
Overseas deployment cost (3 installations)	Approximately \$9.5 million (equipment, cleared hires, logistics, compliance)
Required cleared technical hires for deployment	10 to 14 additional personnel
Export and security compliance cost	Approximately \$900,000
Gross margin on pilot agreements	Not applicable; fixed-price government contracts
Existing debt	None
Note	Actual founder dilution may exceed the headline 20% if a pre-money option pool increase is required at closing.
Helioterra Systems	
Cash on hand	\$2.3 million
Operating cash flow (trailing 12 months)	\$1.5 million
Gross margin (trailing 12 months)	38%
Current debt	None
Estimated annual debt-service capacity	Approximately \$900,000
International recruiting infrastructure cost (Year 1)	Approximately \$4.1 million
Working capital required for expansion	Approximately \$3.6 million
Projected international revenue (Year 2)	Approximately \$5.1 million
Note	The seven-figure talent pipeline cost represents recruiting, immigration, and onboarding infrastructure for the first cohort. Staged financing of \$6 million at closing and \$6 million after a hiring milestone may be feasible given Helioterra's revenue base.

Source: Authorial construction; figures are fictional and internally consistent with firm profiles in Table 3

Table 5. Use of Proceeds, \$12 Million Investment

Category	Caprock Cyber-Physical Systems	Helioterra Systems
Deployment equipment (3 installations)	\$4,300,000	N/A
Cleared technical hires (10-14 personnel, 12 months)	\$2,800,000	N/A
Overseas logistics and staging	\$1,500,000	N/A
Export controls and security compliance	\$900,000	N/A
International recruiting infrastructure	N/A	\$2,900,000
Immigration, visa, and legal support	N/A	\$1,200,000
Engineering hires (Year 1, approximately 18 positions)	N/A	\$3,500,000
Manufacturing working capital	N/A	\$2,100,000
Market entry and compliance	N/A	\$1,100,000
Working capital	\$1,400,000	N/A
Contingency reserves	\$1,100,000	\$1,200,000
Total	\$12,000,000	\$12,000,000

Source: Authorial construction; figures are fictional and internally consistent with Tables 3 and 4

Note. For Caprock, the full \$12 million is needed at or near closing to meet the deployment commitment window. For Helioterra, the initial pipeline cost is approximately \$4.1 million. Staged financing, with \$6 million at closing and \$6 million after a hiring milestone, may reduce early dilution while preserving the fund's ownership target. This exhibit is the basis for evaluating whether Option 2 (staged or hybrid financing) is operationally feasible for each firm. The categories map to distinct innovation activities: product and technology development, process and compliance systems, workforce and talent development, and market entry. Capital access determines which innovation activities a firm can pursue, not only how fast it grows.

Table 6. Capital Pathways Compared

Dimension	Option 1: Accept	Option 2: Negotiate Hybrid	Option 3: Decline and Execute Independence Plan
Dilution	20% at closing (potentially higher with option pool)	Reduced at closing; second tranche based on milestones	None in near term; future round pricing unknown
Control	Board seat and protective provisions ceded	Partially retained; lender covenants if debt included	Full control retained
Speed to capital	Fastest; targeted close in 60 days	Moderate; depends on negotiation and lender timeline	Slowest; gated by cash flow or Congress
Signal sent	Institutional validation	Sophistication or financial strain, receiver dependent	Capital discipline or unfundability, receiver dependent
Dominant risk retained	Permanent ownership cost; governance pressure	Uncertainty about second tranche; debt-service obligations	Reauthorization timing (Caprock); talent window closure (Helioterra)
Caprock feasibility	Highest near-term feasibility given thin revenue	Challenging; limited revenue weakens debt capacity	Customer window may expire before milestone plan pays off
Helioterra feasibility	Feasible; fastest path to talent pipeline	Likely feasible; commercial revenue supports debt	Feasible operationally; competitive talent risk accumulates gradually

Source: Authorial construction from case facts

Figure 1. Ten-Day Decision Timeline

Day	Activity and Milestone
Day 1	Term sheets received. Founders and boards receive the offers. The ten-day clock begins.
Day 2	Financial and legal review. Advisers calculate actual dilution, review governance provisions, identify closing conditions, and assess use-of-proceeds against Tables 4 and 5.
Day 3	Stakeholder assessment. Caprock confirms the customer's deployment deadline and security restrictions. Helioterra confirms the recruiting calendar, immigration lead times, and competitor activity.
Day 4	Board strategy meeting. Each board determines whether to accept the basic financing premise, prepare a counteroffer, or develop a six-month independence plan.
Day 5	Initial response to the fund. Founders indicate preliminary acceptance, submit a structured counterproposal, or advise the fund that they are evaluating alternatives.
Day 6	Alternative capital indications. Caprock receives preliminary feedback from a strategic partner or customer-financing source. Helioterra receives preliminary debt terms based on its commercial revenue.
Day 7	Risk review. Boards examine downside scenarios, including failure to close, missed deployment, delayed hiring, employee departures, and adverse market movement.
Day 8	Final negotiation. The fund responds to requested changes on valuation, board rights, option-pool treatment, milestone triggers, and investor approval rights.
Day 9	Final board meeting. Each founder presents a recommendation, a fallback plan, and implementation milestones.
Day 10	Decision deadline. Boards approve one of the three options. Founders notify the fund.

Source: Authorial construction

Note. External deadlines beyond Day 10 will shape the value of each option. These include the defense customer's commitment date, the first deployment date, Helioterra's recruiting-launch window, and each firm's cash-runway limit shown in Table 4.

Figure 2. Three-Option Comparison at a Glance

Criterion	Option 1: Accept	Option 2: Negotiate Hybrid	Option 3: Decline
What the company gets	\$12M capital now; institutional partner; fastest execution	Reduced dilution: capital staged to need; partial partner	Full ownership; full control; no investor obligations
What the company gives up	20% ownership (possibly more); governance rights; no-shop period	Some ownership; milestone uncertainty; debt service if debt included	Current fund offer; speed advantage; possible signal of weakness
Best suited for	Caprock if customer window is perishable and non-dilutive pathway is closed; Helioterra if talent competition requires immediate infrastructure	Helioterra if revenue supports debt; Caprock if a strategic or customer partner can co-fund deployment	Helioterra if runway permits phased approach; Caprock only if customer window can be extended
Biggest failure mode	Diligence failure after signing no-shop; governance conflict post-close	Fund withdrawal; milestone not achieved; debt default	Customer loss; talent window closes; future investors interpret declining as unfundability
Irreversibility	High: dilution is permanent	Moderate: second tranche preserves some optionality	Low near-term: optionality preserved, but opportunity decay may be irreversible

Source: Authorial construction

Learning Outcomes

By the end of this case, students should be able to:

- Evaluate a growth equity term sheet against verified market benchmarks and articulate what the pricing communicates in both directions.
- Apply signaling theory to explain how accepting, declining, or negotiating institutional capital is interpreted by future investors, customers, and talent markets, with named senders, signals, and receivers.
- Use the resource-based view to explain why identical financial terms carry different strategic value for firms holding different resource endowments.
- Apply real options reasoning to evaluate a time-bounded independence plan under regulatory and market uncertainty.
- Analyze the governance and ethical dimensions embedded in a term sheet's non-price provisions.
- Construct a defensible capital structure recommendation for both founders that integrates financial, strategic, organizational, and ethical considerations.

Discussion Questions

1. Caprock and Helioterra received matching term sheets. Using the resource-based view, explain why the same \$12 million at the same valuation is not the same deal for both firms. Which firm's resource endowment makes equity capital more valuable, and which makes it more dangerous?
2. Through signaling theory, analyze Option 3 for each firm separately. Under what conditions does declining institutional capital signal discipline, and under what conditions does it signal unfundability? Who are the receivers of each signal, and why does the receiver determine the meaning?
3. The SBIR authorization lapse converted Caprock's non-dilutive pathway into a bet on congressional timing. Apply real options reasoning to Option 3 for Caprock: what is Reyes buying if she declines, what is she paying, and at what point does the option expire worthless?
4. The federal program's newest transition mechanisms require recipients to secure private matching capital. If non-dilutive funding increasingly requires dilutive capital as a credential, what is a defense technology founder actually choosing between? What does this policy design imply about how the government reads private investment signals?
5. The growth fund and Helioterra's board hold opposing views on how international recruiting should be designed. How should the source of expansion capital change the way Helioterra structures its talent strategy, if at all? Does accepting the fund's terms transfer ethical responsibility, or does it make existing obligations more visible?
6. Construct and defend a recommendation for both founders. Your defense must identify the resource each option activates, the uncertainty each option transfers, the uncertainty each option retains, and why the firm is better positioned to hold the uncertainty it keeps. The two recommendations may be the same option or different options, but the reasoning must be firm-specific.

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Further Reading

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PART II: TEACHING NOTES

Equity or Independence: Capital Structure Decisions for Two Scaling SMEs in the Dallas-Fort Worth Innovation Ecosystem: Teaching Notes

Case Summary

Two Dallas-Fort Worth founders receive identical growth equity term sheets: \$12 million at a \$60 million post-money valuation with ten days to decide. Maya Reyes leads Caprock Cyber-Physical Systems, a defense technology firm with government-tested intellectual property, a cleared workforce, and a perishable overseas deployment requirement, but thin and concentrated revenue and a frozen non-dilutive pathway following the SBIR authorization lapse. Daniel Okafor leads Helioterra Systems, a commercial solar electronics manufacturer with \$9.4 million in trailing revenue and improving unit economics, constrained by a seven-figure international talent pipeline cost and better-capitalized competitors recruiting in the same markets.

Students must advocate one of three financing strategies for both firms: accept the full equity offer, negotiate a staged or hybrid structure, or decline and execute a six-month independence plan. The case's analytical engine is that the financial terms are constant and the strategic meaning is not. The same capital stimulates different resources, transfers different uncertainties, sends different signals, and carries different organizational and ethical costs depending on the firm that receives it. New exhibits provide key actors and decision authority, material term-sheet provisions, financial capacity data, and use-of-proceeds detail so students can evaluate options beyond headline valuation. The case connects to the research problem of how innovation-driven SMEs develop and deploy dynamic capabilities to overcome financial constraints and pursue global expansion (Chen et al., 2024; Bouncken et al., 2022).

The case examines how access to capital influences or limits innovation activities, governance tradeoffs, and resource activation that enable innovation-driven SMEs to expand globally (Chen et al., 2024). Capital structure decisions directly impact an SME's ability to balance and leverage research and development intensity alongside collaborative intensity in international markets (Bouncken et al., 2022). Capital structure functions as a strategic tool rather than merely a financial resource.

Teaching Objectives

- TO1: Guide students to evaluate a venture term sheet beyond headline valuation, including governance provisions, closing conditions, and option-pool treatment.
- TO2: Facilitate structured application of signaling theory with named senders and receivers for each capital pathway.
- TO3: Lead a resource mapping exercise demonstrating why identical terms carry asymmetric strategic value for firms with different resource endowments.
- TO4: Coach real options analysis of a time-bounded independence plan under regulatory and market uncertainty.
- TO5: Direct students through an applied decision exercise requiring firm-specific recommendations and explicit identification of retained versus transferred uncertainty.

Target Audience

MBA and master's level courses in entrepreneurship, entrepreneurial finance, innovation management, and strategic management. Upper-division undergraduate courses with prior corporate finance exposure. Executive education on SME scaling and public-private capital structures. Subject areas: Finance and Management. The case teaches well early in an entrepreneurial finance module to frame capital structure choices, mid-course in a strategy

sequence to connect resources to financing, or in a public-sector innovation course to examine non-dilutive funding design.

Theoretical Basis

Resource-Based View

The resource-based view holds that sustained competitive advantage derives from resources that are valuable, rare, inimitable, and non-substitutable (Barney, 1991). Caprock's cleared workforce and government-validated intellectual property satisfy these criteria through regulatory barriers and embedded tacit knowledge that cannot be quickly replicated. Helioterra's advantage rests on cost position and an engineering talent pipeline that is valuable but contestable by better-capitalized competitors. The framework clarifies why the same \$12 million isn't equally beneficial for both firms: equity capital is more strategically effective when it leverages otherwise unused resources that require it for deployment, and more risky when the resource value is time-sensitive, and investor expectations could influence its utilization. Anchors Discussion Question 1.

Signaling Theory

Signaling theory examines how informed parties convey unobservable quality to less informed observers under information asymmetry (Spence, 1973). Connelly et al. (2011) supply the canonical treatment of senders, signals, receivers, and feedback. In new venture financing, Colombo (2021) synthesizes which signals move investors, and Bafera and Kleinert (2023) provide the construct taxonomy that keeps student analysis precise. Each capital pathway sends a signal: accepting communicates institutional confirmation; negotiating hybrid terms communicates financial sophistication or strain depending on structure; declining communicates discipline or unfundability depending on the receiver's prior beliefs and the context of the refusal. The policy dimension sharpens the analysis. Federal transition mechanisms now require private matching capital as a credentialing step, which means the government has embedded a private-market signal into its own diligence architecture. Anchors Discussion Questions 2 and 4.

Real Options Reasoning

Real options logic frames strategic investments as rights without obligations, favoring staged commitment under uncertainty (McGrath, 1997). Shuwaikh et al. (2024) confirm the logic empirically in venture investment under uncertainty, and Alinasab and Hunt (2025) synthesize its application for resource-constrained internationalizing small firms. Option 3 in this case is explicitly an option: each founder acquires the right to return to the market without committing to a course of action, but pays a price in foregone capital, customer relationships, and access to talent. The option expires when the customer requirement closes or when talent market conditions shift beyond recovery. Anchors Discussion Question 3.

Dynamic Capabilities

The capital structure decision is embedded in each firm's capacity to sense opportunities, seize them through resource commitments, and reconfigure operations under constraint (Bouncken et al., 2022). This perspective frames the study's underlying research problem: how innovation-driven SMEs develop and deploy dynamic capabilities-specifically the data-driven and responsible innovation capabilities required to navigate financial barriers and pursue global expansion (Chen et al., 2024). Instructors should treat dynamic capabilities as context-setting rather than as an analytical framework for the term sheet decision.

PESTLE and Landscape Analysis

PESTLE functions as an analytical method in this case, not a decision framework. Instructors may assign a rapid PESTLE scan as pre-class preparation or as an in-class warm-up activity. The scan should identify which macro factors each financing option amplifies or neutralizes.

- Political: The SBIR and STTR authorization lapse (September 30, 2025) halted new non-dilutive awards, an exogenous policy shock for deep technology firms. Export controls shape Caprock's deployment geography. Immigration and work visa regimes shape Helioterra's recruiting model.
- Economic: Early-stage valuations are at decade highs, with the premium concentrated in artificial intelligence. Dallas-Fort Worth raised more than \$3.8 billion in recent startup funding, reflecting regional capital depth (Dallas Regional Chamber, 2025).
- Social: Employee identity effects of shifting from founder-led to institutionally financed. Ethical dimensions of recruiting engineers from emerging economies.
- Technological: Advances in cyber-physical security and power electronics raise opportunity and obsolescence risk simultaneously. Neither firm occupies the artificial intelligence category commanding premium valuations.
- Legal: Export controls and data protection laws constrain Caprock's deployment options. Labor and immigration laws across talent-source countries constrain Helioterra's recruiting model.
- Environmental: Decarbonization mandates shape demand for Helioterra. Resilience requirements in austere field operations shape demand for Caprock.

Suggested Teaching Strategy

Pre-Class Assignment

Students submit a one-page memorandum recommending one option for each firm. The memorandum must identify the resource each option activates, the uncertainty each option transfers, one material term-sheet concern from Table 2, and one condition that would cause the student to change the recommendation. Students should also analyze and calculate post-financing ownership percentages and identify any missing information needed to calculate actual founder dilution.

Ninety-Minute Classroom Plan

Minutes 0 to 10: Opening vote. Ask students to vote separately for each firm. Record the options chosen. Ask two or three students to explain their initial reasoning in one sentence each. Do not introduce theory. The purpose is to surface whether students are treating the term sheet as inherently good or bad rather than evaluating firm-specific circumstances.

Minutes 10 to 20: Clarify the financing facts. Review the investment amount, valuation, and headline dilution from Table 2. Ask what the valuation does not reveal. Anticipated student responses include governance rights, liquidation preference, option-pool treatment, closing conditions, investor fit, and use of proceeds.

Minutes 20 to 35: Resource mapping. Assign half the class to Caprock and half to Helioterra. Each group identifies the company's most valuable resources, which resources are scarce or difficult to replace, which require capital to activate, and which lose value during delay. The instructor records two columns on the board: "Resources activated by capital" and "Resources threatened by capital or delay."

Minutes 35 to 50: Three-option analysis. Assign one option to each group. Groups evaluate their option for both companies, even where they believe it fits only one. Each group reports the option's financial cost, control cost, timing effect, signal sent, retained uncertainty, and principal failure mode.

Minutes 50 to 65: Information-shock or negotiation activity. For strategy and innovation courses: distribute one information card per firm at five-minute intervals. A Caprock card reveals that the customer needs a binding commitment within thirty days. A Helioterra card reveals that a key engineering team is considering a competitor's offer. After each card, teams state whether their recommendation has changed and why. For entrepreneurial finance courses: run a founder-investor

negotiation. Three roles per firm: founder, board representative, and fund partner. Fifteen minutes to negotiate valuation, board rights, and financing structure. Teams produce either a signed term sheet or a written explanation of why no agreement was reached.

Minutes 65 to 78: Comparative recommendation. Mixed teams containing both Caprock and Helioterra representatives answer three questions: Should the two companies make the same decision? What fact most strongly explains the difference? What condition must accompany each recommendation?

Minutes 78 to 87: Board presentations. Each team presents for two minutes. The instructor or designated students serve as the board and ask one challenge question. Students may not defend a recommendation purely on the basis of valuation comparisons.

Minutes 87 to 90: Final vote and synthesis. Repeat the opening vote. Ask students who changed their position to identify the evidence or argument that caused the change. Close with the central insight: the financing instrument is constant; its strategic value changes because the firms' resources, timing, and capacity to bear uncertainty differ.

Board Plan

The instructor should maintain the following headings on the board throughout the session:

Company resources. Opportunity expiration date. Cash and implementation constraint (from Table 4). Option selected. Uncertainty transferred. Uncertainty retained. Signal sent and receiver. Governance cost. Principal ethical concern. Condition required for board approval.

This structure keeps the discussion comparative and prevents it from becoming a general debate about whether venture capital is beneficial.

Optional AI Red-Team Activity

Teams use an AI system to red-team a financing recommendation. The system should identify hidden assumptions, missing information, potential term-sheet risks from Table 2, and downside scenarios from Tables 4 and 5. Students must verify every AI-generated claim against the case facts and label unsupported claims. The learning objective is responsible use of AI in executive decision support, not construction of a generic chatbot. Assign as pre-class or extended-session work.

Suggested Answers to Discussion Questions

Discussion Question 1

Strong answers relate each firm's endowment to the VRIN criteria—valuable, rare, inimitable, and non-substitutable (Barney, 1991). Caprock's cleared workforce and government-approved intellectual property meet all four through regulatory barriers and embedded tacit knowledge that cannot be easily copied. The \$12 million investment becomes more strategically deployable for Caprock because it unlocks resources that can't be quickly accessed: cleared personnel cannot be hired on short notice, and the government-validated technology has no substitutes that meet the customer's needs. Conversely, for Helioterra, the same investment poses more risk because the firm's cost advantage is time-sensitive and investor return expectations could distort talent pipeline development. Credit reversals when they are justified through the criteria themselves, rather than simply asserted.

Discussion Question 2

Strong answers name senders and receivers explicitly (Connelly et al., 2011) and demonstrate that the same act reads differently across receivers. Declining may signal capital discipline to a future strategic investor who values control, unfundability to a late-stage venture investor who expects validated financing, and missing validation to a federal program officer who reads private investment as a diligence credential. Weak answers treat the signal as having one universal

meaning independent of receiver. The instructor should encourage students to identify who is discerning each founder's decision and what that observer's existing beliefs about the firm are.

Discussion Question 3

Strong answers price the option: what Option 3 buys (information on SBIR reauthorization, valuation movement, customer relationship), what it costs (fund withdrawal risk, opportunity cost of delay, six months of burn against Table 4's runway), and when it expires worthless (the moment the defense customer selects an alternative supplier or the talent market closes to Helioterra's cost tier). Connect to Alinasab and Hunt (2025) on how resource-constrained internationalizing firms apply real options heuristically through staged, incremental commitments.

Discussion Question 4

The most critical diagnostic question here is that strong answers recognize that when non-dilutive funding depends on dilutive capital as a credential, the real decision for the founder is about the sequence of funding strategies, not the fund types themselves. The government has delegated part of its due diligence to private markets, creating a signaling system embedded within policy design. Empirical evidence shows that Phase III awards are rare and tend to be concentrated among specific types of firms (Rovito et al., 2025). Moreover, the pathway from SBIR-funded inventions to market realization is narrower than award counts imply (Bottai et al., 2025). This underscores why the private capital credential provides valuable information for government program officers.

Discussion Question 5

Strong retorts connect investor return horizons directly to the ethics of recruiting design, rather than treating ethical concerns as separate from financing choices. A growth fund's shorter return horizon might encourage Helioterra to pursue bulk recruitment with lower initial costs. Conversely, Helioterra's board favors a partnership approach with training, remote options, and clear pathways for returns, which demands a longer-term commitment and higher initial expenses. Opting for the fund's capital might grant the investor the power to influence decisions through approval rights, allowing them to resolve disagreements on their preferred terms. Students should consider whether the source of capital alters ethical responsibilities or merely shifts decision-making authority.

Discussion Question 6

Grade on whether the student names the retained uncertainty, the shed uncertainty, and the firm-specific reason the retained uncertainty is bearable. The recommendation itself is not graded for direction. A strong answer for Caprock accepting equity would state that the firm sheds reauthorization timing risk and customer-window risk by committing capital now, and retains governance risk, which Reyes can manage through board design and negotiated approval thresholds. A strong answer for Helioterra declining would state that the firm retains competitive talent risk but sheds governance risk and gives the board time to resolve the recruiting ethics disagreement on its own terms. Require firm-specific reasoning. Reject answers that apply the same logic to both companies without explaining why the firms' resource differences do not matter.

Common Student Errors

Treating a valuation below the national median as proof the offer is unfair. Redirect students toward sector, traction, governance terms, and comparability. The national median is inflated by artificial intelligence companies. Defense hardware and solar electronics companies are not comparable to that category.

Treating non-dilutive capital as costless. Waiting for SBIR reauthorization carries timing, administrative, customer, and opportunity costs. Table 4 shows Caprock's runway is approximately seven months. The SBIR lapse lasted until April 13, 2026, which was not available to Reyes during the decision window and should not be used to evaluate her options.

Assuming that accepting equity eliminates uncertainty. Equity transfers financing risk but introduces governance, execution, closing, and growth-expectation risks. The no-shop provision in Table 2 means a founder could sign, enter exclusivity, and still fail to close.

Assuming that declining preserves the status quo. Resources and opportunities deteriorate during delay. Caprock's customer requirement has a specific expiration. Helioterra's talent cost advantage erodes gradually rather than visibly, which makes the deterioration easy to underestimate.

Treating 20 percent as the total cost of the equity round. Students should also consider board control, option-pool expansion, liquidation preference, and future financing implications.

Recommending the same option for both companies without firm-specific justification. Require students to explain why the firms' different resource endowments, cash positions, and ethical exposures do not produce the same answer.

Debrief Guidance

The debrief should not announce a correct financing option. Close with four conclusions: First, valuation is one component of a financing decision, and often not the most important one. Governance rights, closing conditions, and option-pool treatment all affect the actual cost. Second, the value of capital depends on what scarce resource it activates and how quickly that resource deteriorates without investment. The same \$12 million is not the same deal. Third, waiting is an investment decision with a price. It is not the absence of a decision. The price is measured in foregone deployment windows, talent access, and valuation movement. Fourth, founders choose not only how much uncertainty to hold, but which uncertainty their firm is most capable of bearing. The recommendation should match the retained uncertainty to the firm's capacity to manage it.

Optional Epilogue (Instructor only). Congress restored SBIR and STTR authorization on April 13, 2026. Reveal this only after recommendations are locked. Use it to strengthen that decisions are evaluated on the information available at the time: a founder who declined in January could not have known the medium would reopen in April, and a founder who accepted was not wrong because it did.

Teaching Notes Table 1. Framework to Option Mapping

Framework	Option 1: Accept	Option 2: Negotiate Hybrid	Option 3: Decline and Execute Plan
Resource-based view	Activates idle VRIN capacity; investor expectations may distort deployment	Partial activation; milestones create staged commitment to resource deployment	Endowment preserved; time-sensitivity of resource value tested during plan period
Signaling theory	Institutional validation signal; strongest to future investors and customers	Sophistication signal if structured well; strain signal if deal falls through	Discipline signal to investors who value control; unfundability signal to those expecting validated financing
Real options	Option exercised; optionality in future rounds depends on governance terms negotiated now	Option partially exercised; second-tranche milestone preserves future optionality	Option purchased; option expires if customer leaves or talent market closes

PESTLE (method)	Economic and legal terms lock in at signing; political exposure transferred to fund's growth timeline	Legal covenant sensitivity; political and economic exposure partially hedged by mixed capital	Full macro exposure retained; political reauthorization risk and economic valuation movement unhedged through plan period
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Source: Authorial construction

Note: Theory rows map each framework's reading of the options. The PESTLE row maps the macro exposure each option locks in, since PESTLE is an analytical method rather than a decision framework

Teaching Notes Table 2. Assessment Rubric

Criterion	Weight	Strong Performance	Weak Performance
Problem diagnosis and firm-specific reasoning	20%	Identifies firm-specific resource constraints, cash positions, and ethical exposures; explains why identical terms produce different strategic implications	Applies the same analysis to both firms without differentiating their resource endowments or constraints
Financial and term-sheet analysis	20%	Evaluates governance rights, liquidation preference, option-pool treatment, and closing conditions from Table 2; calculates actual dilution	Focuses only on valuation and headline dilution; ignores governance provisions and closing risk
Application of resource-based view, signaling theory, and real options	25%	Names the resource activated or threatened by each option; identifies senders, signals, and receivers; prices the real option including expiry	Applies frameworks as labels rather than analytical tools; fails to name receivers or expiry conditions
Governance, employee, stakeholder, and ethical consequences	15%	Connects investor approval rights to the concrete ethical disagreements each board is navigating; evaluates workforce and customer consequences	Treats ethics as separate from the financing decision; ignores governance provisions
Feasibility and implementation safeguards	10%	Specifies conditions for approval; identifies early warning indicators; addresses fallback plan if chosen option fails	Recommends an option without addressing feasibility constraints from Tables 4 and 5
Clarity and persuasiveness of recommendation	10%	Defends recommendation for both firms with firm-specific reasoning; states retained and transferred uncertainty explicitly	Recommends an option for one firm only; or recommends without firm-specific justification

Note. No option should receive a higher score because it matches the instructor's preference. Grade the quality of the reasoning, not the direction of the recommendation

Further Reading

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Metadata

Field	Value
Title	Equity or Independence: Capital Structure Decisions for Two Scaling SMEs in the Dallas-Fort Worth Innovation Ecosystem
Abstract	In January 2026, the founders of two Dallas-Fort Worth technology firms received identical term sheets from the same growth fund: \$12 million at a \$60 million post-money valuation, expiring in ten days. Maya Reyes leads Caprock Cyber-Physical Systems, a defense technology firm whose federally validated security platform faces overseas demand it cannot fund, at a moment when the federal SBIR program's authorization has lapsed and frozen her non-dilutive pathway. Daniel Okafor leads Helioterra Systems, a solar technology firm with proven commercial economics whose international expansion depends on a seven-figure investment in global talent acquisition. The case places students inside both decisions simultaneously and asks them to determine when and whether an innovation-driven small or medium-sized enterprise should exchange equity for the capital to scale globally. Students apply signaling theory, the resource-based view, and real options reasoning to three viable capital pathways. No pathway is presented as correct.
Type of Case	Fictional comparative decision case (based on verified market data and practitioner experience)
Subject Area Taxonomy	Entrepreneurship; Entrepreneurial Finance; Strategic Management; Innovation Management
Related Country/Countries	United States
Industry	Defense technology (cyber-physical security); Clean energy (solar power electronics)
Organization Name	Caprock Cyber-Physical Systems; Helioterra Systems (both fictional)
Organization Size	Small and medium-sized enterprises (34 and 61 employees)

Contributor Biography

Lamar D. Porter is pursuing a Doctor of Business Administration at Marymount University, focusing on how innovation-driven small and medium-sized enterprises overcome capital constraints during international expansion, with a particular focus on the Dallas-Fort Worth ecosystem. He has over twenty years of experience in federal service, entrepreneurship, and the military, including developing AI, data, and analytics competencies for the Department of Defense and securing funding through Air Force innovation programs. He also holds graduate credentials from The Johns Hopkins University in AI business strategy and leadership, and is a Certified Professional Innovator from the University of Michigan.