

Chapter 2

The Capital Stack and Waterfall Returns

One building, one stream of cash, and four claims on it. By the close you will know why the return in the pitch is not the return you receive.



THE CENTRAL DECISION

It is 2019. A sponsor has Hargrove Center under contract, has a loan commitment, and is raising equity from you. The pro forma shows a 16.14 percent IRR.

Do you commit the **money**?

You are the institutional investor · the sponsor contributes 10 percent of the equity

LEARNING OBJECTIVES

After this chapter, you can:

- 1 Order the layers of a capital stack, explain their return forms and control rights, and identify their typical institutional providers.
- 2 Explain why junior claims promise more, how the layers are quoted, and why debt maturity can force a refinancing.
- 3 Build a sources and uses table that balances, and find the equity a given loan implies.
- 4 Compute a three-tier waterfall with an IRR-based preferred return, a promote, and a residual split.
- 5 Separate a project's return from an investor's return, and quantify how much of the gap the promote explains.
- 6 Locate priority, control, and waterfall provisions in the governing documents, and explain why a trigger does not move control automatically.

SECTION

2.1

Four claims on one building

A building produces one stream of cash. The capital stack decides who receives that cash, and in what order.

THE STRUCTURAL IDEA, AND EVERYTHING ELSE FOLLOWS FROM IT

Cash reaches the most senior claim first,
and reaches the most junior claim only if
everything ahead of it has been paid in full.

*The same ordering runs **in reverse** for losses. The most junior claim absorbs the first dollar lost; the most senior absorbs the last.*

THE TERM THE WHOLE CHAPTER HANGS ON

capital stack

The set of claims financing a property, **ranked by payment priority**.

Not a picture of who owns what. An ordering of who is paid when, and equivalently, of who loses first.

FRAMEWORK

The queue, and who usually stands in it

Common equity	Pension and sovereign wealth funds · insurers · endowments · REITs · private funds · sponsors
Preferred equity	Private real estate equity or credit funds · opportunity funds · family offices
Mezzanine debt	Real estate debt funds · alternative-manager credit arms · mortgage REITs · specialty finance
Senior debt	Banks · life companies · agency lenders · CMBS conduits · mortgage REITs and debt funds

CASH ARRIVES HERE AND FILLS UPWARD

THE TWO DEBT LAYERS

senior debt · mezzanine debt

SENIOR DEBT

The first-priority loan, almost always secured by a mortgage on the property. Entitled to interest and scheduled principal before anyone else receives anything, and able to foreclose and sell the building if the borrower fails to pay. In exchange for that protection it accepts the lowest return in the stack.

MEZZANINE DEBT

Sits behind the senior loan, and is typically secured by a pledge of the ownership interests rather than by the property. That lets the mezzanine lender take over the ownership entity without disturbing the senior mortgage.

THE TWO EQUITY LAYERS

preferred equity · common equity

PREFERRED EQUITY

An ownership interest with a stated return that must be paid before common equity receives anything. Equity in legal form and debt in economic behavior: a fixed or floating rate, a priority position, and usually no upside beyond the stated return. It is paid only from cash the property and its documents make available.

COMMON EQUITY

The residual claim. It receives what is left after every other layer has been satisfied, which is nothing in a bad year and everything above the other claims in a good one. It carries the control rights that matter operationally: when to renovate, when to refinance, when to sell.

Cash-pay = due now · **PIK** = added to the claim · Missed cash payment $\neq$ automatic PIK

The stack has an order and a calendar

Typical stabilized mortgage: 5 to 10 year loan term · 25 or 30 year amortization

30-YEAR AMORTIZATION Sets Hargrove's payment and the pace at which principal declines.	7-YEAR TERM Sets the deadline. A 30-year payment path does not make this a 30-year loan.	\\$52,153,896 BALLOON Still due at maturity. Pay it with a refinancing, sale, new equity, or a negotiated extension.
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Refinancing is a **new underwriting**, not an automatic rollover. Current income, value, leverage, and rates determine how much the next lender will advance.

Control follows a documented path, not the stack diagram

TRIGGER	CONTRACTUAL RIGHT	POSSIBLE REMEDY	READ
SENIOR DEFAULT	Cash control and acceleration	Apply cash or enforce the property lien	Loan documents
SENIOR DEFAULT UNDER MEZZANINE	Cure, then standstill or blockage	Cure senior or wait	Intercreditor
MEZZANINE DEFAULT	Rights against pledged ownership	UCC sale and step-in	Pledge + intercreditor
PREFERRED TRIGGER	Consent or removal, if granted	Block, replace, or sell under the agreement	Operating agreement

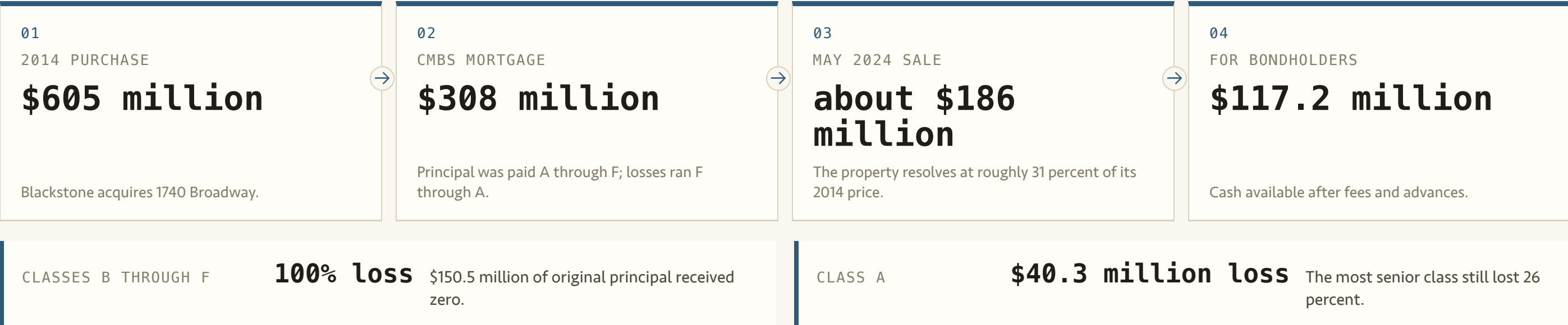
A trigger does not move control automatically. Cure periods, standstills, transfer conditions, and law still govern.

EXHIBIT 2–1. The Hargrove Center capital stack. The senior loan funds 63.5 percent of total capitalization and is repaid first; the common equity funds 36.5 percent and is repaid last. It is the only layer with no promised contractual return, so what it earns is entirely determined by the outcome.

LAYER	AMOUNT	SHARE OF TOTAL	POSITION	RETURN FORM
Senior mortgage	\$59,800,000	63.5%	First	4.60% fixed interest
Common equity (LP)	\$30,960,000	32.9%	Last, 90% of equity	Distributions and sale proceeds
Common equity (GP)	\$3,440,000	3.7%	Last, 10% of equity	Distributions, sale proceeds, and promote
Total capitalization	\$94,200,000	100.0%		

IN THE MARKET · A REAL LOSS WATERFALL

At 1740 Broadway, losses climbed the stack until even Class A was hit



Read the structure: Losses moved upward in reverse priority. The junior bonds disappeared first; only then did the loss reach Class A.

This is a CMBS bond stack, not Hargrove's property-level equity waterfall. It isolates the same ordering rule on the debt side.

SOURCES: DIAMOND HILL, “A TALE OF TWO BUILDINGS,” JUNE 26, 2024; S&P GLOBAL, BWAY 2015–1740 PRESALE; COMMERCIAL OBSERVER, APRIL 19, 2024.

One layer, two very different parties

	LIMITED PARTNER (LP)	GENERAL PARTNER (GP), THE SPONSOR
SUPPLIES	Most of the money	A smaller share of the capital
DOES	Takes a passive role	Finds the deal, arranges the financing, executes the business plan
SHARE OF EQUITY	90%	10%
SHARE OF THE PROFIT	Not 90 and 10. That is the subject of sections 2.4 through 2.6.	

SECTION

2.2

Why position sets price

A claim standing farther back in the payment queue must promise a higher return. This is not a market convention.

SECTION 2.2

Same building. Same cash flow. Very different risk.

*The market prices that difference, and it prices it **in layers**.*

What each end of the stack owns, at Hargrove

	THE SENIOR LENDER OWNS	THE COMMON EQUITY OWNS
THE CLAIM	A fixed annual debt service, and a mortgage on the building	Everything above the debt service, and nothing if there is nothing
TO LOSE A DOLLAR	The building must lose more than a third of its value and the borrower must fail to cure	Any decline in residual value reduces common equity; in an immediate liquidation below the loan balance, it has no recovery
SO THE RETURN IS	The lowest in the stack, and contractual	The highest in the stack, and conditional

The unit of the quote tells you what kind of claim it is

EXHIBIT 2–2. How each layer is quoted.The unit of the quote tells you what kind of claim it is: debt is quoted as compensation over a benchmark because it expects repayment, and equity is quoted as a target outcome because it does not.

LAYER	TYPICAL ATTACHMENT RANGE	RETURN QUOTED AS	WHAT THE QUOTE PROMISES
SENIOR MORTGAGE	0% to 65% of value	Spread over a benchmark rate	A contractual obligation
MEZZANINE DEBT	65% to 80% of value	Fixed or floating rate	A contractual obligation, junior to the senior loan
PREFERRED EQUITY	75% to 85% of value	Preferred return rate	A priority claim, but only if there is cash
COMMON EQUITY	Above the rest	Target IRR and equity multiple	A projection, and nothing more

SIDEBAR · ON THE DESK

How practitioners actually say it

Positions are described by where they **attach** and **detach** in the capital structure, as a percentage of value. A mezzanine piece is "65 to 80": senior debt reaches 65 percent of value and cumulative debt reaches 80 percent. With 20 percent common equity below it, common absorbs the first 20 percent loss, mezzanine absorbs losses from 20 to 35 percent, and senior debt is exposed beyond 35 percent.

This is the same language used to describe CMBS tranches in Chapter 6, and for the same reason. Both are claims defined by where they sit.

THE VOCABULARY MATTERS MORE THAN IT LOOKS

When a lender says a loan is priced at 250 over, that return is a promise. When a sponsor says a deal targets 18 percent, that is a projection.

Both are called returns. Only one of them is a claim you can sue over.

SECTION

2.3

Sources and uses

Every deal starts with a table that balances. Sources are where the money comes from; uses are where it goes.

EXHIBIT 2–3. Hargrove Center sources and uses at acquisition. The equity requirement is not chosen; it is what remains after the loan is sized against a purchase price that includes the costs of buying.

USES	AMOUNT	SOURCES	AMOUNT
Purchase price	\$92,000,000	Senior mortgage	\$59,800,000
Transaction costs and reserves	\$2,200,000	Equity	\$34,400,000
Total uses	\$94,200,000	Total sources	\$94,200,000

THE HABIT

Size the loan against value, then solve for equity

CH02-WATERFALL-MODEL.XLSX · INPUTS TAB

The lender advances a percentage of the purchase price. That sets the loan.

Total uses, less the loan, is what someone must write a check for. **The equity is not a decision. It is the plug.**

The named error. Transaction costs and upfront reserves are uses of capital. Sizing equity off the purchase price alone understates the requirement by exactly the amount left out, and that error is common enough in student models to be worth naming.

Change an input on the **Inputs** tab and the equity moves. Everything else in the workbook is a formula.

SECTION

2.4

The distribution waterfall

Now the money starts coming back. Picture three cash gates in sequence, controlled by two hurdle scoreboards that accrue in parallel.

THE MENTAL MODEL

balance decides when • split decides who

WATERFALL

Three cash gates in sequence, controlled by two hurdle scoreboards that accrue in parallel.

PREFERRED RETURN

The first scoreboard. It is a hurdle, **not a dividend**, and the unpaid ledger grows until qualifying distributions bring it to zero.

PROMOTE

The sponsor's extra lane at the later gates, paid on top of its pro rata share. It is compensation for performance rather than for capital.

Three gates, two scoreboards, one pool of cash

Limited partner \$30,960,000 (90.0%) · General partner \$3,440,000 (10.0%)

TIER 1	Preferred return Capital back plus 8.0 percent; every distributed dollar reduces the balance \$57,712,813 in → \$38,095,910 routed → \$19,616,903 left Next \$1 → LP 90¢ · GP 10¢	100% PRO RATA 0% PROMOTE	\$38,095,910	---
TIER 2	First promote tier Until investors reach 14.0 percent; only the 80 percent pro rata share reduces the balance \$19,616,903 in → \$17,321,003 routed → \$2,295,900 left Next \$1 → LP 72¢ · GP 28¢ (8¢ pro rata + 20¢ promote)	80% PRO RATA 20% PROMOTE	\$13,856,802	\$3,464,201
TIER 3	Residual Everything above; no hurdle balance remains \$2,295,900 in → \$2,295,900 routed → \$0 left Next \$1 → LP 63¢ · GP 37¢ (7¢ pro rata + 30¢ promote)	70% PRO RATA 30% PROMOTE	\$1,607,130	\$688,770

✓ Tiers sum to \$57,712,813, the cash available at sale. Promote across the tiers is \$4,152,971.

How a hurdle scoreboard counts down to zero

One scoreboard

- 1 Start the balance at the capital contributed.
- 2 Accrue the opening balance **over the year** at the hurdle rate.
- 3 Reduce it by the part of the distribution that counts toward this hurdle.
- 4 At zero, the gate opens and any cash left moves to the next tier.

Hurdle scoreboards accrue in parallel. Cash moves through gates in sequence.

Why four years of cash never satisfy an 8 percent hurdle

The same number, the other way

Equity compounded five years equity × 1.08⁵

Less the four operating distributions, each compounded to year five $\sum d_t \times 1.08^{(5-t)}$

Tier one balance remaining at sale **the first money the sale must cover**

The balance keeps accruing on whatever has not been returned. Only the cash *above* that balance reaches the promote tiers.

CHECK THE MATH

The reconciliation students most often get wrong

- ✓

Sources and uses balance

Total uses \$94,200,000 equals total sources \$94,200,000
- ✓

Tiers sum to cash available

The year-five tiers total \$57,712,813, the cash on hand
- ✓

Promote splits match the stated tiers

Tier 2 pays 20 percent of its dollars to the GP, tier 3 pays 30 percent
- ✗

Loan balance at sale

Straight-line gives \$49,833,333; the schedule gives \$54,594,547

✗ THE STRAIGHT-LINE GUESS

\$49,833,333

$$\$59,800,000 \times (1 - 5/30)$$

Five of thirty years have elapsed, so five thirtieths of the principal must be retired. The arithmetic is right and the premise is wrong.

✓ THE AMORTIZATION SCHEDULE

\$54,594,547

balance after 60 payments, 30-year schedule at 4.60%

Only \$5,205,453 of principal, about 8.7 percent of the loan, is retired in five years, because early payments on a 30-year schedule are overwhelmingly interest.

The guess overstates repayment by \$4,761,214 and hands that money to the equity at closing, so it flows into net proceeds, into total distributions, into the promote, and into every return in Exhibit 2-6.

An error that survives into a plausible-looking answer is more dangerous than one that breaks the model.

Where the profit lands

EXHIBIT 2–6. Where the profit lands. The sponsor contributed 10.0 percent of the equity and received 21.1 percent of the profit; the promote of \$4,152,971 is the difference, and it costs the investor 153 basis points of IRR.

	LIMITED PARTNER	GENERAL PARTNER
Capital contributed	\$30,960,000	\$3,440,000
Share of equity	90.0%	10.0%
Pro rata distributions	\$57,476,689	\$6,386,299
Promote	--	\$4,152,971
Total distributions	\$57,476,689	\$10,539,269
Profit	\$26,516,689	\$7,099,269

Figures are rounded independently; displayed components can differ from totals by \\$.1.

THE SINGLE MOST USEFUL PAIR OF NUMBERS IN THE CHAPTER

The deal earned 16.14 percent. The investor received 14.62 percent.

The 153 basis point gap is the promote under these terms. Stronger performance can widen it; sufficiently weak performance eliminates it.

Which number belongs in your comparison?

The sponsor quotes 16.14 percent. Which number belongs in your comparison against another deal?

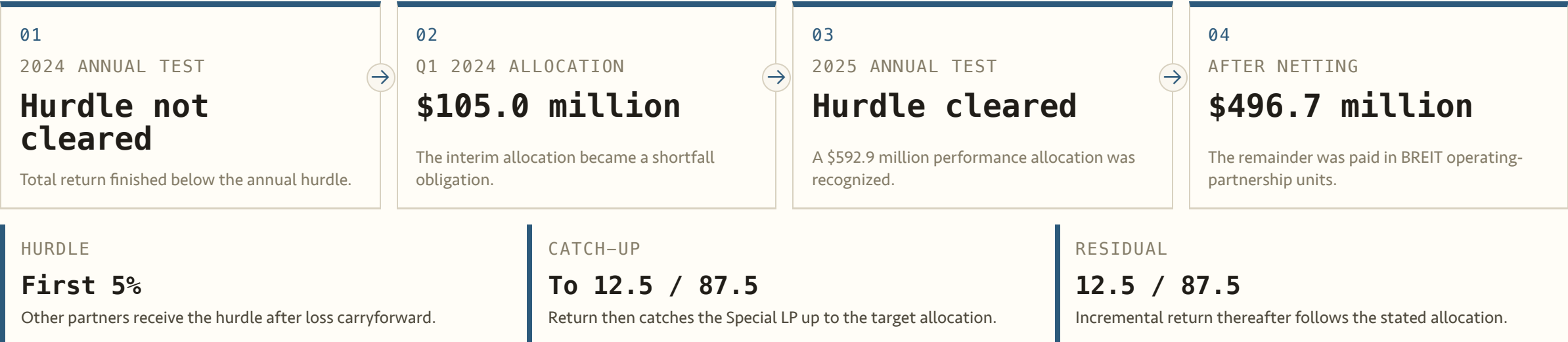
What the property earned on the equity invested in it.

What you actually receive after the promote. A sponsor quoting the first is quoting a number nobody receives.

Click a convention: the active choice carries the accent.

SIDEBAR · IN THE MARKET

BREIT's hurdle switched the allocation off in 2024 and on in 2025



Read the structure: The scoreboard changed the route. A quarterly allocation did not survive the 2024 annual test, and its shortfall plus interest was absorbed before the 2025 allocation was paid.

BREIT is a public non-listed NAV REIT, not a property-level Hargrove joint venture. Its documents use different definitions, timing, and payment form.

SOURCE: BLACKSTONE REAL ESTATE INCOME TRUST 2025 ANNUAL REPORT, FILED MARCH 27, 2026, PERFORMANCE-PARTICIPATION FOOTNOTE.

THE VARIATION

What the exit assumption is really about

CH02-WATERFALL-MODEL.XLSX · SENSITIVITY TAB

EXHIBIT 2–8. Exit cap rate sensitivity. The promote is far more sensitive to the exit price than the profit is: a one point move in the exit cap rate cuts total profit by 45 percent but cuts the promote by 78 percent, because the promote is paid only out of the profit above the hurdles.

EXIT CAP RATE	TOTAL PROFIT	PROMOTE	GP SHARE OF PROFIT
5.75%	\$43,116,441	\$7,003,115	24.6%
6.25% (base)	\$33,615,958	\$4,152,971	21.1%
6.75%	\$25,522,954	\$2,304,780	18.1%
7.25%	\$18,546,227	\$909,434	14.4%

A one point move in the exit cap rate cuts **total profit by 45 percent** and cuts **the promote by 78 percent**.

The promote is paid only out of the profit *above* the hurdles, so it absorbs the move first.

WHAT THAT SENSITIVITY MEANS

The promote is a leveraged claim on the top of the profit.

*Its incentive effect is state dependent. In the money it can align incentives; out of the money its convex payoff can encourage risk-taking. The exit assumption is about **compensation**, not only value.*

SIDEBAR · FROM THE RESEARCH

The promote is an option, and its moneyness changes behavior

Pagliari (2015) shows that an **in-the-money** promote tends to make a manager conservative, since there is now compensation to protect, while an **out-of-the-money** promote encourages risk-taking, since there is little left to lose. He argues that lowering both the preferred return and the promote percentage, in a way that holds the promote's expected value constant, improves alignment, and that indexing the preferred return to a benchmark serves investors better than a fixed percentage.

SIDEBAR · HISTORICAL NOTE

Catch-up and clawback are not classroom inventions

Public fund and REIT operating documents file the same sequencing: capital and preferred return first, then a **catch-up** that restores the agreed promote split, and often a **clawback** if early promote payments later fail a whole-fund test. Reading one named agreement beside this chapter's arithmetic is the fastest way to see which terms are durable and which are negotiated.

THE CENTRAL DECISION

The pro forma showed 16.14 percent. You now know what you would actually receive, and what the difference buys.

So: do you commit the **money**?

The answer is not yes or no. It is that you compare the investor-level number against your alternatives, you ask how the hurdles accrue and whether promote counts toward them, and you read the exit assumption as a statement about the sponsor's pay.

LEARNING OBJECTIVES

Six months from now

- 1 The stack ranks claims by payment priority, and different institutional channels can supply each layer.
- 2 Position sets price, and debt adds a clock: the loan term sets the deadline while amortization sets the payment path.
- 3 A sources and uses table balances, and the equity is the plug. Count the costs of buying.
- 4 A waterfall is a cash router: gates run in sequence, hurdle scoreboards accrue in parallel, and the active split routes the next dollar.
- 5 Deal-level return and investor-level return are different numbers. At Hargrove the gap is the promote.
- 6 The promote is a leveraged claim on the top of profit, so the exit assumption is also a compensation assumption.

DISCUSSION AND EXERCISES

Take it to the workbook

DISCUSSION

- 1 A sponsor tells you the deal targets an 18 percent IRR. What three questions do you ask before treating that number as comparable to another sponsor's 16 percent?
- 2 Pagliari argues an in-the-money promote makes a manager conservative and an out-of-the-money promote encourages risk-taking. If you were the LP at Hargrove in year four, which describes your sponsor, and what would you want in the documents?
- 3 Huther and coauthors find deal-by-deal carried interest is associated with higher returns. Why might the structure that looks worse for investors on paper not be the one that produced worse outcomes?

BEFORE THURSDAY

- 1 Open `ch02-waterfall-model.xlsx`. Move the exit cap rate up by half a point and record what happens to total profit, to the promote, and to the sponsor's share of profit.
- 2 Rebuild the year-five tier-one balance from the compounding identity rather than the running balance, and confirm the two routes agree.
- 3 Raise the preferred return from 8 to 10 percent, then explain in one sentence who the shifted profit came from and who it went to.