CHARTA LEARNING · LESSON NOTES

The Rise and Risks of Private Credit

FRM Part II

1 A story: a loan the bank would not make

- Kestrel: a mid-sized, sponsor-owned firm needs $60m
- Too small for a bond issue; too levered for its bank
- Ashgrove's fund lends the whole $60m itself
- Negotiated directly, quick answer, held until repaid

IN THE LESSON

- Meet Kestrel Components, a mid sized maker of industrial parts.
- It is owned by a private equity sponsor, a firm that buys companies using a lot of borrowed money.
- Kestrel needs sixty million dollars to buy a rival.
- It is too small to issue bonds to the public, and its bank says the deal is too levered, meaning too much debt for its earnings.
- So the sponsor calls Ashgrove Capital, an asset manager.
- Ashgrove's fund lends the whole sixty million itself.
- The terms are negotiated directly, the answer comes quickly, and Ashgrove plans to hold the loan until it is repaid.
- This is private credit, a corner of finance that has grown very fast.

2 What private credit is, and who lends

- Private credit: lending to companies by non-banks
- Lenders: asset managers' closed-end funds and BDCs
- Closed-end: money raised once, locked in for years
- BDC: a vehicle that lends to mid-sized firms
- Money from pension funds, insurers, sovereign funds

IN THE LESSON

- Here is the formal idea.
- Private credit is lending to companies by non bank institutions.
- The lenders are mainly asset managers, running closed end funds and business development companies.
- A closed end fund raises money once and locks it in for a number of years, so it does not face redemptions during its life, and need not sell loans to repay investors.
- A business development company, or B D C, is a vehicle set up to lend to mid sized firms.
- Some are listed on an exchange and some are not.
- Behind these lenders sits money from long term institutions: pension funds, insurers and sovereign wealth funds.
- So the institutions supply the capital, and the fund lends it on to companies.

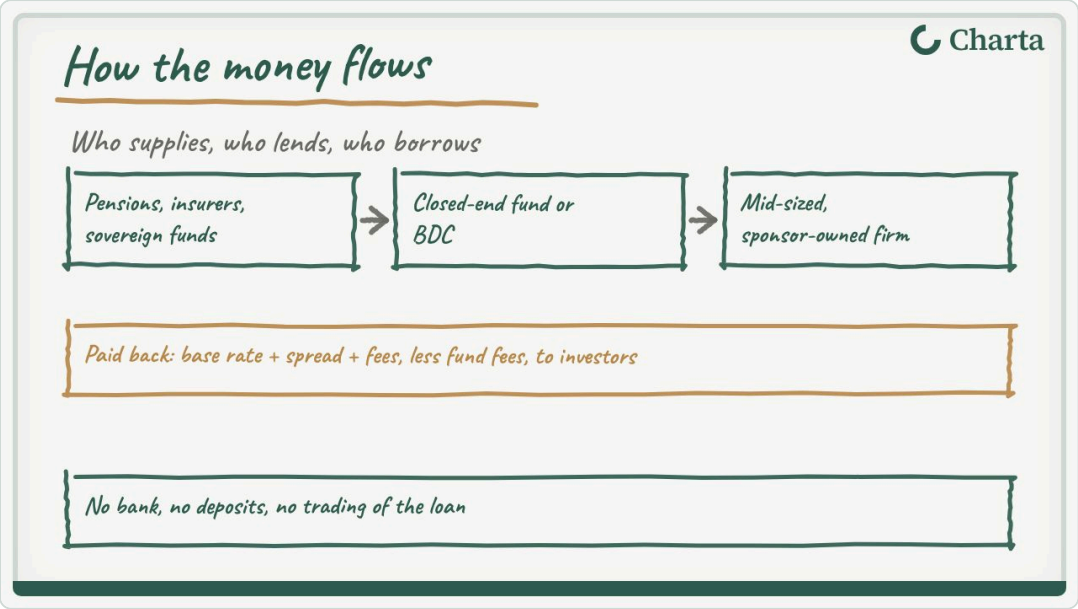
3 Who borrows, and on what terms

- Borrower: mid-sized firm, often private-equity owned
- Too small or too levered for bonds or syndicated loans
- Senior secured, floating: base rate (SOFR) + spread
- Bilateral, or a small club of lenders
- Held to maturity

IN THE LESSON

- Now the borrower.
- The typical borrower is a mid sized firm, often owned by a private equity sponsor, just like Kestrel.
- It is too small or too leveraged for the public bond market or for the broadly syndicated loan market.
- A syndicated loan is a large loan arranged by banks and sold in pieces to many investors, who can then trade those pieces.
- The loans themselves are usually senior secured, meaning they are repaid first and are backed by the firm's assets.
- They are floating rate: the borrower pays a base rate, such as S O F R, the secured overnight financing rate, plus a fixed spread.
- The deal is negotiated bilaterally, between one lender and the borrower, or with a small club of lenders.
- And the loan is held to maturity rather than traded.

4 How the money flows



IN THE LESSON

- Let us draw the chain.
- The row reads who supplies, who lends and who borrows.
- On the left are the pension funds, insurers and sovereign funds that supply the capital.
- They commit it to a closed end fund or a B D C, run by a manager such as Ashgrove.
- The fund lends to a mid sized firm owned by a sponsor, such as Kestrel.
- Below, the money comes back: the borrower pays the base rate plus the spread, plus fees, and the fund passes the income, after its own fees, back to the investors.
- There is no bank and no deposit, and nobody in this chain is buying or selling the loan on a market.

5 Example 1: Kestrel's loan

Ashgrove lends Kestrel $60m at SOFR + 6%. SOFR is 4%. EBITDA $15m

Base rate (SOFR)	resets each period	**4.0%**
Coupon	4.0% + 6.0%	**10.0%**
Interest a year	10% × $60m	**$6.0m**
Leverage	debt ÷ EBITDA = 60 ÷ 15	**4.0 times**
Interest coverage	EBITDA ÷ interest = 15 ÷ 6	**2.5 times**

IN THE LESSON

- Ashgrove lends Kestrel sixty million dollars at S O F R plus six per cent.
- S O F R is four per cent, and Kestrel's E B I T D A, its earnings before interest, tax, depreciation and amortisation, is fifteen million dollars.
- The base rate resets each period, so for now it is four per cent.
- The coupon is four per cent plus six per cent, ten per cent.
- Interest for a year is ten per cent of sixty million, six million dollars.
- Leverage, debt divided by E B I T D A, is sixty over fifteen, four times.
- Interest coverage, E B I T D A divided by interest, is fifteen over six, two and a half times.
- Keep these numbers.
- Because the rate floats, Ashgrove's income rises when rates rise, but so does Kestrel's burden.

6 Private credit against a bank loan

Same borrower, two kinds of lender

	Private credit fund	Bank
Funded by	Investors' committed capital	Mainly deposits
Capital rules	No bank capital rules	Bank capital rules
Who bears a loss	The fund's investors	Shareholders' capital first

IN THE LESSON

- Same borrower, two kinds of lender.
- The first row is funding.
- A private credit fund is funded by investors' committed capital, while a bank is funded mainly by deposits.
- The second row is regulation.
- The fund faces no bank capital rules, while the bank must hold capital against each loan under bank capital rules.
- That is one reason why banks stepped back from loans like Kestrel's, as we will see.
- The third row is who bears a loss.
- In the fund, the investors bear it directly, through a lower value of their holdings.
- In the bank, the shareholders' capital absorbs it first.
- The loan contract may look much the same.
- What differs is who funds it and which rules apply.

7 Private credit against bonds and syndicated loans

Exam trap: private credit is a loan, not a traded security

	Private credit	Bonds, syndicated loans
Price	No liquid market price	Quoted and traded
Covenants	Customised to the deal	Standard terms
Information	Rights to private data	Public disclosures
Exit	Hold to maturity	Sell in the market

IN THE LESSON

- The exam trap comes first: private credit is a loan, not a traded security.
- Now compare it with bonds and broadly syndicated loans.
- On price, private credit has no liquid market price, while bonds and syndicated loans are quoted and traded.
- On covenants, the promises the borrower makes, private credit terms are customised to the deal, while public deals use standard terms.
- On information, the private lender has rights to the borrower's private data, such as monthly accounts, while bond investors rely on public disclosures.
- On exit, the private lender holds to maturity, while a bond holder can sell in the market.
- So Ashgrove gains control and information, and gives up liquidity and a market price.

8 How private credit grew

- After 2008: a small niche
- Now: usually estimated at well over $1 trillion
- Supply: banks pulled back from leveraged lending
- Why: tighter capital and supervisory rules
- Demand: yield, floating-rate income, diversification

IN THE LESSON

- How did it grow so big?
- After the two thousand and eight crisis, private credit was a small niche.
- Today the market is usually estimated at well over one trillion U S dollars.
- Two forces drove that.
- On the supply side, banks pulled back from leveraged lending, which means lending to firms that already carry a lot of debt, like Kestrel.
- The reason was tighter capital and supervisory rules after the crisis, which made such loans costly for banks to hold.
- On the demand side, institutional investors were searching for yield in years of low interest rates.
- They also wanted floating rate income, which rises with rates, and diversification away from public stocks and bonds.

9 Where the return comes from

Net return ≈ base + spread + fees − losses − fund fees

Base rate	A market rate, such as SOFR
Spread	Fixed margin over the base: wide
Fees and OID	Upfront fee and OID, spread out
Credit losses	Default rate × loss given default
Fund fees	What the manager charges

IN THE LESSON

- Where does an investor's return come from?
- The rule reads: net return is roughly the base rate, plus the spread, plus fees, minus credit losses, minus fund fees.
- Take the five terms in turn.
- The base rate is a market rate such as S O F R.
- The spread is the fixed margin over the base, and in private credit it is wide.
- Fees are the upfront fee, paid when the loan is made, and the original issue discount, O I D, which means the loan is made at a price below its face value, say ninety eight for every hundred owed.
- Both are spread over the loan's life.
- Credit losses are the default rate times the loss given default.
- And fund fees are what the manager charges.

10 Example 2: building Ashgrove's return

SOFR 4%, spread 6%, fees 2% over 4 years, defaults 2%, LGD 40%, fund fees 1.5%

Coupon	4.0% + 6.0%	**10.0%**
Fees and OID a year	2% ÷ 4 years	**0.5%**
Credit losses	2% × 40%	**0.8%**
Asset return	10.0 + 0.5 − 0.8	**9.7%**
Net to investors	9.7 − 1.5 fund fees	**8.2%**

IN THE LESSON

- Let us build Ashgrove's return.
- S O F R is four per cent and the spread six per cent.
- Fees and discount total two per cent, spread over four years.
- Defaults run at two per cent a year, the loss given default, the share lost when a borrower defaults, is forty per cent, and fund fees are one and a half per cent.
- The coupon is four plus six, ten per cent, as on Kestrel's loan.
- Fees and discount add two per cent divided by four years, half a per cent a year.
- Credit losses are two per cent times forty per cent, point eight per cent.
- The asset return is ten plus a half minus point eight, nine point seven per cent.
- Take off one and a half per cent of fund fees, and investors net eight point two per cent.
- Remember that the loss line assumes a calm year.

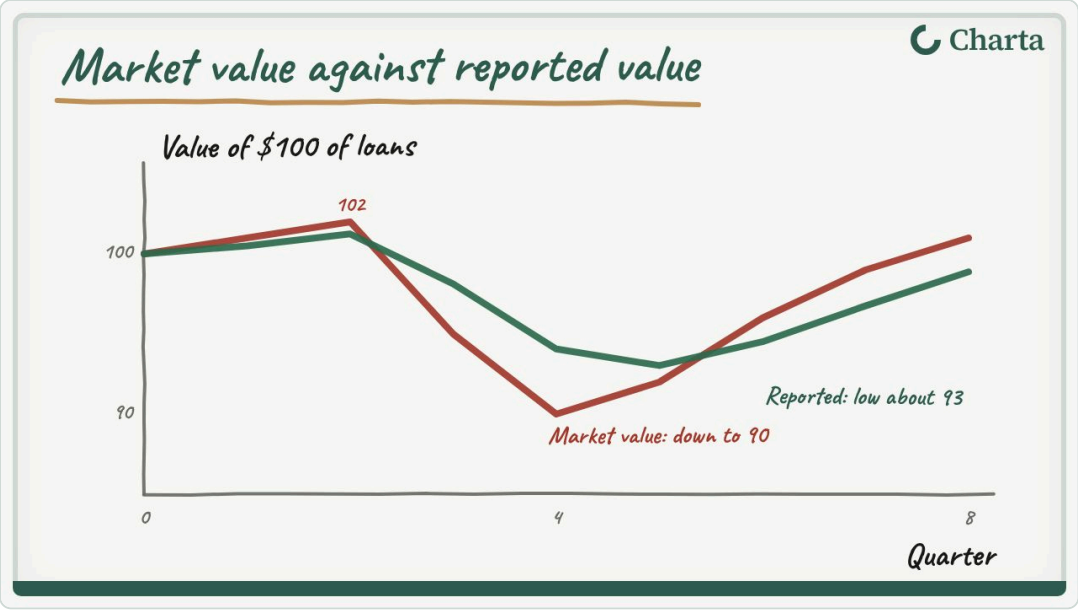
11 Why reported returns look so smooth

- No market price: managers value loans with models
- Valuations are infrequent, often quarterly
- Appraisal smoothing: values move late and partly
- Reported volatility understated
- Sharpe ratios look too good against marked bonds, equities

IN THE LESSON

- Reported private credit returns look strong and remarkably smooth.
- Why?
- There is no market price, so managers value the loans with models.
- Those valuations are infrequent, often once a quarter.
- The result is appraisal smoothing: when conditions worsen, the reported value moves late and only partly, because each new valuation leans on the last one.
- So reported volatility, the ups and downs of returns, is understated.
- And the Sharpe ratio, which is the excess return over the risk free rate divided by volatility, looks too good when set against bonds or equities that are marked to market, meaning valued every day at market prices.

12 Market value against reported value



IN THE LESSON

- Here is smoothing as a picture, with made up numbers.
- Along the bottom are quarters, from zero to eight, with quarter four marked.
- Up the side is the value of a hundred dollars of loans, with ninety and one hundred marked.
- The red line is what the loans would fetch in a market.
- It rises to one hundred and two, marked at quarter two, then a downturn drags it to ninety in quarter four, and it recovers.
- The green line is the reported value.
- Each quarter, the valuation moves only half way from the last reported value towards the market value.
- So it falls later and less, to a low of about ninety three in quarter five.
- The investor sees a smaller, later dip, about eight points against a true fall of twelve.

13 Undoing the smoothing

True vol ≈ reported vol × √((1 + φ) ÷ (1 − φ))

True volatility	What a market would show
Reported volatility	Volatility of reported returns
φ	First-order autocorrelation

IN THE LESSON

- We can roughly undo the smoothing.
- Smoothed returns are autocorrelated: a bad quarter tends to be followed by another bad quarter, because the write down is spread out.
- The rule reads: true volatility is roughly the reported volatility times an adjustment factor, the square root of one plus phi, divided by one minus phi.
- Look at the three terms.
- True volatility is the volatility you would see in a market.
- Reported volatility is the volatility of the reported returns.
- And phi, a Greek letter, is the first order autocorrelation of reported returns, the correlation between one period's return and the next.
- If phi is zero, the factor is one and no correction is needed.
- The higher phi is, the bigger the correction.

14 Example 3: Ashgrove's Sharpe ratio, unsmoothed

Net return 8.2%, risk-free 4.0%, reported volatility 3.0%, φ = 0.6

Adjustment factor	√(1.6 ÷ 0.4) = √4	**2.0**
True volatility	3.0% × 2.0	**6.0%**
Excess return	8.2% − 4.0%	**4.2%**
Sharpe, reported	4.2 ÷ 3.0	**1.40**
Sharpe, unsmoothed	4.2 ÷ 6.0	**0.70**

Marked bond fund: 3.0 ÷ 6.0 = 0.50. The gap mostly closes

IN THE LESSON

- Ashgrove reports a net return of eight point two per cent, the risk free rate is four per cent, reported volatility is three per cent a year, and phi is point six.
- The adjustment factor is the square root of one point six over point four, the square root of four, which is two.
- True volatility is three per cent times two, six per cent.
- The excess return is eight point two minus four, four point two per cent.
- The reported Sharpe ratio is four point two over three, one point four.
- Unsmoothed, it is four point two over six, point seven.
- Now take a made up bond fund, marked to market, with an excess return of three per cent and volatility of six per cent: its Sharpe ratio is three over six, point five.
- Reported, Ashgrove looked nearly three times better.
- Unsmoothed, the gap mostly closes.

15 Example 4: a calm year against a stressed year

Same loans, coupon and fees. Stressed year: defaults 8%, LGD 50%

Calm: credit losses	2% × 40%	**0.8%**
Calm: net to investors	10.0 + 0.5 − 0.8 − 1.5	**8.2%**
Stressed: credit losses	8% × 50%	**4.0%**
Stressed: net to investors	10.0 + 0.5 − 4.0 − 1.5	**5.0%**

Track record: mostly benign years with low defaults

IN THE LESSON

- Same loans, coupon and fees, but now a stressed year, with defaults of eight per cent and loss given default of fifty per cent.
- In the calm year, credit losses were two per cent times forty per cent, point eight per cent.
- Investors netted ten, the coupon, plus point five of fees, minus point eight, minus one and a half, which is eight point two per cent.
- In the stressed year, credit losses are eight per cent times fifty per cent, four per cent.
- Investors net ten plus point five, minus four, minus one and a half, five per cent, and that is before any fall in the loans' values.
- The point for the exam is that the track record covers mostly benign credit conditions with low defaults.

16 Comparing track records fairly

Adjust before you compare

	Private credit, reported	Public bonds, equities
Valuation	Model-based, infrequent	Market prices, daily
Volatility	Smoothed: too low	Full market swings
Sharpe ratio	Flattered	Fair to compare
What to do	Unsmooth, stress-test	Compare as they are

IN THE LESSON

- Adjust before you compare.
- This table sets reported private credit beside public bonds and equities.
- On valuation, private credit is model based and infrequent, while public assets have market prices every day.
- On volatility, private credit is smoothed and so too low, while public assets show the full market swings.
- On the Sharpe ratio, private credit's is flattered, while the public one is fair to compare.
- And on what to do: for private credit, unsmooth the returns and stress test them for a bad credit year, while public returns can be compared as they are.
- Strong reported returns may be partly real, but the honest comparison is made on the same footing.

17 Five weak points

- Opacity: little public data on loans or borrowers
- Valuation: manager models, so losses show late
- Liquidity mismatch: redeemable money in illiquid loans
- Leverage: in the borrowers and in the funds
- Interconnection: banks lend to funds, insurers hold loans

IN THE LESSON

- Now the risks.
- There are five main weak points.
- Opacity: there is little public data on the loans or the borrowers, so outsiders, including supervisors, struggle to see how much risk is building.
- Valuation: loans are valued by the managers' own models, so losses can be recognised late.
- Liquidity mismatch: some vehicles offer investors their money back at short notice while holding loans that cannot be sold quickly.
- Leverage: the borrowers are highly levered, and the funds can add leverage of their own on top.
- And interconnection: banks lend to the funds, and insurers hold the assets, so losses do not stay inside private credit.
- We now see these at work with Ashgrove and Kestrel.

18 How distress can hide

- Floating rate: higher base rate cuts interest coverage
- PIK: interest added to the loan, not paid in cash
- Amendments: covenants loosened, maturities pushed out
- So low non-accruals may overstate health

IN THE LESSON

- Start with the borrowers.
- They are highly levered and pay floating rates, so a rise in the base rate raises their interest cost straight away, cuts interest coverage and pushes up defaults.
- When a borrower struggles, distress can hide.
- One route is payment in kind, or P I K, interest: instead of paying interest in cash, the borrower adds it to the loan.
- Another is amendments: the lenders loosen a covenant or push out the maturity, so no default is triggered.
- A loan is put on non accrual when the lender stops booking its interest as income because payment is in doubt.
- With P I K and amendments, few loans reach that point, so low reported non accruals may overstate the portfolio's health.

19 Example 5: a rate shock hits Kestrel

Kestrel: $60m at SOFR + 6%, EBITDA $15m. SOFR rises from 4% to 7%

New coupon	7% + 6%	**13.0%**
New interest a year	13% × $60m	**$7.8m**
Interest coverage	15 ÷ 7.8 (was 2.5)	**1.92 times**
EBITDA also falls 20%	15 × 0.8	**$12m**
Interest coverage	12 ÷ 7.8	**1.54 times**

IN THE LESSON

- Kestrel borrowed sixty million at S O F R plus six per cent, with E B I T D A of fifteen million.
- Now S O F R rises from four to seven per cent.
- The new coupon is seven plus six, thirteen per cent.
- Interest for a year is thirteen per cent of sixty million, seven point eight million dollars, up from six.
- Interest coverage is fifteen over seven point eight, about one point nine two times, down from two and a half.
- Suppose that, in the same slowdown, E B I T D A also falls twenty per cent, to fifteen times point eight, which is twelve million.
- Coverage becomes twelve over seven point eight, about one point five four times.
- Nothing in the loan contract changed, yet Kestrel's cushion has shrunk sharply.

20 Example 6: PIK hides the strain

Kestrel cannot pay $7.8m in cash. Lenders agree PIK interest for one year

Cash interest received	PIK: none paid	**$0**
Added to the loan	60 + 7.8	**$67.8m**
Interest booked as income	accrued, not received	**$7.8m**
Reported non-accrual	interest still booked	**None**
Debt ÷ EBITDA	67.8 ÷ 12 (was 60 ÷ 12 = 5)	**5.65 times**

IN THE LESSON

- Kestrel cannot pay the seven point eight million in cash.
- The lenders agree an amendment: for one year, interest will be paid in kind.
- Cash interest received by Ashgrove is zero, because under P I K none is paid.
- Instead the seven point eight million is added to the loan, which grows from sixty to sixty seven point eight million.
- Yet Ashgrove still books seven point eight million of interest as income, accrued but not received.
- The reported non accrual status is none, because interest is still being booked.
- Meanwhile debt over E B I T D A is sixty seven point eight over twelve, five point six five times, up from sixty over twelve, five times.
- The reports look healthy while the borrower grows weaker.
- That is how distress hides.

21 Leverage in the fund, and promises to retail investors

- Credit lines: borrowing against commitments or loans
- NAV loans: borrowing secured on the fund's portfolio
- Fund leverage amplifies returns both ways
- Semi-liquid vehicles sold to retail investors
- Periodic redemptions promised against illiquid loans

IN THE LESSON

- Leverage also sits inside the funds.
- A fund can take credit lines from banks, borrowing against its investors' commitments or against its loans.
- It can also take N A V loans, borrowing secured on the net asset value of the fund's portfolio.
- Either way, fund leverage amplifies returns both ways.
- The other weak point is liquidity mismatch.
- Some vehicles are semi liquid and sold to retail investors, meaning individuals rather than institutions.
- They promise periodic redemptions, for example a chance to take money out each quarter, while the assets behind them are illiquid loans with no market price.
- In calm times few investors ask for their money.
- In a stress, many ask at once.

22 How fund leverage works

ROE = (A ÷ E) × asset return − (D ÷ E) × borrowing cost
A = E + D

A	Assets: the loans held
E	Equity: investors' money
D	Debt: credit lines, NAV loans
Asset return	Return on the loans
Borrowing cost	Interest paid on the debt

IN THE LESSON

- Here is the arithmetic of fund leverage.
- Return on equity, R O E, equals assets over equity times the asset return, minus debt over equity times the borrowing cost.
- Underneath, assets equal equity plus debt.
- Look at the five terms.
- The letter A stands for assets, the loans the fund holds.
- The letter E stands for equity, the investors' money.
- The letter D stands for debt, from credit lines and N A V loans.
- The asset return is the return on the loans, and the borrowing cost is the interest the fund pays on its debt.
- When the asset return beats the borrowing cost, leverage lifts the return on equity.
- When the loans lose money, leverage deepens the loss, and the borrowing cost is still due.

23 Example 7: Ashgrove's fund, levered

Equity $1,000m, debt $500m at 6%. Asset return 9.7% (good) or −4% (bad)

Assets	1,000 + 500	**$1,500m**
A ÷ E and D ÷ E	1,500 ÷ 1,000; 500 ÷ 1,000	**1.5 and 0.5**
Good year ROE	1.5 × 9.7% − 0.5 × 6%	**11.55%**
Bad year ROE	1.5 × (−4%) − 0.5 × 6%	**−9.0%**
Unlevered, for comparison	the asset return itself	**9.7% and −4%**

IN THE LESSON

- Ashgrove's fund has equity of one thousand million dollars and borrows five hundred million on a credit line at six per cent.
- In a good year the loans return nine point seven per cent, our asset return from before.
- In a bad year, with defaults and write downs, they return minus four per cent.
- Assets are one thousand plus five hundred, one thousand five hundred million.
- Assets over equity is one point five, and debt over equity is point five.
- In the good year, return on equity is one point five times nine point seven, fourteen point five five, minus point five times six, which is three, giving eleven point five five per cent.
- In the bad year, one point five times minus four is minus six, and minus three more gives minus nine per cent.
- Unlevered, the investor would have earned nine point seven or lost four.
- Leverage turned a loss of four into a loss of nine.

24 Example 8: a run on a semi-liquid fund

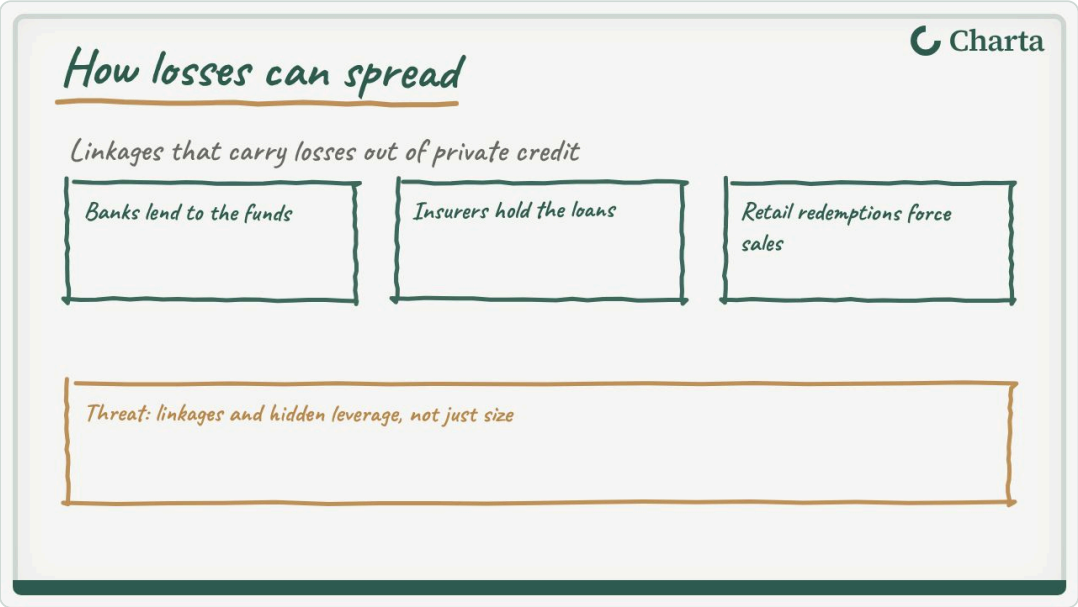
Ashgrove Income Plus: NAV $400m. Redemptions capped at 5% a quarter. Cash $16m

Quarterly redemption cap	5% × 400	**$20m**
Requests in a stress	12% × 400	**$48m**
Paid from cash	cash on hand	**$16m**
Loans sold to reach the cap	20 − 16	**$4m**
Requests left waiting	48 − 20	**$28m**

IN THE LESSON

- Ashgrove also runs Ashgrove Income Plus, a semi liquid vehicle for retail investors.
- Its net asset value, or N A V, is four hundred million dollars, redemptions are capped at five per cent a quarter, and it holds sixteen million in cash.
- The quarterly redemption cap is five per cent of four hundred, twenty million.
- In a stress, requests reach twelve per cent of four hundred, forty eight million.
- The fund pays sixteen million from cash on hand.
- To reach the cap it must sell four million of loans, twenty minus sixteen, into a weak market at whatever price it can get.
- Requests left waiting are forty eight minus twenty, twenty eight million, and those investors may ask again next quarter.
- A promise of liquidity on illiquid assets is tested exactly when it is hardest to keep.

25 How losses can spread



IN THE LESSON

- Why might private credit threaten financial stability?
- The row shows the linkages that carry losses out of private credit.
- Banks lend to the funds, through credit lines and N A V loans, so fund losses can come back to the banks.
- Insurers hold the loans, so losses can reach the capital that stands behind insurance policies.
- Retail redemptions from semi liquid funds can force sales and push values down further.
- Below is the key idea: the threat comes from linkages and hidden leverage, not just size.
- A large market that stood alone would matter less than a smaller one tied to banks and insurers through borrowing nobody can fully see.

26 Policy answers matched to weak points

Each proposal targets one specific weak point

Weak point	Proposal
Opacity and data gaps	Reporting: holdings, leverage
Valuation	Independent valuation, consistent standards
Fund leverage	Caps on fund leverage

IN THE LESSON

- Each proposal targets one specific weak point.
- For opacity and data gaps, the answer is standardised reporting to the authorities of holdings and leverage, so supervisors can see risk building across funds.
- For valuation, the answer is independent or third party valuation, plus consistent standards, so that two managers holding the same loan cannot show very different values, and losses are recognised sooner.
- For fund leverage, the answer is a cap on how much a fund may borrow relative to its equity.

27 More answers: banks, liquidity, insurers

Rules aimed at the linkages and the mismatch

Weak point	Proposal
Bank linkages	Limits or higher capital on bank loans to non-banks
Hidden exposures	Look-through reporting
Liquidity mismatch	Notice periods, gates, swing pricing
Insurers	Stronger capital rules, scrutiny of ratings
Whole system	System-wide stress tests

IN THE LESSON

- The second set covers the linkages.
- For bank linkages, the proposals are limits on, or higher capital charges for, bank lending to non bank financial institutions, such as private credit funds.
- Alongside comes look through reporting of exposures, so a bank or supervisor sees the loans behind an exposure to a fund, not just the fund's name.
- For liquidity mismatch, the aim is to align redemption terms with asset liquidity, through notice periods, so investors must warn in advance, gates, which cap redemptions in a period, and swing pricing, which charges leaving investors the cost of the sales they cause.
- For insurers, the proposals are stronger capital rules and scrutiny of the ratings on the assets they hold.
- And for the whole system, stress tests complement these rules, by showing how losses would travel through the linkages.

28 Weighing up a proposal

- Which vulnerability does it address?
- What does it cost?
- Tight rules may push activity to less regulated corners
- Or cut credit to mid-sized firms
- Best: targeted, most protection for least cost

IN THE LESSON

- How do we weigh up a proposal?
- First ask which vulnerability it addresses.
- Then ask what it costs.
- Tight rules may push activity to less regulated corners, so the risk moves out of sight rather than going away.
- For example, if banks face heavy charges on lending to funds, the funds may borrow from less regulated lenders instead.
- Or tight rules may cut credit to mid sized firms like Kestrel, which turned to private credit because banks and bond markets would not serve them.
- The best proposal is targeted at the weak point and gives the most protection for the least cost.
- That is the judgement the exam asks you to make.

29 Example 9: a leverage cap

NAV loan: equity $1,000m, debt $800m. Cap: debt ≤ 0.5 × equity

Debt allowed	0.5 × 1,000	**$500m**
Debt to repay	800 − 500	**$300m**
Sell assets, repay debt	1,800 − 300	**$1,500m assets**
Bad year ROE before cap	1.8 × (−4%) − 0.8 × 6%	**−12.0%**
Bad year ROE after cap	1.5 × (−4%) − 0.5 × 6%	**−9.0%**

Cost: good-year ROE falls from 12.66% to 11.55%

IN THE LESSON

- Now test a leverage cap on Ashgrove's fund.
- Suppose instead the fund took an N A V loan, raising debt to eight hundred million dollars, and a rule caps debt at point five times equity.
- We assume equity stays at one thousand million, though selling into a weak market could cut it.
- Debt allowed is point five times one thousand, five hundred million.
- Debt to repay is eight hundred minus five hundred, three hundred million.
- The fund meets the cap by selling assets and repaying debt, so assets fall from one thousand eight hundred to one thousand five hundred million.
- In a bad year before the cap, return on equity is one point eight times minus four, minus point eight times six, which is minus twelve per cent.
- After the cap, it is minus nine per cent.
- The cost: good year return on equity falls from one point eight times nine point seven, minus point eight times six, which is twelve point six six per cent, to eleven point five five.

30 Benefits and costs side by side

Judge each proposal by what it fixes and what it costs

Proposal	Benefit	Cost
Reporting	Risk build-up visible	Compliance burden
Independent valuation	Losses recognised sooner	Expense; still models
Leverage caps	Less amplification	Lower returns
Bank capital charges	Protects banks	Lending may move elsewhere
Redemption limits	Fewer forced sales	Less appeal to retail

IN THE LESSON

- Judge each proposal by what it fixes and what it costs.
- Reporting makes the build up of risk visible, at the cost of a compliance burden for managers.
- Independent valuation gets losses recognised sooner, but it is an expense and still relies on models, because there is no market price.
- Leverage caps mean less amplification of losses, at the cost of lower returns, as we just computed.
- Bank capital charges protect the banks, but lending may move elsewhere, into less regulated corners.
- And redemption limits, such as notice periods and gates, mean fewer forced sales, at the cost of less appeal to retail investors who want easy access.
- None is free, and none fixes every weak point, so the proposals work best together.

31 Mistakes to avoid

Five traps the exam likes

Trap	Correct view
A traded security	A loan, held to maturity
Smooth returns, low risk	Unsmooth: × √((1 + φ) ÷ (1 − φ))
Low non-accruals, healthy	PIK and amendments hide distress
Size alone is the threat	Linkages and hidden leverage
Strictest rule is best	Weigh cost; where does risk move?

IN THE LESSON

- Here are five traps the exam likes.
- First, private credit is not a traded security.
- It is a loan, held to maturity.
- Second, smooth returns do not mean low risk.
- Unsmooth the volatility, multiplying by the square root of one plus phi over one minus phi, before comparing.
- Third, low non accruals do not prove health, because payment in kind interest and amendments can hide distress.
- Fourth, size alone is not the threat.
- What matters for stability is the linkages to banks and insurers, and hidden leverage.
- Fifth, the strictest rule is not automatically the best.
- Weigh its cost, and ask where the risk would move.

32 Try three quick questions

1. Reported volatility 4%, φ = 0.5. Roughly what is true volatility?
   Answer: √(1.5 ÷ 0.5) = √3 ≈ 1.73. 4% × 1.73 ≈ 6.9%.
2. Equity $200m, debt $100m. Loans return 8%, borrowing cost 5%. ROE?
   Answer: 1.5 × 8% − 0.5 × 5% = 12% − 2.5% = 9.5%.
3. Non-accruals low, but PIK interest rising fast. Healthy book?
   Answer: Not necessarily: PIK can hide distress.

IN THE LESSON

- Now try three quick questions.
- Pause the video, think, then listen to the answers.
- Question one.
- A fund reports volatility of four per cent, and the autocorrelation of its returns is point five.
- Roughly what is the true volatility?
- The factor is the square root of one point five over point five, the square root of three, about one point seven three.
- Four per cent times that is about six point nine per cent.
- Question two.
- A fund has equity of two hundred million dollars and debt of one hundred million.
- Its loans return eight per cent and it borrows at five per cent.
- What is its return on equity?
- One point five times eight is twelve, minus point five times five, two and a half, gives nine point five per cent.
- Question three.
- A lender's non accruals are low, but payment in kind interest is rising fast.
- Is the book healthy?
- Not necessarily.
- Payment in kind interest can hide distress.