CHARTA LEARNING · LESSON NOTES

Netting, Close-out and Related Aspects

FRM Part II

1 A story: Harbourline and Meridian

- Bank Harbourline and fund Meridian trade OTC derivatives
- Some trades favour one side, some the other
- If Meridian fails, 40 separate claims would be a legal mess
- A liquidator might keep the good trades and drop the rest
- One shared legal framework is the cure

IN THE LESSON

- Harbourline is a bank.
- Over several years it has traded forty derivatives with Meridian Capital, a fund.
- A derivative is a contract whose value depends on something else, such as an interest rate, and over the counter means the two firms trade directly with each other rather than on an exchange.
- At any moment some of those forty contracts are worth money to Harbourline and some are worth money to Meridian.
- Now imagine Meridian collapses.
- If every contract stood alone, Harbourline would face forty separate claims, each argued over in court.
- Worse, Meridian's liquidator might pick the contracts that favour Meridian and walk away from the rest.
- One shared legal framework is the cure, and it has a name.

2 The ISDA package

Sign once, use for every OTC trade between the two firms

Part	Job
Master	General terms
Schedule	The parties' own elections
Credit Support Annex	Collateral rules
Definitions booklets	Product terms
Confirmation	One short note per trade

IN THE LESSON

- The International Swaps and Derivatives Association publishes a standard contract called the I S D A Master Agreement.
- The two firms sign it once, and then use it for every over the counter derivative they trade with each other.
- Its purpose is to replace a fresh negotiation for each deal with a common legal framework.
- The framework has five parts.
- The pre-printed Master carries the general terms.
- The Schedule is where the parties write their own elections and additions.
- The Credit Support Annex, or C S A, deals with collateral.
- Definitions booklets give the product terms.
- And a short Confirmation records each individual trade, with its dates and amounts.

3 One agreement, not many

- Section 1(c): all the documents form one single agreement
- That single agreement is what allows close-out netting
- On default: every trade valued, combined into one net claim
- No cherry picking: no keeping winners, dropping losers

IN THE LESSON

- Here is the sentence that matters most.
- Section one c of the Master says that the Master, the Schedule, the Confirmations and the rest all form a single agreement.
- That is what allows close-out netting.
- When a party defaults, every trade is valued and combined into one net claim.
- Without it, a liquidator, the official who winds up a failed firm, could cherry pick.
- That means keeping the contracts that are valuable to the failed firm and disclaiming the ones that are a burden to it.
- The survivor would then have to pay in full on its losing trades, yet receive only a fraction of what it is owed on its winning ones.
- A single agreement closes that door.

4 Example 1: why one agreement matters

Four trades: +14, +3, −9, −5. Recovery on claims 40%. $ millions

Owed to Harbourline	14 + 3	**$17m**
Harbourline owes	9 + 5	**$14m**
Net claim	17 − 14	**$3m**
Loss if cherry picked	60% × 17	**$10.2m**
Loss with netting	60% × 3	**$1.8m**

IN THE LESSON

- Let us put numbers on it.
- Harbourline has four trades with Meridian.
- Two are worth plus fourteen and plus three million dollars to Harbourline, so Meridian owes it seventeen million in total.
- Two are worth minus nine and minus five, so Harbourline owes fourteen million.
- Suppose there were no single agreement and Meridian's liquidator could cherry pick.
- The liquidator insists that Harbourline pays the fourteen million in full, but treats the seventeen million as an ordinary claim that recovers only forty per cent.
- Harbourline then loses sixty per cent of seventeen, which is ten point two million.
- With close-out netting the claim is just the net, three million, and the loss is sixty per cent of that, one point eight million.

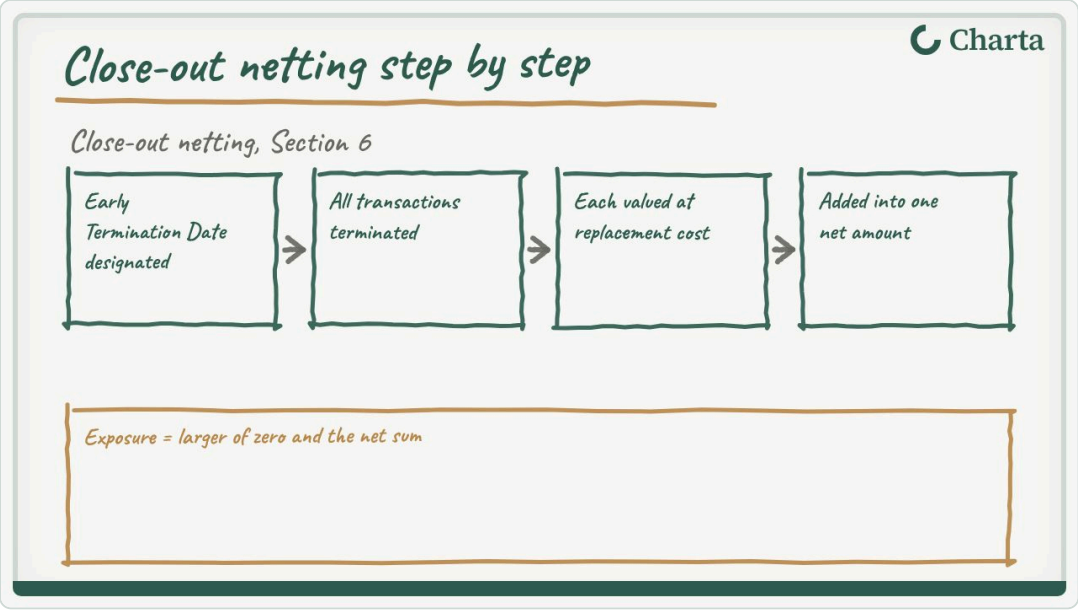
5 What the agreement does and does not do

- Cuts legal and operational risk: one standard framework
- With legal opinions: count netted, not gross, exposure
- Does not remove credit risk
- Does not set prices
- Does not require collateral by itself (that is the CSA)

IN THE LESSON

- So what is the agreement meant to achieve?
- It cuts legal risk, because one standard text has well-understood terms.
- It cuts operational risk, because the firms stop renegotiating every deal.
- And, supported by legal opinions saying that netting is enforceable in the relevant country, a firm may count its netted exposure rather than the gross sum.
- But be clear about its limits.
- It does not remove credit risk, because Meridian can still fail and leave a net claim unpaid.
- It does not set prices, which are agreed trade by trade.
- And it does not require collateral by itself.
- Collateral appears only if the parties complete the Credit Support Annex.

6 Close-out netting step by step



IN THE LESSON

- Close-out netting is the central procedure of the framework.
- Follow the boxes.
- When one party defaults, or another triggering event happens, an Early Termination Date is designated under Section six of the Master.
- On that date all the transactions under the agreement are terminated together.
- Each one is valued at its replacement cost, meaning what it would cost to replace it in the market.
- The values, some positive and some negative, are added into one net amount, which one party owes to the other.
- Harbourline's exposure is therefore the larger of zero and the net sum.
- If the net comes out negative, Harbourline is the one who owes, and it has no exposure.

7 Example 2: a close-out calculation

Replacement values to Harbourline: +12, −7, +4, −11. $ millions

Positive trades	12 + 4	**$16m**
Negative trades	−7 − 11	**−$18m**
Net amount	16 − 18	**−$2m**
Who pays	Harbourline pays Meridian	**$2m**
Exposure	max(0, −2)	**$0**

IN THE LESSON

- Take a later date, when the replacement values to Harbourline of its four trades have moved to plus twelve, minus seven, plus four and minus eleven million dollars.
- The positive trades add to sixteen million.
- The negative trades add to minus eighteen.
- Close-out combines them into a single net amount of minus two million.
- That means Harbourline owes Meridian two million, and its exposure is the larger of zero and minus two, which is zero.
- Without netting, Harbourline would have counted sixteen million of exposure.
- Notice what netting did here: it did not just reduce the exposure, it removed it completely, and it even reversed the direction of the single payment.

8 Close-out versus payment netting

Two different tools in the same agreement

	Payment	Close-out
Section	2(c)	6
Offsets	Same-day pay	All trades
Valued at	Amount due	Replacement cost
Cuts	Settlement risk	Default exposure
Strength	Weaker	Central

IN THE LESSON

- Do not confuse close-out netting with payment netting.
- The exam likes this trap.
- Payment netting sits in Section two c.
- It only offsets amounts due on the same date in the same currency, and it is a day-to-day settlement tool.
- It reduces settlement risk, which is the danger of paying out and not being paid back, and it cuts the number of cash flows.
- Close-out netting works at termination.
- It covers all the transactions, values them at replacement cost, and combines them into one claim.
- That reduces credit exposure on default, which is a far bigger effect.
- So payment netting is the weaker of the two, and having the first does not give you the second.

9 Example 3: payment netting

Same payment date, same currency (USD). $ millions

Harbourline owes	swap 1	**$5.0m**
Meridian owes	swap 2	**$3.2m**
One payment	Harbourline pays 5.0 − 3.2	**$1.8m**
Cash flows	two become one	**2 → 1**
A euro payment	different currency	**separate**

IN THE LESSON

- Here is payment netting at work.
- On one payment date, Harbourline owes Meridian five point zero million dollars on one swap, and Meridian owes Harbourline three point two million dollars on another swap.
- Both amounts are in dollars.
- Payment netting replaces the two payments with one: Harbourline pays one point eight million.
- Two cash flows become one.
- Now suppose Meridian also owes Harbourline some euros that day.
- A different currency stays a separate payment, because payment netting never mixes currencies.
- And remember what this does not do.
- It says nothing about what happens on default.
- For that, Harbourline needs close-out netting.

10 Multilateral netting

- Three or more firms, usually via a clearing house (CCP)
- The CCP becomes the counterparty to each participant
- Each participant ends with ONE net position
- Same idea as close-out netting, spread over many firms

IN THE LESSON

- Multilateral netting extends the idea from two firms to three or more participants.
- It usually runs through a clearing house, also called a central counterparty or C C P, which becomes the counterparty to each participant.
- Every participant then ends up with one net position against the clearing house, instead of many positions against many firms.
- Think of a ring of firms in which each owes the next: rather than every firm paying and being paid, each settles a single net figure with the middle.
- This is how clearing works in many markets.
- It lowers exposure, capital needs and settlement flows.
- But it works only where the netting is legally enforceable, and it places risk in one central entity.

11 Netting: pros and cons

Lower exposure, but with conditions

Netting	Effect
Advantage: exposure, capital	Lower
Advantage: settlement flows	Smaller
Drawback: legal basis	Must be enforceable
Drawback: central entity	Risk concentrated
Drawback: defaulter's loss	Shared by survivors

IN THE LESSON

- Weigh the advantages against the drawbacks.
- On the plus side, netting lowers credit exposure, which lowers the capital a bank must hold against it, and it shrinks settlement flows.
- The drawbacks matter just as much.
- First, everything depends on legal enforceability.
- If a court in some country will not honour the netting, the benefit disappears, which is why firms collect legal opinions.
- Second, in multilateral netting, risk is concentrated in the central entity, so its failure would be very serious.
- Third, there can be sharing of a defaulter's losses among the surviving members, who may be asked to contribute.
- So netting reduces risk, but it also moves some risk and concentrates it.

12 Net and gross exposure

Net = max(Σ V , 0)
Gross = Σ max(V , 0)
NGR = Net ÷ Gross

Netted exposure	Larger of zero and the total
Gross exposure	Positive values only
Net-to-gross ratio	Low ratio = big benefit

IN THE LESSON

- Why does netting cut exposure?
- Because a counterparty's claim is the net of its positive and negative trade values, not the sum of the positive ones.
- Give each trade a value, positive if it is worth money to us.
- Un-netted, or gross, exposure adds up only the positive values, because with no netting the negative trades must still be paid and cannot reduce what the counterparty owes us.
- Netted exposure is the larger of zero and the sum of all the values.
- The net-to-gross ratio, or N G R, divides current net exposure by current gross exposure.
- A low ratio means a large netting benefit, and a ratio of one means no benefit at all.

13 Example 4: a net-to-gross ratio

Five trades: +20, +15, −12, −9, −6. $ millions

Gross exposure	20 + 15	**$35m**
Sum of all values	20+15−12−9−6	**$8m**
Net exposure	max(8, 0)	**$8m**
NGR	8 ÷ 35	**22.9%**
Exposure removed	1 − 22.9%	**77.1%**

IN THE LESSON

- Suppose Harbourline's five trades with Meridian are worth plus twenty, plus fifteen, minus twelve, minus nine and minus six million dollars.
- Gross exposure counts only the positive values, so it is twenty plus fifteen, which is thirty five million.
- The sum of all five values is eight million, so netted exposure is eight million.
- The net-to-gross ratio is eight over thirty five, about twenty two point nine per cent.
- Put another way, netting removed more than three quarters of the exposure, seventy seven point one per cent.
- If every trade had been positive, the ratio would have been one hundred per cent and netting would have done nothing.

14 When does netting help most?

- Biggest: many trades, offsetting, low correlation
- Zero benefit if every trade has positive value
- Zero benefit with only one trade
- Purchased options are all positive: no netting gain
- Benefit varies, and needs legal enforceability

IN THE LESSON

- The benefit depends on the portfolio.
- It is largest when there are many trades, when they point in offsetting directions, and when their values have low or even negative correlation, meaning that when one gains the others tend to lose.
- Then positives and negatives cancel.
- The benefit falls to zero in two situations.
- If every trade has a positive value, there is nothing to offset, so net equals gross.
- And if there is only one trade, there is nothing to net it against.
- A portfolio of purchased options is the classic case: the buyer can only gain, so every value is positive.
- The usual mistake is to assume netting always helps by a fixed amount.
- It varies with the portfolio, and it works only where it is legally enforceable.

15 How the benefit depends on N and correlation

Ratio = √(1/N + (1 − 1/N) × ρ)
ρ = 1: ratio = 1. ρ = 0: ratio = 1/√N. Large N: ratio → √ρ

Number of trades, N	Identical, normal trade values
Correlation, rho	Same between every pair
Netted share of un-netted	Netted exposure ÷ un-netted

IN THE LESSON

- There is a neat formula for this.
- Take N identical trades whose values are normally distributed, with the same correlation rho between each pair.
- The expected exposure of the netted set, as a share of the un-netted figure, is the square root of one over N, plus one minus one over N, times rho.
- Check the extremes.
- With rho equal to one, the trades move together, the bracket becomes one, and netting gives no benefit.
- With rho equal to zero, the ratio is one over the square root of N, so ten trades cut exposure to about thirty two per cent.
- And as N becomes very large, the ratio tends to the square root of rho.
- Correlation sets a floor that more trades cannot beat.

16 Example 5: the ratio at work

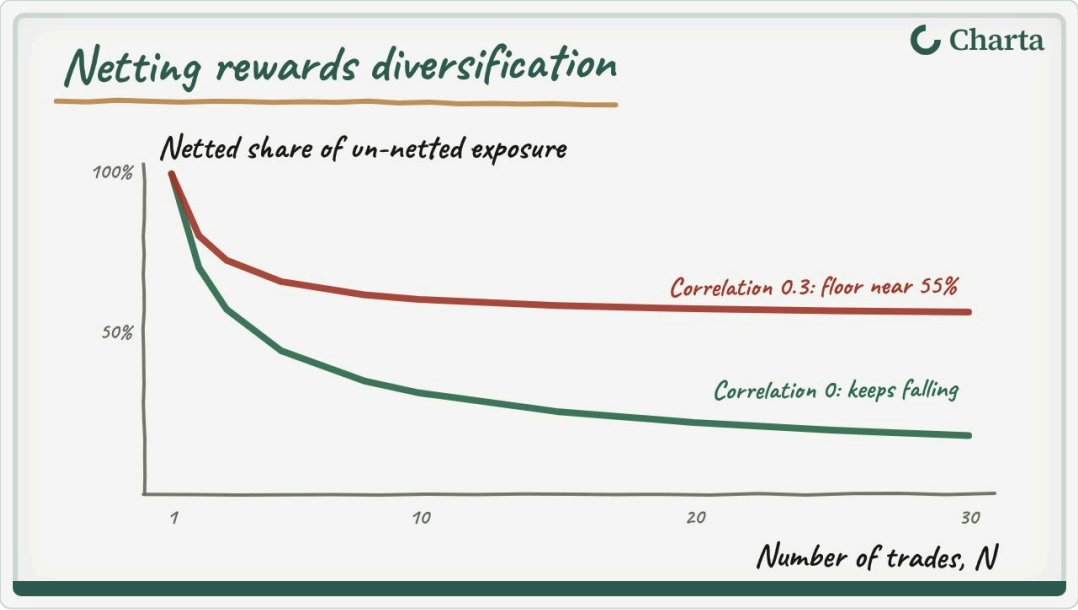
Identical normal trades. N trades, correlation ρ

N = 10, ρ = 0	√(1 ÷ 10)	**31.6%**
N = 10, ρ = 0.3	√(0.1 + 0.9 × 0.3)	**60.8%**
N = 10, ρ = 1	√(0.1 + 0.9)	**100%**
N = 100, ρ = 0.3	√(0.01 + 0.99 × 0.3)	**55.4%**
Floor, ρ = 0.3	√0.3	**54.8%**

IN THE LESSON

- Harbourline holds ten identical trades with Meridian.
- If their values are uncorrelated, the netted exposure is one over the square root of ten, which is thirty one point six per cent of the un-netted figure.
- With a correlation of thirty per cent, the bracket is point one plus point nine times point three, which is point three seven, and the root is sixty point eight per cent.
- With perfect correlation the ratio is one hundred per cent.
- Now go from ten trades to one hundred, keeping correlation at thirty per cent.
- The ratio only improves to fifty five point four per cent, and the floor, the square root of point three, is fifty four point eight.
- Low correlation matters more than piling up trades.

17 Netting rewards diversification



IN THE LESSON

- The chart shows the same thing as a picture.
- Along the bottom is the number of trades, from one to thirty.
- Up the side is the netted exposure as a share of the un-netted figure.
- With one trade there is no benefit, so both lines start at one hundred per cent.
- The green line has zero correlation.
- It keeps falling as trades are added, towards zero.
- The red line has a correlation of thirty per cent.
- It falls quickly at first, then flattens out near fifty five per cent, and refuses to fall further.
- Netting rewards diversification, but a common driver behind the trades puts a floor under the exposure.

18 Termination provisions

- Let a party end trades early and settle at market value
- Mutual break: either party may terminate on a set date
- e.g. year 5 of a 10-year swap
- Additional termination event: downgrade or NAV fall
- Aim: limit how long the party stays exposed

IN THE LESSON

- Netting limits the damage on default.
- Termination provisions try to limit how long a firm stays exposed in the first place.
- They let a party end transactions early and settle them at market value.
- There are two examples to know.
- A mutual break clause lets either side terminate on a stated date, for instance in the fifth year of a ten-year swap.
- It cuts the period of credit exposure from ten years to five.
- An additional termination event, written in the Schedule, gives the unaffected party the right to terminate when credit quality deteriorates, for example after a rating downgrade, or a fall in a fund's net asset value, known as N A V.
- Both let a firm act before default instead of waiting for it.

19 Example 6: a break clause and a NAV trigger

10-year swap. Meridian NAV reference $200m, trigger at a 30% fall

Swap term	10 years	**10 yrs**
Mutual break at year 5	exposure up to 5 yrs if used	**5 yrs**
NAV trigger level	200 × (1 − 30%)	**$140m**
NAV now	138 ÷ 200 − 1	**−31%**
Trigger breached?	138 below 140	**Yes**

IN THE LESSON

- Harbourline has a ten-year swap with Meridian, with a mutual break at year five.
- Either side may end the swap then, so exposure can be cut to five years, not ten.
- The Schedule also has an additional termination event.
- If Meridian's net asset value falls by more than thirty per cent from its reference level of two hundred million dollars, Harbourline may terminate.
- Thirty per cent below two hundred is a trigger of one hundred and forty million.
- Meridian's N A V is now one hundred and thirty eight million, a fall of thirty one per cent.
- The trigger is breached.
- Notice the timing: Meridian has already lost at least sixty million, and now sixty two million, before Harbourline can act.

20 Strengths and weaknesses

Useful, but not a cure

Provision	Verdict
Strength: shorter exposure	Acts early
Strength: market value	Fair settlement
Weakness: triggers lag	Damage done
Weakness: sudden breach	No warning
Weakness: demands cash	Procyclical

IN THE LESSON

- Termination provisions have clear strengths.
- They limit the time a party stays exposed, because it can leave on a date or when trouble starts.
- They settle at market value, so the unaffected party is not left holding a stale contract.
- And they let a firm act before default.
- But there are weaknesses.
- Triggers lag the deterioration: by the time a rating is cut or N A V has fallen, the damage may be done.
- The triggers can also be breached suddenly, with little warning.
- And termination demands a payment from a counterparty that is already under stress.
- That can be procyclical.
- The clause meant to protect the survivor can speed up the failure of the counterparty, and set off further terminations elsewhere.

21 Trade compression

- Removes redundant, offsetting trades (two firms or many)
- Replaces them with fewer trades
- Cuts gross notional, trade count, operations, capital
- Net market risk and net exposure essentially unchanged
- NOT a way to reduce net credit exposure

IN THE LESSON

- Trade compression is a different tool.
- It removes redundant or offsetting trades, either between two firms or among several, and replaces them with fewer ones.
- Over time dealers build up large books of trades that offset each other.
- Their risk is balanced, but the book is costly to run.
- Compression cuts gross notional, the trade count, the operational burden of confirming and settling, and the capital that gross figures drive.
- But look at what it leaves alone.
- Net market risk and net exposure are essentially unchanged, because the offsetting trades were already cancelling each other.
- So compression is not a way to reduce net credit exposure.
- Exam questions like to offer it as one, and it is not.

22 Example 7: bilateral compression

Same product, maturity, fixed rate and index. $ millions

Trade 1	Harbourline pays fixed	**$100m**
Trade 2	Meridian pays fixed	**$70m**
Compressed trade	Harbourline pays fixed	**$30m**
Gross notional	170 falls to 30	**– $140m**
Harbourline net position	pays fixed on 100 − 70	**$30m**

IN THE LESSON

- Now the worked cases.
- In a compression exercise all the trades must have the same terms: the product, the maturity, the fixed rate and the floating index.
- The direction of each trade is recorded as who pays fixed to whom.
- Say Harbourline pays fixed on one hundred million dollars to Meridian, and on another trade Meridian pays fixed on seventy million to Harbourline.
- The trades offset.
- They collapse into one trade for the difference in notional, thirty million, held in the direction of the larger one, so Harbourline pays fixed on thirty.
- Gross notional falls from one hundred seventy to thirty.
- Harbourline's net position, paying fixed on thirty, is the same as before.
- So Harbourline holds the net contract position, as the fixed payer.

23 Example 8: five firms, seven trades

- H Harbourline, M Meridian, N Northgate
- P Pelham, Q Quayside. Payer pays fixed to receiver
- H pays M 100; M pays N 80; N pays H 50
- P pays H 30; N pays P 40; P pays Q 25; Q pays N 25
- Same terms throughout. Gross = 350 ($m)

IN THE LESSON

- Now a multilateral case with five firms: Harbourline, Meridian, Northgate, Pelham and Quayside.
- We label them H, M, N, P and Q.
- Every trade has the same terms.
- For each trade the payer pays fixed to the receiver, and the notional is in millions of dollars.
- H pays fixed to M on one hundred.
- M pays fixed to N on eighty.
- N pays fixed to H on fifty.
- P pays fixed to H on thirty.
- N pays fixed to P on forty.
- P pays fixed to Q on twenty five.
- And Q pays fixed to N on twenty five.
- Add them up and the gross notional is three hundred and fifty million.
- The method is to compute each firm's net position, as notional received less notional paid.

24 Net positions of the five firms

Net position = notional received − notional paid. $ millions

Firm	Net position
H: 80 − 100	−20
M: 100 − 80	+20
N: 105 − 90	+15
P: 40 − 55	−15
Q: 25 − 25	0

IN THE LESSON

- Compute each firm's net position as notional received less notional paid.
- H received fifty plus thirty, which is eighty, and paid one hundred, so its net is minus twenty.
- M received one hundred and paid eighty, so plus twenty.
- N received eighty plus twenty five, one hundred and five, and paid fifty plus forty, ninety, so plus fifteen.
- P received forty and paid thirty plus twenty five, fifty five, so minus fifteen.
- Q received twenty five and paid twenty five, so zero.
- The nets add to zero, as they must.
- The positive ones, M and N, add to thirty five, and so do the negative ones, H and P.
- That figure, thirty five, will be the minimum gross notional that remains.

25 Pairing off and checking

Pair net payers with net receivers. $ millions

Minimum gross left	20 + 15 = 35	**$35m**
H pays fixed to M	−20 matched with +20	**$20m**
P pays fixed to N	−15 matched with +15	**$15m**
Q (net zero)	drops out entirely	**none**
Gross notional	350 falls to 35	**– $315m**

Check: every firm's net position is unchanged

IN THE LESSON

- The minimum remaining gross notional equals the sum of the positive net positions, thirty five million, which equals the sum of the negative ones.
- Now pair the net payers with the net receivers.
- H, a net payer of twenty, pays fixed to M, a net receiver of twenty, on twenty million.
- P, a net payer of fifteen, pays fixed to N, a net receiver of fifteen, on fifteen million.
- Q has a zero net position and drops out entirely.
- Seven trades and three hundred and fifty million become two trades and thirty five million.
- Now check that nothing changed in net terms.
- H is still a net fixed payer of twenty, M a receiver of twenty, N a receiver of fifteen and P a payer of fifteen.
- Compression changes gross, not net.

26 Events of Default

- Section 5(a), fault: failure to pay or deliver; breach
- Credit support default; misrepresentation
- Default under a specified transaction; cross default
- Bankruptcy
- Merger without assumption

IN THE LESSON

- Now the events that can end transactions early.
- Under an I S D A Master there are two families.
- The first, in Section five a, is Events of Default, which involve fault by one party.
- They are: failure to pay or deliver; breach of the agreement; credit support default, which is failing on collateral obligations; misrepresentation, a statement that was untrue when made; default under a specified transaction, meaning another named deal between the parties; cross default, a default on other debt; bankruptcy; and merger without assumption, where the firm merges and the new entity does not take on its obligations.
- The word to remember is fault.

27 Termination Events

- Section 5(b), no fault: illegality; force majeure
- Tax event; tax event upon merger
- Credit event upon merger (assumed, weaker credit)
- Additional events in Schedule: downgrade, NAV fall
- Either way: close out and net at market value

IN THE LESSON

- The second family, in Section five b, is Termination Events, and they involve no fault.
- Illegality means a change in law makes performing the contract unlawful.
- Force majeure means an extraordinary event outside the parties' control prevents performance.
- A tax event means a change in tax makes payments less favourable.
- A tax event upon merger is the same idea after a merger.
- A credit event upon merger is a merger where obligations are assumed but the resulting credit quality is weaker.
- And there are additional termination events agreed in the Schedule, such as a rating downgrade or an N A V decline.
- In every case the affected parties are identified, and the transactions are closed out and netted at market value.

28 Example 9: classify the event

Fault, or no fault?

Meridian misses a payment	fault	**Event of Default**
NAV falls 31%, trigger 30%	no fault	**Termination Event**
A new law makes swap illegal	no fault	**Termination Event**
Merger, obligations assumed	weaker credit	**Termination Event**

IN THE LESSON

- For the exam, classify the event first.
- Fault means Event of Default.
- No fault means Termination Event.
- A merger where obligations are assumed but credit quality is weaker is a Credit Event Upon Merger.
- Try four cases.
- Meridian misses a payment and does not put it right.
- That is fault, so an Event of Default.
- Meridian's N A V falls thirty one per cent, past the agreed thirty per cent trigger.
- No fault: an additional termination event from the Schedule.
- A new law makes the swap unlawful.
- No fault: illegality.
- Finally, Meridian merges into a weaker-rated firm that takes on all its obligations.
- Obligations assumed, credit weaker: a credit event upon merger, which is a Termination Event.

29 Example 10: effect on the two parties

After the NAV trigger. Netting set value to Harbourline. $ millions

In the money: terminate	collects the net	**+$3m**
Out of the money: may wait	terminating means paying	**−$2m**
Non-affected party	holds the option	**its choice**
Effect on Meridian	cash demanded in stress	**harsh**

IN THE LESSON

- What happens to the parties?
- The affected party is the one the event concerns, and the other is the non-affected party.
- The non-affected party can use a termination event as an option, ending the trades when that is in its favour.
- Suppose Meridian's N A V trigger has been breached.
- If the netting set is worth plus three million dollars to Harbourline, terminating lets it collect the three million net.
- If instead the set were worth minus two million, terminating would mean paying two million, so Harbourline may prefer to leave things as they are.
- It is a right, not an obligation.
- And the effect on Meridian is harsh: a fund already under stress must find cash at the worst moment.

30 Mistakes to avoid

- Close-out netting is not payment netting
- Netting benefit varies, and needs legal enforceability
- Compression cuts gross, not net, exposure
- Fault = Event of Default; no fault = Termination Event
- ISDA does not remove credit risk or require collateral

IN THE LESSON

- Here are the traps to avoid.
- First, do not confuse close-out netting with payment netting.
- Payment netting only offsets same-day, same-currency payments and reduces settlement risk.
- Close-out netting combines every trade into one claim on default.
- Second, netting does not help by a fixed amount.
- The benefit depends on the portfolio, falls to nothing with a single trade or all positive trades, and works only where it is legally enforceable.
- Third, compression cuts gross notional, not net exposure.
- Fourth, classify events first: fault means Event of Default, no fault means Termination Event.
- And finally, the I S D A agreement does not remove credit risk or require collateral by itself.

31 Recap: the main ideas

- One agreement: close-out netting, no cherry picking
- Close-out nets all trades; payment netting is same-day only
- NGR and the ratio formula measure the benefit
- Compression cuts gross, not net; pair payers with receivers
- Events of Default = fault; Termination Events = no fault

IN THE LESSON

- Let us pull it together.
- The I S D A Master Agreement is a standard framework signed once for all over the counter trades between two firms.
- Section one c makes it a single agreement, which allows close-out netting and stops cherry picking.
- On an Early Termination Date every trade is valued at replacement cost and combined into one net amount.
- Payment netting is weaker and offsets only same-day, same-currency payments.
- Multilateral netting works through a clearing house.
- The net-to-gross ratio measures the benefit, which depends on the number of trades and their correlation.
- Break clauses and termination events limit exposure time.
- Compression cuts gross notional but not net exposure.
- Events of Default involve fault, Termination Events do not.

32 Try three quick questions

1. Trades +30, −18, +6, −10 ($m), netting enforceable. NGR?
   Answer: Gross 36, net 8. 8 ÷ 36 = 22.2%.
2. N = 4 identical normal trades, ρ = 0.25. Netted share of un-netted?
   Answer: √(0.25 + 0.75 × 0.25) = √0.4375 = 66.1%.
3. Ring of 3 firms, each pays fixed on 40 to the next. Gross after compression?
   Answer: Every net position is 0, so 0 remains.

IN THE LESSON

- Now try three quick questions.
- Pause the video, think, then listen to the answers.
- Question one.
- A bank has four trades with one counterparty, worth plus thirty, minus eighteen, plus six and minus ten million dollars.
- Netting is enforceable.
- What is the net-to-gross ratio?
- Gross exposure is thirty plus six, thirty six million.
- The sum of all values is eight million.
- Eight over thirty six is twenty two point two per cent.
- Question two.
- Four identical normal trades have a correlation of point two five.
- What is the netted exposure as a share of the un-netted?
- The root of a quarter plus three quarters times a quarter is the root of point four three seven five, about sixty six point one per cent.
- Question three.
- Three firms form a ring, each paying fixed on forty million to the next, all on the same terms.
- What gross notional remains after compression?
- Every net position is zero, so none remains.