CHARTA LEARNING · LESSON NOTES

Intraday Liquidity Risk Management

FRM Part II

1 A story: balanced at the close, short at noon

- Payments go out early; receipts arrive late
- At the close, in equals out: nothing looks wrong
- At noon, Kestrel is $1,000m short
- If it cannot pay, others waiting on it are hit too
- That mid-day gap is intraday liquidity risk

IN THE LESSON

- Imagine Kestrel Bank on a busy morning.
- Its customers send large payments out early, while the payments it expects from other banks are due mostly in the afternoon.
- By the close, money in equals money out, and the overnight report shows nothing wrong.
- But at noon, Kestrel has sent a thousand million dollars more than it has received.
- If it cannot find that money at noon, payments stop, customers are let down, and other banks waiting for Kestrel's payments are hit in turn.
- Nothing in the end of day figure warned of it.
- That gap in the middle of the day is intraday liquidity risk.

2 What intraday liquidity is

- Funds a bank can reach during the business day
- Used to pay and settle obligations in real time
- Different from the overnight position at the close
- Each payment settles once funded; otherwise it queues
- One bank's delay can hold up many others

IN THE LESSON

- So what exactly is intraday liquidity?
- It is the funds a bank can reach during the business day to make payments and settle obligations in real time.
- It is different from the overnight position, which is what the bank reports at the close of business.
- In many large value payment systems, each payment settles one at a time, in full, as soon as the bank has the funds to cover it; if it does not, the payment waits in a queue.
- So the bank must have the money at the moment it pays, not merely by the evening.
- The risk is that the bank cannot meet a payment or settlement obligation when it falls due during the day.
- And because banks pay one another, one bank's delay can hold up many others.

3 Where intraday liquidity comes from

Five sources; the last one arrives only as the day unfolds

Source	What it is
Central bank reserves	Own money at the central bank
Central bank intraday credit	Against pledged collateral
Correspondent banks	Balances and unused lines
Unencumbered liquid assets	Can be sold or pledged
Payments received	Arrive during the day

IN THE LESSON

- Where does the money come from?
- There are five sources, and the last one arrives only as the day unfolds.
- First, reserve balances, which are the bank's own money held in its account at the central bank.
- Second, intraday credit from the central bank, which the bank can draw during the day against collateral it has pledged.
- Third, balances at correspondent banks, meaning other banks that hold accounts for it, together with any unused credit lines those banks have granted.
- Fourth, unencumbered liquid assets, meaning assets not already pledged elsewhere, which can be sold or pledged to raise cash.
- And fifth, the payments the bank receives from other participants as the day unfolds.
- The first four are ready at the opening.
- The fifth arrives only over time, and the bank cannot control when.

4 What intraday liquidity is needed for

The mirror image of the sources

Use	Example
Payment system payments	Sent into settlement systems
Customer, correspondent payments	Paid for clients and banks
Securities and FX settlement	Trades that settle today
Margin and collateral calls	Extra collateral demanded
Intraday credit it extends	Customers pay before funds arrive

IN THE LESSON

- The uses are the mirror image of the sources.
- First, payments the bank sends into payment and settlement systems.
- Second, payments made for customers, and for correspondent banking clients, meaning other banks that use Kestrel to make their payments.
- Third, the settlement of securities and foreign exchange trades.
- Fourth, margin and collateral calls, for example when a clearing house asks for more collateral during the day.
- And fifth, intraday credit that the bank itself extends to its own customers, letting them pay before their money arrives.
- That last item is easy to forget.
- Kestrel does not send it straight away, but it is a promise that can draw on Kestrel's liquidity at any moment.

5 Example 1: what Kestrel has at the opening

Kestrel's intraday liquidity available at the start of the day, $m

Reserves at the central bank	balance at the opening	**400**
Central bank intraday credit	against pledged collateral	**500**
Correspondent balances, lines	unused at the opening	**200**
Unencumbered liquid assets	can be pledged or sold	**300**
Available at the start	400 + 500 + 200 + 300	**1,400**

Later receipts not counted: not in hand at the opening

IN THE LESSON

- Let us count what Kestrel can reach at the start of the day, in millions of dollars.
- Its reserve balance at the central bank is four hundred.
- It has pledged collateral that lets it draw intraday credit from the central bank of up to five hundred.
- Its balances and unused lines at correspondent banks come to two hundred.
- And it holds unencumbered liquid assets of three hundred, which it could pledge or sell if needed.
- So its available liquidity at the start of the day is four hundred plus five hundred plus two hundred plus three hundred, which is one thousand four hundred million dollars.
- Payments it will receive later are not counted here, because they are not in hand at the opening.

6 Why the gross flows matter

- Gross inflows and outflows rarely arrive in step
- A day that nets to zero can still need a lot at mid-day
- Cumulative net position: receipts minus payments so far
- Below zero: the bank is funding the gap itself
- Daily maximum usage: its deepest point in the day

IN THE LESSON

- Here is the key idea of this part.
- Gross inflows and outflows rarely arrive in step.
- Gross means each payment counted on its own, before any netting.
- The bank's outflows may bunch in the morning, while its inflows come in the afternoon.
- So a bank whose day nets to zero can still need a large amount in the middle of the day.
- To see the need, track the cumulative net position.
- That is the running total of receipts minus payments since the opening.
- When it is below zero, the bank is using its own sources to fund the gap.
- Daily maximum usage is the deepest point that the cumulative net position reaches during the day.

7 Example 2: Kestrel's day, block by block

Kestrel's payments out and receipts in, $m, in two-hour blocks

08:00–10:00	out 900, in 300	**−600**
10:00–12:00	out 1,100, in 700	**−400**
12:00–14:00	out 800, in 1,000	**+200**
14:00–16:00	out 700, in 1,100	**+400**
16:00–18:00	out 500, in 900	**+400**

Totals: out 4,000, in 4,000. The day nets to zero

IN THE LESSON

- Here are Kestrel's payments out and receipts in, in two hour blocks, in millions of dollars.
- From eight to ten in the morning it pays out nine hundred and receives three hundred, a net of minus six hundred.
- From ten to twelve it pays one thousand one hundred and receives seven hundred, minus four hundred.
- From twelve to two in the afternoon it pays eight hundred and receives one thousand, plus two hundred.
- From two to four it pays seven hundred and receives one thousand one hundred, plus four hundred.
- And from four to six it pays five hundred and receives nine hundred, plus four hundred.
- Total payments are four thousand, total receipts are four thousand, so the day nets to exactly zero.

8 Example 3: the running total and the peak

Cumulative net position = receipts minus payments so far, $m

By 10:00	0 − 600	**−600**
By 12:00	−600 − 400	**−1,000**
By 14:00	−1,000 + 200	**−800**
By 16:00	−800 + 400	**−400**
By 18:00, the close	−400 + 400	**0**

Daily maximum usage: $1,000m, though the day nets to zero

IN THE LESSON

- The cumulative net position is receipts minus payments so far, so we keep a running total of the same nets, in millions of dollars.
- By ten o'clock the cumulative net position is zero minus six hundred, which is minus six hundred.
- By noon it is minus six hundred minus four hundred, which is minus one thousand.
- By two o'clock it is minus one thousand plus two hundred, minus eight hundred.
- By four it is minus eight hundred plus four hundred, minus four hundred.
- And by the close at six it is minus four hundred plus four hundred, which is zero.
- The deepest point is minus one thousand, at noon.
- So Kestrel's daily maximum usage is one thousand million dollars, even though the day nets to zero.

9 Cumulative net position and maximum usage

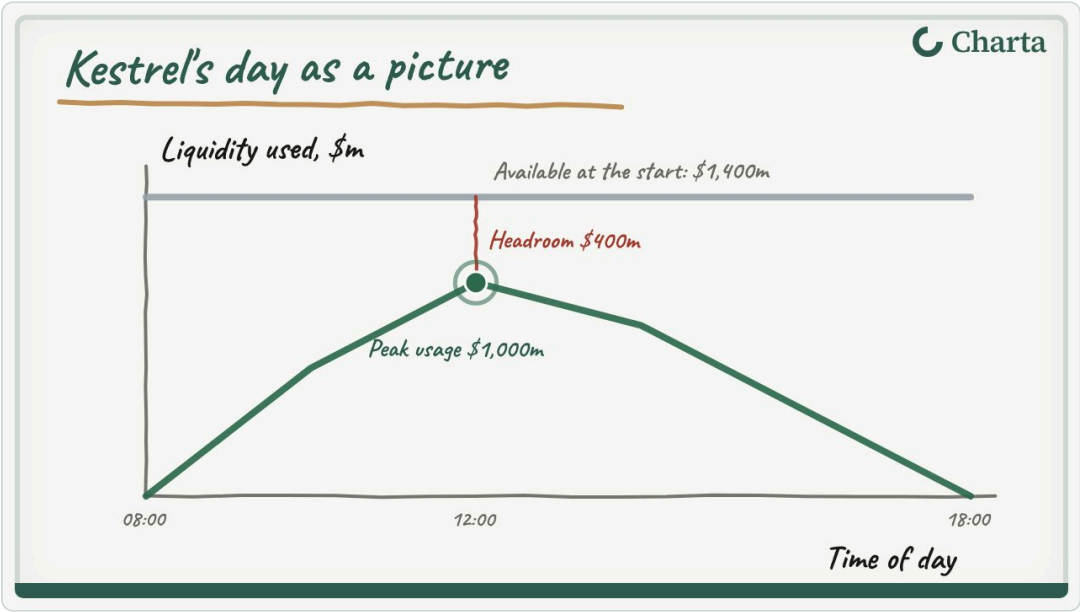
C(t) = receipts up to t − payments up to t
Daily maximum usage = − min C(t)

Receipts up to t	Received since the opening
Payments up to t	Sent since the opening
Cumulative net position, C(t)	Receipts minus payments so far
Daily maximum usage	The deepest point below zero

IN THE LESSON

- Let us write this as a formula.
- C of t, the cumulative net position at time t, equals receipts up to time t minus payments up to time t.
- Daily maximum usage equals minus the lowest value that C of t reaches during the day.
- The minus sign simply turns that deepest negative number into a positive amount of money used.
- Now the boxes.
- Receipts up to time t are all the payments received since the opening.
- Payments up to time t are all the payments sent since the opening.
- The cumulative net position is receipts minus payments so far.
- And daily maximum usage is the deepest point below zero.
- A bank tracks C of t payment by payment, so the true low can fall between our two hour checkpoints.

10 Kestrel's day as a picture



IN THE LESSON

- Here is the same day as a picture.
- Along the bottom is the time of day, from eight in the morning to six in the evening.
- Up the side is the liquidity used, which is payments minus receipts so far, the cumulative net position turned upside down.
- The green line climbs from zero to six hundred by ten, and to one thousand at noon, then falls back to zero at the close.
- The grey line across the top is what Kestrel had available at the start, one thousand four hundred million dollars.
- The peak usage is one thousand at noon.
- The gap between the peak and the grey line is the headroom, four hundred million dollars.
- Watch how small that gap is.

11 Mistakes to avoid when sizing the need

- Size the need from timing, not the end-of-day net
- Expected receipts are not cash at the opening
- Do not net away gross flows
- Remember promises: credit extended, margin calls
- A few checkpoints can miss a deeper low

IN THE LESSON

- Now the exam traps.
- The first is to size the need from the end of day net.
- Kestrel's day nets to zero, yet it needed one thousand million dollars at noon.
- Always size the need from the timing of the flows.
- The second is to count payments due in as if they were cash at the opening.
- They are a source only once they arrive, and a counterparty can be late.
- The third is to net away gross flows.
- Two flows of a thousand each net to nothing, but if the outflow comes first, the bank must fund it.
- The fourth is to forget the uses that are promises, such as intraday credit extended to customers and margin calls.
- Last, measuring only at a few checkpoints can miss a deeper low between them.

12 A story: the risk nobody owned

- Payments run by ops; ownership never written down
- A large receipt fails to arrive one morning
- No limit to compare with and nobody to call
- Failure: ownership implicit, no escalation path
- Escalation path: a route to someone who can act

IN THE LESSON

- Now to who is responsible.
- Picture Kestrel a few years earlier.
- Payments were run by the operations team, who were good at making payments go out on time.
- Nobody had ever written down who owned the intraday position.
- One morning a large expected receipt failed to arrive.
- The operations team saw the balance fall, but they had no limit to compare it with and nobody to call.
- They waited, hoping the money would come.
- By the time treasury heard, important payments had already queued.
- This is the typical failure: ownership left implicit inside operations, with no escalation path.
- Escalation path means a clear route for raising a problem to someone with the authority to act.

13 Approve, manage, measure, assure

Separate approving, managing, measuring and assuring

Layer	Role
Board	Approve: sets the tolerance
Senior management	Manage: policies, limits, systems
Treasury with payments ops	Manage: runs the day
Independent risk function	Measure: stress test, report
Internal audit	Assure: reviews the framework

IN THE LESSON

- Sound practice assigns responsibility in layers, and you can remember them as approve, manage, measure and assure.
- The board approves the bank's tolerance for liquidity risk, and that includes intraday risk.
- Senior management manages at the level of policy: it turns that tolerance into strategy, policies, limits and procedures, and provides the systems and staff needed to measure and control the flows.
- Treasury, working with payments operations, manages the position day to day.
- An independent risk function, separate from treasury, measures the risk, stress tests it and reports on it.
- And internal audit gives assurance by reviewing the whole framework.
- Notice that the people who run the position are not the people who measure it, and neither of them grades their own work.

14 What treasury does during the day

- Forecast gross inflows and outflows
- Arrange funding for the forecast gap
- Mobilise collateral to where it can be pledged
- Prioritise time-specific obligations
- Control when payments are released

IN THE LESSON

- Let us look more closely at the layer that runs the day.
- Treasury, working with payments operations, has five jobs.
- First, it forecasts gross inflows and outflows, not just the net, so it knows when the low point will come.
- Second, it arranges funding when the forecast shows a gap.
- Third, it mobilises collateral, moving assets to where they can be pledged, for example to the central bank to support intraday credit.
- Fourth, it prioritises time specific obligations.
- These are payments that must be made by a particular time, such as a settlement deadline, and they come first.
- Fifth, it controls when payments are released, holding back those that can safely wait.

15 Example 4: charging business lines for liquidity

Noon peak $1,000m; yearly cost of the buffer $5m (assumed)

Securities settlement	out 800, in 300	**−500**
Correspondent banking	out 700, in 400	**−300**
Corporate payments	out 500, in 300	**−200**
Check: adds to the peak	500 + 300 + 200	**1,000**
Charge: 50%, 30%, 20% of $5m	share of the 1,000 peak	**$2.5m, $1.5m, $1m**

IN THE LESSON

- Kestrel's noon peak is one thousand million dollars, and treasury estimates that keeping its intraday liquidity ready costs five million dollars a year.
- Business lines that generate payment flows should see the cost of the liquidity they use, through internal pricing, or they treat it as free and use too much.
- So treasury splits the cost by each line's share of the noon peak.
- Up to noon, securities settlement paid out eight hundred and received three hundred, a net of minus five hundred.
- Correspondent banking paid seven hundred and received four hundred, minus three hundred.
- Corporate payments paid five hundred and received three hundred, minus two hundred.
- Check: the three add to the peak of one thousand.
- So the shares are fifty, thirty and twenty per cent, and the charges are two point five, one point five and one million dollars.

16 Example 5: who does what at Kestrel

Kestrel: which layer does each task?

Approves the intraday tolerance	approve	**Board**
Sets usage limits, procedures	manage: policy	**Senior management**
Holds back a non-urgent payment	manage: day to day	**Treasury**
Runs the intraday stress test	measure	**Risk function**
Reviews the whole framework	assure	**Internal audit**

IN THE LESSON

- Let us sort some of Kestrel's tasks into the layers.
- Approving the bank's intraday risk tolerance is an approve task, so it belongs to the board.
- Setting the usage limits and the procedures for breaching them turns that tolerance into policy, so it belongs to senior management.
- Holding back a payment that is not urgent, on a morning when the balance is low, is a day to day management task, so it belongs to treasury with payments operations.
- Running the intraday stress test is a measurement task, so it belongs to the independent risk function.
- And reviewing whether the whole framework works is assurance, so it belongs to internal audit.
- If one team did all five, nobody would check anybody.

17 Example 6: a group must reach every entity

Kestrel Europe pays in euros through a euro payment system

Kestrel Europe: available	€50m reserves + €70m credit	**€120m**
Kestrel Europe: peak usage	deepest point in the day	**€150m**
Shortfall in euros	150 − 120	**€30m**
Parent headroom in dollars	1,400 − 1,000	**$400m**
Dollar headroom helps?	other entity, currency, system	**Not directly**

IN THE LESSON

- Kestrel owns a subsidiary, Kestrel Europe, which pays in euros through a euro payment system.
- In a group like this, responsibilities must reach each legal entity, each currency and each payment system.
- At its opening it has fifty million euros of reserves and seventy million euros of intraday credit, so one hundred and twenty million euros available.
- Its peak usage is one hundred and fifty million euros.
- That is a shortfall of thirty million euros.
- Meanwhile the parent has four hundred million dollars of headroom, one thousand four hundred minus one thousand.
- Does the dollar headroom help?
- Not directly.
- It sits in another legal entity, in another currency, in another payment system.
- A group view that adds the two together would hide the euro shortfall.

18 Mistakes to avoid in organising the work

- Ownership implicit in operations, no escalation path
- The team that runs the position also measures it
- Only a group total: misses one entity or currency
- Liquidity free to business lines: they overuse it
- Exam: keep approve, manage, measure, assure apart

IN THE LESSON

- Here are the traps in this part.
- The first is the one in our story: ownership left implicit inside operations, with no escalation path.
- The fix is written ownership and a clear route to someone who can act.
- The second is to let the team that runs the position also measure it, which leaves nobody independent to challenge it.
- The third is to look only at the group total, as in the euro example, and miss a shortfall in one entity, currency or payment system.
- The fourth is to give business lines their liquidity for free, so they have no reason to use less.
- For the exam, remember the four verbs and keep them apart: approving, managing, measuring and assuring.

19 Two families of monitoring tools

- Like a car: the map and clock, and the fuel gauge
- Flow-following: how money moves; what, and when?
- Risk-level: compare consumption with capacity
- They answer: how close to the limit, and under stress?
- Exam: use the two together, never one alone

IN THE LESSON

- Now to monitoring.
- Think of driving a car on a long trip.
- The map and the clock tell you where you are and when you will arrive.
- The fuel gauge tells you how much is left and how close you are to running out.
- A driver needs both.
- Intraday monitoring tools fall into two families in the same way.
- Flow following techniques record and project how money moves.
- They answer what is happening and when.
- Risk level techniques compare consumption with capacity and tolerance.
- They answer how close to the limit the bank is, and what happens under stress.
- The exam point is that a bank uses the two together, never one alone.

20 Flow-following techniques

They record and project how money moves

Technique	What it shows
Real-time capture	Every payment sent and received
Cumulative net position	Against its expected profile
Balances	At central bank, correspondents
Queues, time-specific items	What waits; what has a deadline
Throughput	Share paid by given times

IN THE LESSON

- Here are the flow following techniques.
- They record and project how money moves.
- First, real time capture of every payment sent and received, so the bank sees each flow as it happens.
- Second, the cumulative net position, compared with its expected profile, which is the shape the bank forecast for the day.
- Third, balances at the central bank and at correspondent banks, watched through the day.
- Fourth, queues of unsettled payments and time specific obligations, so the bank knows what is waiting and what has a deadline.
- Fifth, throughput, meaning the share of the bank's outgoing payments that has been settled by given times of day.
- All five describe the flows.
- None of them, on its own, tells the bank how close it is to running out.

21 Risk-level techniques

They compare consumption with capacity and tolerance

Technique	What it shows
Daily maximum usage	The deepest point of C(t)
Available at the start	Capacity to draw on
Headroom, usage ratio	How close to running out
Limits, early-warning triggers	When to act or raise the alarm
Stress tests, customer lines	Bad days; credit others can draw

IN THE LESSON

- And here are the risk level techniques.
- They compare consumption with capacity and tolerance.
- First, daily maximum usage, the deepest point of the cumulative net position, which we computed for Kestrel.
- Second, available liquidity at the start of the day, the capacity the bank has to draw on.
- Third, headroom, which is available liquidity minus usage, or the usage to available ratio, which is usage divided by what is available.
- Fourth, limits and early warning triggers, which set the levels at which the bank must act or raise the alarm.
- Fifth, stress test results, which show what happens to usage and headroom on a bad day.
- And the bank also watches the credit lines it has extended to customers, since others can draw on those at any moment.

22 Three measures to know

Usage ratio = max usage ÷ available at the start
Headroom = available at the start − max usage
Throughput by t = paid by t ÷ total paid in the day

Available at the start	Reserves, credit, lines, assets
Daily maximum usage	The deepest point of C(t)
Usage ratio	Near 1: little room left
Throughput by t	Share of outgoing paid by then

IN THE LESSON

- Three simple measures tie the two families together.
- The usage ratio equals maximum usage divided by available liquidity at the start.
- Headroom equals available liquidity at the start minus maximum usage.
- And throughput by time t equals the payments made by time t divided by the total paid in the day.
- Now the four boxes.
- Available at the start is the reserves, the intraday credit, the correspondent lines and the liquid assets.
- Daily maximum usage is the deepest point of C of t.
- The usage ratio is near one when little room is left.
- Throughput by time t is the share of outgoing payments made by then.
- The first two watch the risk level.
- Throughput follows the flows.

23 Example 7: Kestrel's risk level on a normal day

Kestrel's normal day, $m. Trigger set by senior management at 85%

Available at the start	400 + 500 + 200 + 300	**1,400**
Daily maximum usage	deepest point, at 12:00	**1,000**
Headroom	1,400 − 1,000	**400**
Usage ratio	1,000 ÷ 1,400	**71.4%**
Against the 85% trigger	71.4% is below 85%	**No alert**

IN THE LESSON

- Let us read Kestrel's risk level on its normal day, in millions of dollars, with an early warning trigger that senior management has set at a usage ratio of eighty five per cent.
- Available liquidity at the start is four hundred plus five hundred plus two hundred plus three hundred, one thousand four hundred.
- Daily maximum usage is one thousand, the deepest point, at noon.
- Headroom is one thousand four hundred minus one thousand, which is four hundred.
- The usage ratio is one thousand divided by one thousand four hundred, about seventy one point four per cent.
- Seventy one point four per cent is below the eighty five per cent trigger, so no alert is raised.
- On these numbers, the day looks comfortable.

24 Example 8: Kestrel's throughput on a normal day

Outgoing payments made by each time, out of $4,000m

Paid by 10:00	900 ÷ 4,000	**22.5%**
Paid by 12:00	(900 + 1,100) ÷ 4,000	**50.0%**
Paid by 14:00	(2,000 + 800) ÷ 4,000	**70.0%**
Paid by 16:00	(2,800 + 700) ÷ 4,000	**87.5%**

Spread through the day: Kestrel's payments are others' receipts

IN THE LESSON

- Now a flow measure for the same day: throughput, the share of Kestrel's four thousand million dollars of outgoing payments made by each time.
- By ten o'clock it has paid nine hundred, so nine hundred divided by four thousand, twenty two point five per cent.
- By noon it has paid nine hundred plus one thousand one hundred, which is two thousand, so fifty per cent.
- By two o'clock it has paid two thousand plus eight hundred, two thousand eight hundred, which is seventy per cent.
- By four it has paid two thousand eight hundred plus seven hundred, three thousand five hundred, which is eighty seven point five per cent.
- Payments are spread through the day.
- That is what other banks want to see, because Kestrel's payments are their receipts.

25 Example 9: the day Kestrel held back its payments

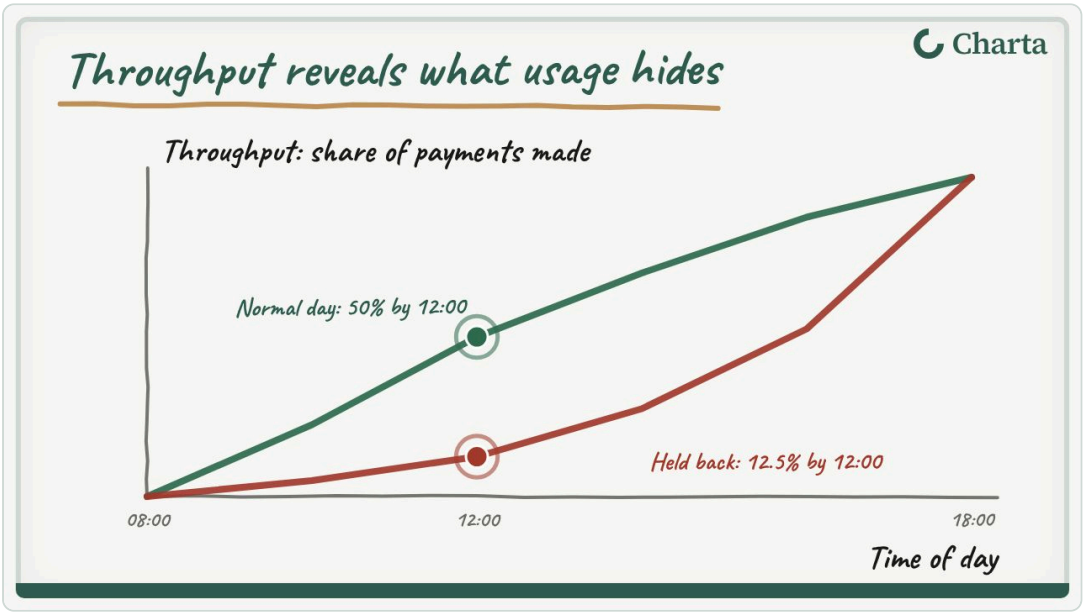
Same receipts; payments held back: 200, 300, 600, 1,000, 1,900 ($m)

Block nets, first 300 − 200	+100, +400, +400, +100, −1,000	**sum to 0**
Running total, never below 0	+100, +500, +900, +1,000, 0	**Max usage 0**
Throughput by 12:00	500 ÷ 4,000	**12.5%**
Throughput by 16:00	2,100 ÷ 4,000	**52.5%**
Paid in the last two hours	1,900 ÷ 4,000	**47.5%**

IN THE LESSON

- Now a different day.
- The receipts are the same, but Kestrel holds its payments back, paying two hundred, three hundred, six hundred, one thousand and then one thousand nine hundred in the five blocks.
- Receiving three hundred while paying two hundred gives a first block net of plus one hundred, and the later block nets are plus four hundred, plus four hundred, plus one hundred and minus one thousand, which sum to zero.
- So the cumulative net position goes to plus one hundred, plus five hundred, plus nine hundred, plus one thousand, and finally zero.
- It never goes below zero, so daily maximum usage is zero.
- On the risk measure, a perfect day.
- Now the flow measure.
- By noon Kestrel has paid five hundred of four thousand, twelve point five per cent.
- By four o'clock, two thousand one hundred, fifty two point five per cent.
- And one thousand nine hundred, forty seven point five per cent, is paid in the last two hours.
- That is late day payment hoarding.

26 Throughput reveals what usage hides



IN THE LESSON

- This chart puts the two days side by side.
- Along the bottom is the time of day, from eight to six.
- Up the side is throughput, the share of the day's outgoing payments already made.
- The green line is the normal day.
- It climbs steadily and reaches fifty per cent at noon.
- The red line is the day Kestrel held back.
- It crawls along the bottom, at only twelve point five per cent by noon, and then shoots up at the very end.
- The low peak usage of that day hid the hoarding, and only the timing data reveals it.
- Hoarding matters because if every bank waits for others to pay first, receipts dry up for everyone.

27 Example 10: a stress test on Kestrel's day

Stress: $500m of 12:00–14:00 receipts arrive only at 16:00–18:00

By 12:00, as usual	−600 − 400	**−1,000**
12:00–14:00: in 500, out 800	−1,000 + 500 − 800	**−1,300**
14:00–16:00: in 1,100, out 700	−1,300 + 400	**−900**
Usage ratio under stress	1,300 ÷ 1,400	**92.9%**
Against the 85% trigger	headroom 1,400 − 1,300 = 100	**Breach**

16:00–18:00: in 1,400, out 500, so back to 0 at the close

IN THE LESSON

- Finally a stress test, a risk level tool.
- Suppose a large counterparty is late, so five hundred million dollars of receipts due between noon and two arrive only between four and six.
- Payments stay as on the normal day.
- By noon nothing has changed: minus six hundred minus four hundred, minus one thousand.
- Between noon and two Kestrel now receives one thousand minus five hundred, five hundred, and pays eight hundred, so the position is minus one thousand plus five hundred minus eight hundred, which is minus one thousand three hundred.
- Between two and four it receives one thousand one hundred and pays seven hundred, rising to minus nine hundred.
- The usage ratio becomes one thousand three hundred over one thousand four hundred, about ninety two point nine per cent.
- Headroom is just one hundred.
- That breaches the eighty five per cent trigger.
- Between four and six it receives one thousand four hundred and pays five hundred, so it is back to zero at the close.

28 Use the two families together

- Normal day: ratio 71.4%; payments spread evenly
- Held-back day: zero usage hides the hoarding
- Stress: one late payer takes Kestrel past its trigger
- Flow tools: what, and when? Risk tools: how close?
- Exam: use the two together, never one alone

IN THE LESSON

- Let us bring the two families together.
- On Kestrel's normal day, the risk tools showed a usage ratio of seventy one point four per cent, and the flow tools showed payments spread evenly.
- On the day it held back, the risk tools showed zero usage, which looked perfect, while the flow tools exposed the hoarding.
- In the stress test, Kestrel's own payments, and so its throughput, were unchanged, but the risk tools showed that one late counterparty would take Kestrel past its trigger.
- Each family catches what the other misses.
- Flow tools answer what is happening and when.
- Risk tools answer how close to the limit the bank is, and what happens under stress.
- So the rule for the exam is simple: use the two together, never one alone.

29 Try three quick questions

1. C(t) at 9, 11, 13, 15, close: −200, −700, −450, +100, 0 ($m). Maximum usage?
   Answer: Deepest point: $700m, though the day nets to zero.
2. Reserves 250, intraday credit 350, lines 100; peak usage 560 ($m). Ratio, headroom?
   Answer: Available 700. 560 ÷ 700 = 80%; headroom $140m.
3. Who approves the tolerance, runs the day, measures, assures?
   Answer: Board; treasury with payments ops; independent risk; audit.

IN THE LESSON

- Now try three quick questions.
- Pause the video, think, then listen to the answers.
- Question one.
- A bank's cumulative net position at nine, eleven, one, three and the close is minus two hundred, minus seven hundred, minus four hundred and fifty, plus one hundred and zero, in millions of dollars.
- What is its daily maximum usage?
- Seven hundred million dollars, the deepest point, even though the day nets to zero.
- Question two.
- A bank opens with reserves of two hundred and fifty, intraday credit of three hundred and fifty and correspondent lines of one hundred, in millions.
- Its peak usage is five hundred and sixty.
- What are its usage ratio and headroom?
- Available is seven hundred, so the ratio is eighty per cent and headroom is one hundred and forty million.
- Question three.
- Who approves the intraday tolerance, who runs the day, who measures, and who assures?
- The board, treasury with payments operations, the independent risk function, and internal audit.