Learning from financial disasters

FRM Part I

1 A story: the same failure in different clothes

- Lifeguard audits her own work: no check
- Bonus for every ticket sold: nobody says the pool is full
- Water drains faster than anyone can react: liquidity
- Risk measured wrongly: the report looks fine
- Different cases, the same few failures

IN THE LESSON

- Imagine a lifeguard who is also the person who writes the safety report.
- One quiet afternoon she misses a swimmer, and the report says everything was fine.
- Nobody else checks.
- Now imagine a pool that sells tickets on how many swimmers it lets in, and pays staff a bonus for each ticket.
- Nobody has the incentive to say the pool is too full.
- And suppose the pool drains from the bottom so quickly that, when people panic, the water is gone before anyone can act.
- Financial disasters look different on the surface, but they usually repeat the same few failures: weak checks, bad incentives, risks that were measured wrongly, and cash that was not there when needed.

2 Why the course studies disasters

- Each case teaches one failure; learn the pairing
- Questions usually ask you to match case to cause
- Rarely one cause: model, oversight and pay combine
- The skill: ask what happens if the assumptions fail

IN THE LESSON

- Why does the course spend time on old failures?
- Because each one is a compact lesson in a specific kind of risk, and questions usually ask you to match a case to its cause.
- Learn the pairing and you will also recognise the pattern in situations you have never seen.
- Notice two things as we go.
- First, almost no disaster has a single cause.
- A model that was wrong, a manager who did not look, and a pay scheme that rewarded risk usually arrive together.
- Second, the weaknesses were usually visible in advance.
- The surprise is only for those who did not ask what happens if the assumptions fail.
- Our job is to ask that question in advance.

3 A framework: four questions for any disaster

Disaster = measurement gap + control gap + perverse incentive + liquidity strain, magnified by leverage

Risk measurement	Wrong or missing risk measure
Governance and controls	Nobody independent checking
Incentives	Pay rewards taking risk
Liquidity and funding	Cash or funding not there
Leverage	Borrowing magnifies each error

IN THE LESSON

- Here is a framework you can apply to every case.
- Ask four questions.
- First, risk measurement: was the risk measured at all, and was it measured correctly?
- A model can look precise and still be wrong about tails, correlations or liquidity.
- Second, governance and controls: who checked the people taking the risk, and could one person control both sides of a process?
- Third, incentives: what behaviour was the pay and the culture rewarding?
- Fourth, liquidity and funding: when trouble came, could the firm still meet its payments, or did it depend on short-term money that vanished?
- Leverage sits behind all four, because borrowing magnifies every mistake.
- Use these as a checklist.

4 The savings and loan crisis, 1980s

- Long fixed-rate mortgages funded by short-term deposits
- Duration mismatch: rates rise, funding cost jumps first
- Deposit insurance: depositors stop watching risk
- Moral hazard: gamble with other people's downside

IN THE LESSON

- Start in the United States in the nineteen eighties.
- Savings and loan associations, often called thrifts, took in short-term deposits and used them to make long-term, fixed-rate home loans.
- That is a duration mismatch: the assets were long and fixed, the liabilities were short and repriced quickly.
- When interest rates rose sharply around the turn of the nineteen eighties, the thrifts had to pay more to depositors while still earning the old low rate on their mortgages.
- That squeezed profits and wiped out capital.
- Then a second problem appeared.
- Deposits were insured, so depositors did not care how risky their thrift was, and weakened thrifts had little to lose by gambling, and looser rules let some take on riskier lending.
- That is moral hazard: when someone else bears the downside, risk taking rises.

5 Example 1: duration mismatch squeezes a thrift

Illustration: $100m of 6% fixed mortgages, funded by deposits

Mortgage income	6% × $100m	**$6m**
Funding cost at 4%	4% × $100m	**$4m**
Spread at 4%	$6m − $4m	**$2m**
Funding cost at 8%	8% × $100m	**$8m**
Result after the rise	$6m − $8m	**−$2m a year**

IN THE LESSON

- Let us put numbers on it.
- These are made-up round figures.
- A thrift holds one hundred million dollars of fixed-rate mortgages earning six per cent, so its income is six million a year.
- It funds them with short-term deposits that cost four per cent, so its interest cost is four million, and it earns a two million spread.
- Now market rates rise and the deposits must be repriced to eight per cent.
- The cost jumps to eight million, while the mortgage income stays fixed at six.
- The thrift now loses two million a year.
- Nothing about the borrowers changed.
- No one defaulted.
- The loss came entirely from lending long and borrowing short, which is why interest rate risk, not credit risk, was the first problem.

6 Barings, 1995: one man, both sides of the desk

- Trader controlled trading AND settlement in one office
- Losses hidden in an error account; profits reported
- Doubling up to win it back made the hole deeper
- Lesson: segregate duties; reconcile independently

IN THE LESSON

- Barings was an old British merchant bank.
- Its Singapore office had a trader, Nick Leeson, who ran trading in futures and options and also controlled the back office that settled and recorded those trades.
- That is a failure of segregation of duties: the person who makes the bets should never be the person who confirms and books them.
- Leeson used a secret error account to hide losses, and showed the bank profits instead.
- Because nobody independent was checking, the hidden losses grew, and each loss was met by taking larger positions to try to win it back.
- His positions were bets on Japanese stock index futures and options.
- In January nineteen ninety-five, after the Kobe earthquake, the Japanese market fell against him, the losses were far larger than the bank could absorb, and Barings collapsed.

7 Example 2: what an error account hides

Illustration: reported against true result (millions)

Trading profit reported	visible to management	**+$3m**
Losses parked in error account	hidden	**−$12m**
True result	$3m − $12m	**−$9m**
What would have caught it	independent reconciliation	**Control**

IN THE LESSON

- A small illustration of how hiding works.
- Say a trader reports a three million dollar profit this month.
- In truth, the trading book made a gain of three million, but a separate set of trades lost twelve million, and those losses were parked in an error account, a place meant for small clerical mistakes.
- The reported result is plus three million.
- The true result is three minus twelve, which is minus nine million.
- If the same person writes the report, nobody sees the gap.
- A single independent reconciliation of the error account against actual trades, or a rule that large balances must be explained, would have exposed it.
- The fix is not clever mathematics.
- It is separating who trades from who records.

8 Orange County, 1994: a bet that rates stay low

- Treasurer levered the pool with reverse repos
- Structured notes: a bet that rates stay low
- Rates rose in 1994; borrowing magnified the loss
- Lesson: leverage plus a one-way bet plus weak oversight

IN THE LESSON

- Orange County, California, ran an investment pool for local governments, managed by its treasurer.
- To boost returns, he borrowed against the pool's securities using reverse repurchase agreements, and used the cash to buy more, including structured notes such as inverse floaters, whose payments fall when interest rates rise.
- The strategy was a big bet that interest rates would stay low.
- It worked while rates were low and stable.
- When the Federal Reserve raised rates in nineteen ninety-four, the securities lost value, the borrowing magnified the losses, and the county filed for bankruptcy in December of that year.
- Lessons: leverage hides inside borrowing, complex instruments need independent understanding, and one outcome should never decide a public fund.

9 Example 3: how leverage magnifies a rate rise

Illustration: $100m own funds, $100m borrowed, securities fall 8%

Securities held	$100m + $100m	**$200m**
Fall in value	8% × $200m	**$16m**
Loss on own funds	$16m ÷ $100m	**16%**
Unlevered loss	8% × $100m ÷ $100m	**8%**

IN THE LESSON

- Here is the arithmetic behind that bet, with made-up numbers.
- The pool has one hundred million dollars of its own money.
- It borrows another hundred million through reverse repos and buys two hundred million of securities.
- Now rates rise and the securities fall in value by eight per cent.
- The loss is eight per cent of two hundred, which is sixteen million dollars.
- Measured against the pool's own one hundred million, that is a sixteen per cent loss, double the eight per cent a plain unlevered holder would suffer.
- The pool's depositors thought they had a safe cash-like fund.
- They had in fact a leveraged bet on interest rates, and the leverage is exactly what turned a rate move into a crisis.

10 Bankers Trust 1994: an unsuitable sale

- Swaps sold to Procter and Gamble, Gibson Greetings
- Rates rose in 1994; clients lost and disputed terms
- A sales-practice, legal and reputation failure
- Lesson: suitability, disclosure, honest valuation

IN THE LESSON

- Bankers Trust sold complex, highly leveraged swaps to clients such as Procter and Gamble and Gibson Greetings.
- A swap is an agreement to exchange payments, and these were structured so that a rise in interest rates produced very large payments by the client.
- When rates moved in nineteen ninety-four, both clients lost heavily and disputed what they had been told.
- This case is mainly about sales practice, legal risk and reputation.
- Recorded calls and internal comments suggested the bank had not been straight about the risks.
- The lesson is that selling a product the client cannot value, and where the dealer holds the information advantage, creates legal and reputational losses well beyond the trade itself.
- Suitability and disclosure matter.

11 Metallgesellschaft, 1993: a hedge that drained cash

- Sold fixed-price oil contracts for many years ahead
- Hedged with short-dated futures, rolled again and again
- Oil fell: futures losses paid in cash through margin calls
- Lesson: even a defended hedge can fail on funding liquidity

IN THE LESSON

- Metallgesellschaft was a German industrial group whose American oil unit sold customers long-dated contracts to deliver oil at fixed prices, for up to ten years.
- To hedge the risk that oil prices would rise, it bought short-dated futures and rolled them forward month after month.
- Some defended the hedge as economically sensible, while critics pointed to the risk and cost of rolling short-dated futures.
- Either way, when oil prices fell in nineteen ninety-three, the futures lost money and had to be settled in cash every day through margin calls, while the offsetting gain on the long-dated contracts was only an unrealised gain, collected over years.
- The firm faced a severe funding strain.
- The lesson is that even a defensible hedge can fail on liquidity, because the cash flows do not match in time.

12 Example 4: paper gain, cash loss

Illustration: 10 million barrels hedged, oil falls $5 a barrel

Barrels hedged	futures and contracts	**10 million**
Price fall	per barrel	**$5**
Margin paid now	10m × $5	**$50m cash out**
Offsetting gain	earned over years	**$50m, slowly**

IN THE LESSON

- Let us see the timing mismatch in numbers, ignoring discounting.
- Suppose the firm hedges ten million barrels of fixed-price delivery obligations by holding futures on ten million barrels.
- Oil then falls five dollars a barrel.
- The futures lose five dollars on each of ten million barrels, which is fifty million dollars, and the exchange demands that cash as margin immediately.
- The fixed-price contracts gain by roughly the same amount, because the firm is delivering at a price above the market, but that gain arrives only as the oil is delivered over many years.
- So the firm has fifty million dollars of cash going out now against fifty million dollars of gain coming in slowly.
- A profitable position can still lead to a funding crisis.

13 Niederhoffer, 1997: selling insurance on the tail

- Fund sold index options: small premiums, usually steady
- Short option: gain capped, tail loss very large
- A sharp fall in 1997 exceeded the fund's equity
- Lesson: stress the tail; do not judge by a calm record

IN THE LESSON

- Victor Niederhoffer ran a hedge fund that sold options on stock market indexes.
- It earned small premiums most of the time, a bit like an insurance company.
- The risk is a short option position: the gain is capped at the premium collected, but the loss can be enormous if the market falls sharply.
- In October nineteen ninety-seven, a sudden fall in markets triggered losses that wiped out the fund's capital.
- This is a tail risk problem: a strategy that looks wonderfully steady for years can contain a rare loss larger than all the equity.
- Leverage made it worse because the exposure was many times the capital.
- The lesson is to measure the worst case, not just the typical month, and to stress test short option positions.

14 Example 5: small income, one huge loss

Illustration: $100m equity, $2m yearly premium, $500m exposure

Premium as share of equity	$2m ÷ $100m	**2%**
Exposure	options on index	**$500m**
Crash beyond strike	20% × $500m	**$100m loss**
Years of premium to repay	$100m ÷ $2m	**50 years**

IN THE LESSON

- Here is the shape of that risk with made-up round numbers.
- The fund has one hundred million dollars of equity.
- It sells options that earn a premium of two million a year, two per cent of its equity.
- The options expose it to an index with five hundred million dollars of exposure.
- Suppose a crash takes the index twenty per cent below the strike, the level where the options start to hurt.
- The loss before premium is twenty per cent of five hundred million, which is one hundred million, the whole of the equity.
- At two million a year, it would take fifty years of premiums to earn what one bad week can lose.
- A steady record proves little, because the loss sits in a tail the record never visited.

15 LTCM, 1998: convergence trades with borrowed money

- Heavily leveraged convergence trades on small price gaps
- Russia's default in 1998: gaps widened, not closed
- Correlations rose, liquidity vanished, crowded exits
- Lesson: leverage and liquidity; models fail when all sell

IN THE LESSON

- Long-Term Capital Management was a hedge fund run by well-known traders and academics.
- It looked for small price gaps between similar securities that it expected to close, called convergence trades, and borrowed heavily to make those small gaps worth the effort.
- Its models relied on historical correlations and assumed it could always exit.
- In August nineteen ninety-eight, Russia defaulted on its domestic debt, investors fled to safe assets, and gaps widened instead of closing.
- Correlations that had looked low became high, liquidity dried up, and many other firms held similar positions, so when LTCM sold, everyone was selling.
- The Federal Reserve Bank of New York organised a private rescue by major banks.
- Lessons: leverage, crowded trades, liquidity risk and correlations that break in a crisis.

16 Example 6: thin equity, thin margin for error

Illustration: $4m equity, $100m of positions, 1% adverse move

Leverage	$100m ÷ $4m	**25 times**
Loss on a 1% move	1% × $100m	**$1m**
Share of equity lost	$1m ÷ $4m	**25%**
Move erasing equity		**4%**

IN THE LESSON

- A small illustration of why leverage was so dangerous.
- Suppose a fund has four million dollars of equity and holds one hundred million dollars of positions.
- That is twenty-five times leverage.
- Each trade earns only a sliver, so leverage is what makes it worth doing.
- Now the gaps widen against the fund, and the positions lose one per cent of their value.
- One per cent of one hundred million is one million dollars, which is twenty-five per cent of the equity.
- A further three per cent move would wipe it out entirely.
- Worse, the fund cannot simply wait for the gap to close, because lenders may demand more collateral or cut credit at precisely this moment.
- Leverage turns a temporary price move into a permanent loss.

17 The London Whale, 2012: when the model flatters you

- Huge credit derivative positions at the CIO
- Model change understated the risk shown
- Weak governance: marks and limits not challenged
- Lesson: independent validation, price checks

IN THE LESSON

- The London Whale was the nickname for a trader in the chief investment office of J P Morgan, whose very large positions in credit derivatives lost several billion dollars in twenty twelve.
- This case is about model risk and weak governance.
- A change to the risk model understated the risk of the positions, so the numbers reported to management looked comfortable.
- Spreadsheet-based processes, pressure on those marking the prices and limited challenge from independent risk functions let the problem grow.
- The positions were also so large that the firm could not easily exit without moving the market.
- The lessons: validate models independently, challenge price marks, and make sure a limit breach prompts action rather than a change in the measuring stick.

18 Runs on funding: Continental to Lehman

- Continental 1984: bad energy loans, funding fled
- Northern Rock 2007: aid news, retail queues
- Sachsen LB 2007: vehicle could not roll; bank paid
- Lehman 2008: short-term funding of long-term assets

IN THE LESSON

- Four cases share one pattern: a run on funding.
- Continental Illinois, a large Chicago bank, relied heavily on big, uninsured wholesale deposits, and in nineteen eighty-four, after losses on oil and gas loans, those depositors withdrew; the authorities stepped in because the bank was seen as too big to fail.
- Northern Rock, a British mortgage lender, relied on short-term wholesale funding, and in September two thousand seven, after news of emergency central bank support, customers queued outside its branches.
- Sachsen Landesbank, a German state bank, also in two thousand seven, had a funding vehicle that could not roll over its short-term paper, so the bank had to honour its liquidity support.
- And Lehman Brothers, in two thousand eight, funded long-term assets with short-term borrowing and filed for bankruptcy on the fifteenth of September.

19 Example 7: how a run forces losses

Illustration: $100 deposits, $10 capital, $10 liquid, $100 loans

Withdrawals	30% × $100	**$30**
Liquid assets on hand	cash and securities	**$10**
Shortfall	$30 − $10	**$20**
Loans to sell at 80 cents	$20 ÷ 0.8	**$25**
Loss on the forced sale	$25 − $20	**$5**

IN THE LESSON

- Here is how a run turns into insolvency, with made-up numbers.
- A bank has one hundred dollars of deposits and ten dollars of its own capital, held as ten dollars of liquid assets and one hundred dollars of loans that cannot be sold quickly.
- Depositors become nervous and thirty per cent withdraw.
- That is thirty dollars.
- Liquid assets cover ten, leaving a shortfall of twenty.
- To raise it, the bank must sell loans in a hurry, and buyers offer only eighty cents on the dollar.
- To raise twenty it must sell twenty-five dollars of loans, a loss of five, half of its capital.
- Those losses weaken capital, which frightens more depositors.
- A bank can be sound if its loans are paid back in full, yet fail because it was not liquid at the moment it was tested.

20 Enron, 2001: hiding debt and a failure of governance

- Off-balance-sheet entities hid debt and risk
- Reported accounts showed less leverage than reality
- Board, auditors and analysts did not challenge enough
- Lesson: transparency, independent governance, conflicts

IN THE LESSON

- Enron was a large American energy trading company that collapsed in two thousand one.
- Its fall teaches a lesson about disclosure and governance.
- The company used off-balance-sheet entities, separate vehicles that were kept out of its reported accounts, to hold debt and risky assets, so its financial statements showed lower leverage and steadier earnings than the truth.
- Complex structures, aggressive accounting and executives with conflicts of interest were not effectively challenged by the board, auditors or analysts.
- When the hidden obligations came to light, confidence disappeared and the firm could not fund itself.
- The lessons: look through structures to the economic exposure, protect the independence of the board and auditors, and be suspicious of earnings that seem too smooth.

21 Volkswagen, 2008: a short squeeze

- Porsche built a big stake via shares, options
- Few free shares; many investors had sold short
- Forced buying pushed the price up sharply: short squeeze
- Lesson: short losses are unlimited; thin markets squeeze

IN THE LESSON

- Volkswagen in two thousand eight is a different kind of lesson, about markets rather than accounting.
- Porsche had been quietly building up a large holding in Volkswagen through shares and options.
- Many investors had sold Volkswagen shares short, which means they borrowed shares, sold them, and planned to buy them back later at a lower price.
- When it became clear that very few shares were freely available to trade, short sellers rushed to buy back at the same time, and the price shot up, briefly making Volkswagen the most valuable company in the world.
- That is a short squeeze.
- The lesson is that a short position has unlimited potential loss, and that crowded trades in thin markets can turn violently against you.

22 SWIFT, 2016: operational risk goes digital

- Messaging network that banks use to send payment orders
- Bangladesh Bank 2016: fraudulent orders sent
- SWIFT's view: network not breached; the bank was weak
- Lesson: cyber is operational risk; secure the chain

IN THE LESSON

- The last case is about operational risk, which is the risk of loss from failed people, processes, systems or external events.
- S W I F T is the messaging network that banks use to send payment instructions to each other.
- In February twenty sixteen, attackers who had compromised the systems of Bangladesh Bank sent fraudulent payment instructions over that network, and about eighty-one million dollars was taken before the rest was stopped.
- S W I F T's stated view is that its core network was not breached and that the weakness lay in the security of the connected bank.
- The lessons: cyber risk is an operational risk that can cause direct financial loss, controls must cover the full chain of payment, and firms need monitoring, authentication and rapid response.

23 Matching table 1: trading and sales failures

Case against the failure it is known for

Case	Core cause
Barings 1995	No segregation of duties
Orange County 1994	Leverage, bet on low rates
Bankers Trust 1994	Sales practice, legal
Metallgesellschaft 1993	Rolled hedge, margin calls
Niederhoffer 1997	Short options, tail loss

IN THE LESSON

- Time to consolidate.
- This first table matches five trading and sales cases to the failure each is remembered for.
- Barings is the classic failure of segregation of duties, with losses hidden in an error account.
- Orange County is leverage through reverse repos plus structured notes, a bet that rates would stay low.
- Bankers Trust is a sales-practice, legal and reputation failure over leveraged swaps.
- Metallgesellschaft is a rolled short-dated futures hedge that caused margin call funding strain.
- And Niederhoffer is a short option position whose tail loss exceeded the fund's equity.
- If a question describes one of these stories and asks for the cause, find the one distinctive feature, such as the error account or the margin call, and match it.
- Say each pairing aloud until it is automatic.

24 Matching table 2: leverage, models and funding

Case against the failure it is known for

Case	Core cause
LTCM 1998	Leverage, liquidity, crowding
London Whale 2012	Model risk, weak governance
Savings and loans 1980s	Duration mismatch, moral hazard
Continental, N. Rock, Sachsen, Lehman	Funding and liquidity runs

IN THE LESSON

- This second table covers seven more cases, in four rows.
- LTCM in nineteen ninety-eight is highly leveraged convergence trading, where correlations and liquidity broke down and crowded holders sold together.
- The London Whale in twenty twelve is model risk and weak governance.
- The savings and loan crisis in the nineteen eighties is duration mismatch together with moral hazard from deposit insurance.
- And Continental Illinois, Northern Rock, Sachsen Landesbank and Lehman Brothers share one row, because each is a funding and liquidity run.
- The useful tell for those four is that each relied on short-term money that left when confidence did.
- Notice that the word liquidity appears in several rows, but the underlying causes differ.

25 Matching table 3: the remaining three

Case against the failure it is known for

Case	Core cause
Enron 2001	Off-balance-sheet, governance
Volkswagen 2008	Short squeeze
SWIFT 2016	Cyber operational risk

IN THE LESSON

- Three cases remain, and each has a clear signature.
- Enron in two thousand one is off-balance-sheet entities hiding debt and risk, together with failed governance, where the board and auditors did not challenge what they saw.
- Volkswagen in two thousand eight is a short squeeze: investors who had sold short were forced to buy back into a market with few shares available, and the price spiked.
- And S W I F T in twenty sixteen is cyber-enabled operational risk, where fraudulent payment instructions were sent over the messaging network through a connected institution's weak security.
- Between the three tables you now have all fifteen cases.
- A good test of readiness is to cover the right-hand column and name the cause from the case alone, then do the reverse.

26 Four mistakes to avoid

- Many causes; each case has one signature failure
- Solvent is not the same as liquid
- A hedge can still leave timing and funding risk
- Calm model output is not safety: tails and correlations

IN THE LESSON

- Before we finish, four mistakes that cost points.
- One.
- Looking for a single cause.
- Most disasters combine weak models, weak controls, bad incentives and funding strain, but each case has a signature failure that questions ask you to match.
- Two.
- Confusing solvency with liquidity.
- Metallgesellschaft and the bank runs show that a firm can look defensible on paper yet fail because cash is short.
- Three.
- Thinking a hedge removes all risk.
- A hedge can leave basis, timing and funding risks, as the rolled futures showed.
- Four.
- Trusting the model's calm.
- Short options, convergence trades and the London Whale all looked safe on the measure used, until the tail or a correlation broke it.

27 Recap: the four questions and the cases

Measurement + Controls + Incentives + Liquidity
all magnified by leverage

Risk measurement	Tails, correlations, liquidity
Governance and controls	Independent checks and segregation
Incentives	What does pay reward?
Liquidity and funding	Can it fund itself under stress?
Leverage	Magnifies every one of these

IN THE LESSON

- Let us recap.
- Read any disaster with four questions.
- Was risk measured correctly, including tails, correlations and liquidity?
- Were there independent controls, or could one person control both trading and recording?
- What did the incentives reward?
- Could the firm fund itself when trouble came?
- Leverage magnifies every answer.
- Then match the cases.
- Barings, segregation of duties.
- Orange County, leveraged bet on rates.
- Bankers Trust, sales practice.
- Metallgesellschaft, hedge and margin calls.
- Niederhoffer, short option tail.
- LTCM, leverage, correlation and liquidity.
- London Whale, model and governance.
- Savings and loans, duration and moral hazard.
- Continental Illinois, Northern Rock, Sachsen and Lehman, funding runs.
- Enron, hidden structures.
- Volkswagen, squeeze.
- S W I F T, cyber.

28 Try three quick questions

1. Which failure is Barings the classic case of?
   Answer: Segregation of duties: one trader ran trading and settlement.
2. Rolled short-dated futures hedge, oil falls, big margin calls. Case?
   Answer: Metallgesellschaft: margin calls on rolled futures strained funding.
3. Own $100, borrow $100, assets fall 8%. Loss on own money?
   Answer: $16 ÷ $100 = 16%, double the unlevered 8%.

IN THE LESSON

- Now try three quick questions yourself.
- Pause after each one.
- Question one.
- Which failure is Barings the classic example of?
- Segregation of duties: one trader controlled both trading and settlement, and hid losses in an error account.
- Question two.
- A firm hedges long-dated obligations with rolled short-dated futures, oil falls, and it faces huge margin calls.
- Which case is this?
- Metallgesellschaft, funding strain from margin calls on the rolled short-dated futures.
- Question three.
- A pool has one hundred of its own money, borrows one hundred, buys two hundred of securities, and they fall by eight per cent.
- What is the loss on its own money?
- Sixteen per cent, double the unlevered loss.
- With made-up figures, that is the Orange County pattern.