THE FUTURE-READY CFO MASTERCLASS

MODULE 12 OF 20 | PILLAR III: GOVERNANCE, RISK AND RESILIENCE

Crisis Management and Financial Resilience

MODULE SUMMARY

This module prepares the chief financial officer for the quarter when everything goes wrong. It covers liquidity shocks, recession, tariff shocks, supply chain breaks, geopolitical risk and fraud, with a Python verified 13 week cash forecast, covenant headroom, break even, tariff margin and safety stock examples. It sets out the order of liquidity levers, crisis governance, decision rights, communication plans, the first 72 hours, pre mortems and red teams, financial resilience as a design principle and the after action review. A fictional case, boardroom questions, a crisis playbook one pager, a lever table and a ten question self assessment follow.

MODULE AT A GLANCE

Core question	How does a CFO prepare for, and lead through, the quarter in which cash, demand, supply, trade rules or trust fail at once, deciding quickly and honestly with incomplete facts?
Why it matters to the CFO	In a crisis the CFO owns the numbers that decide survival: the cash forecast, the covenants, the lender and investor conversation and the discipline of the first days. Preparation is the only part of a crisis that can be done in calm.
Key sources	KPMG tariff survey (2026) and trade outlook (2026), Deloitte CFO and procurement surveys (2025, 2026), PwC crisis survey (2023), Richmond Fed CFO Survey (2025), ACFE (2026), COSO and ACFE fraud guide, PCAOB AS 2401 and SEC Item 303.
Executive artifact	A crisis playbook one pager with triggers, owners and first 72 hour actions, and a liquidity lever table, each completed for a fictional company.

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1. Executive overview and learning objectives

The core question. How does a chief financial officer prepare for, and then lead through, the quarter in which cash, demand, supply, trade rules or trust fail together, and decide quickly and honestly with facts that are incomplete? A crisis is a period in which the normal rhythm of planning and reporting cannot keep pace with events, and in which a handful of decisions made in the first days will shape the outcome for years. The chief financial officer holds a special place in such a period, because the questions that decide survival are largely questions of finance: how much cash the company has and how long it will last, whether the lenders will stand behind the company, what the board and the investors have been told, and whether the numbers that everyone now relies upon are right. The best work of a crisis is done before it begins, in the calm quarters when a forecast can be built carefully, a playbook written and rehearsed, and a relationship with the lenders formed on good news and not on bad.

Why this matters over the next five years. The evidence that finance leaders expect turbulence is consistent, though it is drawn from surveys of opinion and describes sentiment and not outcomes. Deloitte reported on June 12, 2026, from a survey of 122 finance leaders at Danish companies conducted in April 2026, that 38 percent felt less optimistic than three months earlier and that CFOs were concentrating on stronger risk management, cost discipline and resilient organizations. KPMG reported on April 10, 2026, from a survey of 300 senior executives at United States organizations with revenue of at least one billion dollars, that 78 percent had a higher cost of goods sold in their latest fiscal quarter, 51 percent reported falling margins and 68 percent were delaying or postponing investments because of tariffs. PwC reported in March 2023, from organizations in 42 countries surveyed between September and November 2022, that 89 percent called resilience one of their most important strategic priorities while 70 percent were confident of their ability to respond to disruptions. The older survey is cited only because it was the most recent edition of that PwC study that could be opened, and the reader should not treat its figures as current.

Terms used in this module. Liquidity is the ability to meet obligations as they fall due, and it is measured by cash plus the credit that can truly be drawn. A **13 week cash flow forecast** is a weekly projection of receipts and payments for the next quarter, built from the bottom up and updated each week. **Runway** is the number of weeks that liquidity will last at the current rate of cash use. A **covenant** is a promise in a loan agreement, often a limit on the ratio of net debt to earnings, and **headroom** is the distance between the company's position and that limit. A **revolver**, or revolving credit facility, is a line of credit that may be drawn and repaid repeatedly, and its **availability** is the amount that may be drawn now, which often depends on a **borrowing base**, a formula tied to receivables and inventory. **Break even** is the level of revenue at which profit is zero. A **pre mortem** is an exercise in which a team imagines that a plan has failed and explains why, and a **red team** is a group that is asked to attack a plan. Other terms are defined where they first matter.

What the module covers. Section 2 sets out the concepts: the kinds of crisis and the clocks that each runs on, the measures of liquidity, the order in which the levers of cash should be pulled, the structure of costs, the channels through which tariffs reach profit, geopolitical exposure, the fraud triangle and the protocol that follows a discovery of fraud, and the governance of a crisis. Section 3 supplies tools worked in Python, a programming language widely used for financial modeling: a 13 week cash forecast with stress and covenant tests, a table of liquidity levers, break even and cost flexibility, a tariff margin example, safety stock and disruption economics, fraud analytics, a communication plan, the first 72 hours, a pre mortem, a buffer test and an after action review. Section 4 places a fictional CFO before a decision about the lenders, Section 5 prepares the boardroom, Section 6 supplies the executive artifact, and Section 7 reports the research that was read.

How the module connects to the others. Module 9 describes the board and audit committee to whom a crisis is reported, and Module 10 treats enterprise risk, cybersecurity and continuity, which this module takes as

given while it concentrates on the financial response. Module 13 treats the CFO as partner of the chief executive, whose partnership is tested hardest in a crisis, and Module 16 treats the communication and negotiation skills that this module applies to lenders, employees and investors. Module 17 treats scenario planning and stress testing, which supply the scenarios that the playbooks of this module are written against. Readers who wish to go further should consult the Master Classes in this series on Treasury, Liquidity and Working Capital, and on Crisis Finance and the CFO Under Pressure. Nothing here is accounting, tax, legal or securities advice, and the reader must consult qualified professionals, above all counsel and the company's lenders' documents, before acting in a real crisis.

Learning objectives. After completing this module the reader should be able to do the following. Each objective is tested by the self assessment in Section 8.

1. Build and read a 13 week cash flow forecast, compute liquidity runway, covenant headroom and revolver availability, and state the order in which the levers of working capital, spending, financing and asset sales should be pulled.
2. Analyze a recession with fixed and variable cost structure, compute break even and operating leverage, and write scenario triggers with pre agreed actions that do not depend on courage on the day.
3. Trace a tariff or trade shock through cost pass through, pricing, sourcing and inventory to margin, and weigh supplier concentration, safety stock and contingency sourcing by their economics and not by their comfort.
4. Explain the fraud triangle, recognize red flags, use simple analytics to detect them, and follow a response protocol that preserves evidence and involves independent investigators, the audit committee and counsel.
5. Organize crisis governance with a command structure, decision rights, a communication plan for each audience and a checklist for the first 72 hours, and connect it to business continuity (Module 10).
6. Decide under pressure with incomplete facts using pre mortems and red teams, design financial resilience into the company through buffers, diversification and optionality, and close each crisis with an after action review.

2. Conceptual foundations and frameworks

Crises differ in speed, and speed decides the response. It is tempting to treat every crisis as one problem under different names, yet the clock differs greatly from one kind to another. A fraud may be discovered in a single afternoon after years of concealment, a liquidity squeeze builds over weeks and can often be seen in a forecast, a recession unfolds over quarters, and a tariff or a supply break arrives as an announcement with a date. The CFO who knows which clock is running knows which decisions cannot wait and which can be taken with more information. Exhibit 1 compares the six kinds of crisis in this module by the first signal, the clock, the first question of the CFO and the lever that matters most.

Exhibit 1 Six Kinds of Crisis and the Clock of Each

Crisis	Usual first signal	The clock	First question of the CFO	Principal lever
Liquidity squeeze	Forecast shows cash below the minimum, or a lender raises a concern	Weeks, sometimes days	How many weeks of cash do we have, and which of it is truly available?	Working capital, then spending, then financing
Recession and demand shock	Orders, backlog and pipeline fall, collections slow	Quarters, with a lag in the accounts	At what revenue do we break even, and what do we cut at each step?	Cost structure and pre agreed actions

Crisis	Usual first signal	The clock	First question of the CFO	Principal lever
Tariff or trade shock	Announcement of a change in duties or trade rules, with an effective date	Days to weeks before the date, then months of adjustment	What share of cost is exposed, and how much can be passed on?	Pricing, sourcing and inventory timing
Supply chain break	A supplier misses a delivery, a port closes, a site is lost	Days, with effects after the stock runs out	Which products and revenue depend on this supplier, and for how long?	Safety stock and contingency sourcing
Geopolitical event	Conflict, sanctions, export controls or expropriation risk	Hours to months	Which assets, cash, customers and suppliers sit in the affected places?	Exposure limits and the ability to move cash and goods
Fraud	A tip, an anomaly in the data, a complaint from an auditor or a customer	Hours to act, years to repair	Is the evidence safe, and who must be told before anyone else acts?	Evidence, independence and counsel

Source: author's synthesis from general practice, stated from the author's own knowledge. The signals and levers are typical and not exhaustive. Cyber incidents and natural disasters are treated in Module 10.

The measures of liquidity. Liquidity is often described loosely, and in a crisis looseness is dangerous. Four measures should be kept apart. **Cash** is the money in the bank that the company can use today, which excludes cash trapped in other countries or in accounts that are pledged. **Availability** is what the company may borrow today under its credit lines, after the effect of the borrowing base and of any condition for drawing. **Liquidity** is cash plus availability, and **unconditional liquidity** is cash plus only that availability which a lender cannot withdraw on a breach of covenant or a failure of a representation, and in practice this is the smaller number and the more honest one. The fourth measure is **headroom**, the distance to the nearest covenant or to the minimum cash that the company has set for itself. The distinction between cash that exists and availability that is promised has decided many outcomes, since a revolver is usually a source of liquidity only so long as the company is in compliance with the agreement. Exhibit 2 gives the definitions and the traps.

Exhibit 2 The Measures of Liquidity and the Traps in Each

Measure	Definition	Common trap	How to test it
Cash	Money available for use today, net of trapped and pledged amounts	Counting cash held abroad, in escrow or in a lender controlled account	Reconcile each account to the bank, and ask treasury to state how quickly each balance could be used
Availability	Amount that may be drawn under committed lines, after borrowing base and conditions	Quoting the size of the commitment and not the amount available under the formula	Recompute the borrowing base each week and read the conditions to drawing with counsel
Liquidity	Cash plus availability	Treating it as safe when a covenant breach could remove the availability	Compute it with and without the revolver
Runway	Weeks that liquidity lasts at the current net cash use	Using an average that hides lumpy payments such as payroll, tax and debt service	Read the weekly forecast and mark the week in which the minimum cash is first breached
Covenant headroom	Distance, in earnings or in ratio terms, to a limit in the loan agreement	Measuring it at the last test date and not at the next one, when the earnings of the trailing year will be lower	Project the ratio at each coming test date and compute the earnings that would be needed

Source: author's synthesis from general practice. The Securities and Exchange Commission requires public companies to discuss known trends and uncertainties that are reasonably likely to change liquidity in a material way (Item 303(b)(1) of Regulation S-K, read in the electronic Code of Federal Regulations in October 2026). Counsel must advise on the disclosure.

The order of the levers. When cash is short, the levers that a CFO can pull differ greatly in speed, cost, reversibility and the signal that they send. A sound order starts with the levers that cost least and say least to the outside world, and moves toward those that cost more and say more. Working capital comes first, because collecting what is owed, selling stock that is surplus and managing the timing of payments harm no one that matters and release cash within weeks. Spending comes second, because a freeze on hiring, discretionary expense and deferrable capital is within the control of management, though it may cost opportunity. Financing comes third, since new debt, sale and leaseback or the drawing of a revolver bring cash quickly but bring cost, conditions and a signal to the market, and asset sales come last because they are slow, they are often forced at a low price, and they remove the earnings that support the covenant. The order is a default and not a law, and a company with a covenant problem may need to speak to its lenders at the start and not the end. Exhibit 3 states the criteria by which each lever should be judged.

Exhibit 3 Criteria for Ordering the Levers of Cash

Criterion	Question to ask of each lever	Favors	Warning
Speed	How many weeks before cash arrives, and what is the confidence that it will?	Collections, spending freezes, capital deferral	A lever that delivers in week 20 does not help in week 10
Cost	What is the cost per dollar of cash, in discounts, interest, fees and lost value?	Spending and working capital	Inventory sold at deep discounts may cost more than a loan
Reversibility	Can the action be undone if the crisis passes?	Deferral and terms, not asset sales or cuts to capacity	Cuts to sales and engineering capacity may be hard to rebuild
Signal	What will lenders, suppliers, customers and employees conclude?	Quiet internal measures	Extending supplier terms without notice can trigger prepayment demands that cost more cash than they release
Dependence	Does the lever depend on the cooperation of a third party or on a covenant being met?	Actions within management control	Availability under a revolver that a breach could withdraw

Source: author's framework for teaching, stated from the author's own knowledge. The order of working capital, spending, financing and asset sales is a default. The Treasury, Liquidity and Working Capital Master Class in this series treats the levers in more depth.

The structure of costs. A recession tests the structure of costs more than any other event. A **variable cost** moves with volume, such as materials, freight and sales commissions, and a **fixed cost** does not move in the short run, such as rent, salaries of the permanent staff and most of the cost of technology. Between them lie **semi variable** and **step** costs, such as overtime or a second shift, which rise in jumps. The proportion of fixed cost determines **operating leverage**, the degree to which a change in revenue is magnified in operating profit, and a company with high fixed cost gains much from growth and loses much from decline. The CFO's task in calm times is to know which costs are truly fixed, because many are fixed only by habit, and to arrange them so that they can be flexed quickly. Exhibit 4 classifies the usual costs by how quickly they can be adjusted.

Exhibit 4 Costs Classified by Speed of Adjustment

Cost type	Examples	Behavior with volume	Time to adjust	Cost of adjusting
Variable	Materials, freight, commissions, payment fees	Moves in proportion	Immediate	None, though supplier minimums may bind
Semi variable	Overtime, temporary labor, utilities	Moves partly with volume	Days to weeks	Low
Discretionary fixed	Travel, training, marketing programs, consulting, new hires	Fixed, but decided each period	Weeks	Low, with some loss of future growth
Committed fixed	Permanent payroll, leases, software contracts, insurance	Fixed until a decision is taken	Months	Severance, exit fees, loss of skill
Structural fixed	Plants, long leases, platforms	Fixed by the footprint	Many months to years	High, often with one time cash and write down charges

Source: author's synthesis from general practice. The speed and cost of adjusting vary by industry, country and labor law, and counsel should advise on employment actions.

How tariffs and trade shocks reach profit. A change in duties or trade rules acts on a company through four channels, and the CFO should keep them separate. The first is **cost**: duties raise the landed cost of imported inputs and goods, and so do the costs of rerouting and compliance. The second is **price**: the company may pass some of the cost to customers, and the share that it can pass depends on its market, its contracts and the response of competitors. The third is **sourcing**: the company may shift to suppliers in other places, at a cost and with a delay for qualification. The fourth is **inventory and cash**: buying ahead of an announced change moves the cost forward but ties up cash. KPMG reported in its 2026 tariff survey that the share of organizations passing more than half of tariff costs to customers rose from 13 percent in May 2025 to 34 percent in February 2026, and that 55 percent planned further price increases of up to 15 percent within six months. The figures describe large companies in the United States in a particular period, and they show the direction of behavior and not what any one company should do. This module does not state any current tariff rate, and all rates in the examples are fictional, because the rates change and must be confirmed with customs counsel. Exhibit 5 sets out the channels.

Exhibit 5 The Four Channels Through Which a Tariff Reaches Profit

Channel	What happens	What the CFO measures	Limit
Cost	Duties and related costs raise the landed cost of inputs and goods	Annual spend by country of origin and product code, duty rate and exposure per product	Rates, classification and exemptions are matters for customs counsel
Price	The company raises prices to recover part of the cost	Pass through share, volume response, contract terms that allow surcharges	Volume may fall, and competitors may absorb the duty
Sourcing	The company moves volume to suppliers outside the affected trade lane	Price premium, qualification cost and time, quality and capacity of the alternative	Qualification may take many months, and duty rules can follow the new source
Inventory and cash	The company buys ahead, or holds more stock as a buffer	Cash tied up, carrying cost, duty avoided, effect on covenants	Cash used for stock is not available for a crisis

Channel	What happens	What the CFO measures	Limit
Duty management	The company uses lawful tools to reduce duty paid	Duty saved against cost and compliance risk	KPMG lists foreign trade zones, duty drawback and first sale for export as tools, and each has rules that counsel must apply

Source: author's framework, with the tools listed in the KPMG 2026 trade outlook (February 3, 2026) and the survey statistics of the KPMG 2026 Tariff Survey (April 10, 2026), both pages opened for this module. No tariff rate is stated or implied.

Geopolitical risk. Geopolitical events reach a company through its assets, its cash, its customers and its suppliers, and they act differently from commercial risks because the response lies partly outside management control. Sanctions and export controls may prohibit a sale or a payment, and counsel must decide what is permitted. A conflict may close a trade route or a port, and the price of energy and shipping may move abruptly. Currency controls may trap cash. The CFO's practical work is to map the exposure in advance, by country, in a form that can be read in an hour: revenue, assets, cash balances, key suppliers and employees in each place, together with the insurance and the contractual rights that apply. Module 18 treats these questions of trade policy and geopolitics in greater depth, and Exhibit 6 lists the principal exposures with the question of the CFO for each.

Exhibit 6 Geopolitical Exposures and the Preparation of the CFO

Exposure	How it reaches the company	Question for the CFO	Preparation
Assets and operations	Plants, offices and staff in an unstable place; risk of seizure, damage or evacuation	What is the book value and the earnings at risk, and can staff be moved?	Exposure map by country, insurance review, evacuation and continuity plans
Cash and payments	Currency controls, sanctions on banks, interruption of payment systems	How much cash sits in the place, and how could it be moved or used?	Limits on cash held by country, accounts at more than one bank, local funding of local needs
Customers	Loss of demand, sanctions that bar sales, failure of a customer	What share of revenue and receivables depends on the affected places?	Credit limits by country, credit insurance, contract terms
Suppliers and routes	Closure of a route, a port or a supplier; sudden rises in freight and energy	Which products rely on a single route or source?	Alternative routes and suppliers, safety stock, supplier mapping to the second tier
Legal and compliance	Sanctions and export controls with severe penalties	Who decides what is lawful, and how fast?	Counsel on call, screening of counterparties, escalation rule

Source: author's synthesis from general practice, stated from the author's own knowledge. Sanctions and export control questions must be referred to counsel, and no statement here is legal advice.

Fraud and the fraud triangle. Fraud is an intentional act of deception for gain, and it belongs in a module on crisis because it combines a loss of cash, a loss of trust and a legal process, and because the way in which it is handled in the first days decides much of what follows. The PCAOB standard on the consideration of fraud in an audit, AS 2401, states that three conditions generally are present when fraud occurs: an incentive or pressure, an opportunity, and an attitude or rationalization that allows a person to justify the act. The standard also observes that management is in a position to commit fraud because it can direct the records, and that fraudulent reporting often involves management override of controls that may appear to operate well. The three conditions are known as the fraud triangle, and they are useful because each side points to a different kind of defense. Exhibit 7 pairs each side with examples from finance and with the controls that answer it.

Exhibit 7 **The Fraud Triangle Applied to Finance**

Side of the triangle	Meaning	Finance examples	Defense
Incentive or pressure	A reason to commit the act	Targets that cannot be met, covenant pressure, personal debt, fear of losing a position, bonuses tied to one metric	Realistic targets, balanced incentives, early and honest talk with lenders so that the pressure is not hidden, support for people in difficulty
Opportunity	A circumstance that allows it	One person who can create a vendor, approve and pay, weak review of manual entries, overridden controls, poor access rights	Segregation of duties, access reviews, independent review, analytics on payments and entries, attention to management override
Rationalization	A way to justify the act	"It is only a loan until the quarter ends", "the company owes me", "everyone does it"	Tone at the top, a code of conduct that is enforced, visible consequences, a hotline that is trusted (Module 9)

Source: the three conditions are stated in PCAOB AS 2401, Consideration of Fraud in a Financial Statement Audit (page opened October 2026). The finance examples and defenses are the author's own.

Red flags and detection. A red flag is a sign that deserves a question, and it is not proof of anything. Two families of red flag are useful. **Behavioral** flags concern people: a manager who never takes leave, who resists any review of an area, who lives beyond visible means, or who shows unusual closeness to a vendor. **Transactional** flags concern data: payments just below an approval limit, duplicate payments, vendors with addresses or bank accounts that match those of employees, and manual entries made late and by one person. The Association of Certified Fraud Examiners reported in its 2026 edition of the Report to the Nations, the fourteenth, that it analyzed 2,402 cases from 143 countries and territories, and the page opened for this module listed median losses for behavioral red flags, for example 532,000 dollars where the perpetrator faced excessive pressure from within the organization. The page did not give the overall median loss or the share of cases found by tips, and the reader should consult the full report for those figures. Exhibit 8 lists red flags with the test that detects each.

Exhibit 8 **Red Flags and the Tests that Detect Them**

Family	Red flag	Test or detection method	What it does not prove
Behavioral	Does not take leave, resists review, controls one process alone	Mandatory leave, rotation of duties, surprise reviews, an interview with the process owner	That the person has done anything wrong
Behavioral	Lifestyle beyond known means, personal financial stress	Care, discretion and Human Resources judgment. Avoid surveillance without counsel	That money has been taken
Transactional	Payments clustered below an approval limit	Distribution of payment amounts by band, compared with adjacent bands (Exhibit 22)	That the payments were improper, since a vendor contract may set the amounts
Transactional	Duplicate invoices, or payments to a vendor that match an employee account	Matching on vendor, amount, date and bank account against the employee master file	That the match was not an error or a recorded relationship
Transactional	Entries after close, round amounts, unusual account pairs, one preparer	Journal entry testing with filters and scoring, reviewed by someone independent of the preparer	That the entry was not a legitimate adjustment

Family	Red flag	Test or detection method	What it does not prove
Environmental	Pressure to meet a number, weak controls, a dominant executive, a recent crisis	Fraud risk assessment each year and again when a crisis begins	That fraud has occurred

Source: author's synthesis, informed by the COSO and ACFE Fraud Risk Management Guide (2016) and the ACFE Report to the Nations 2026 page opened for this module. The page listed median losses by behavioral red flag, among them 532,000 dollars for excessive pressure from within the organization.

The response protocol. The COSO and ACFE Fraud Risk Management Guide, which the Journal of Accountancy summarized on September 29, 2016 and which builds on a publication of 2008, describes a fraud risk management process of five elements: clear fraud governance, an open anti fraud culture, a periodic fraud risk assessment, preventive and detective controls, and a prompt response to allegations, including discipline where it is warranted. The chairman of COSO was quoted as saying that it is virtually impossible to eliminate fraud completely, which is a reminder that the aim is to make fraud unlikely and to find it early. When an allegation arrives, the sequence matters more than speed: preserve the evidence, hand the inquiry to people who are independent of the matter, inform the audit committee, engage counsel so that privilege and the rights of the employees are protected, and decide with counsel what must be disclosed, to whom and when. Management must never investigate itself, and a CFO who is implicated or conflicted should step aside from the inquiry. Exhibit 9 sets out the sequence, and counsel must tailor it to the facts and to the law that applies.

Exhibit 9 The Fraud Response Protocol

Step	Action	Owner	Pitfall to avoid
1. Receive and record	Log the allegation, who received it and when, and keep the original	Hotline administrator, general counsel	Informal discussion that leaves no record or alerts the subject
2. Preserve evidence	Image devices, suspend deletion, secure records and access logs, restrict access by the subject	General counsel, IT security, forensic firm	Letting the subject learn of it before the records are secured
3. Escalate	Notify the audit committee chair and the chief executive unless either is involved, in which case notify the committee and counsel only	General counsel	Routing the matter through an implicated executive
4. Investigate independently	Counsel directs an inquiry run by forensic accountants and investigators independent of the area	Audit committee, outside counsel	Management investigating its own function
5. Protect people	Treat the reporter and the subject fairly, prevent retaliation, follow employment law	Human Resources, counsel	Premature conclusions or action against a reporter
6. Assess reporting and disclosure	Decide with counsel about auditors, lenders, insurers, regulators, law enforcement and financial statement effects	Audit committee, counsel, CFO	Telling lenders or auditors informally and in different words
7. Remediate and learn	Close the control gap, recover losses, discipline where warranted, run an after action review	Audit committee, CFO	Closing the file when the person has left

Source: author's synthesis, informed by the five elements of the COSO and ACFE Fraud Risk Management Guide (2016) as summarized by the Journal of Accountancy on September 29, 2016. This is not legal advice. Counsel must direct the steps, including privilege, employment law and disclosure obligations.

Crisis governance: the command structure. In a crisis the ordinary organization is too slow and too diffuse, and the company needs a small group with clear authority. The usual design is a **crisis command team** led by the chief executive or a delegate, with the CFO, the general counsel, the head of operations, the head of communications, the head of Human Resources and, when it is relevant, the chief information security officer. A **decision log** records every decision, the facts known at the time, the alternatives and the person who decided, and it protects the company and the directors when the decisions are later reviewed. The CFO commonly owns the cash forecast, the lender and investor channel and the financial analysis of each option, and in many crises the CFO is also the keeper of the log and of the rhythm of meetings. Exhibit 10 lists the roles.

Exhibit 10 The Crisis Command Team

Role	Responsibility in the crisis	Typical holder	Deputy needed
Crisis lead	Sets objectives, makes final decisions, speaks for the company internally	Chief executive	Yes, named in advance
Finance lead	Owns the 13 week forecast, covenants, lender and investor channel, cost actions, the decision log	CFO	Treasurer or controller
Legal and compliance lead	Privilege, regulatory duties, disclosure, contracts, sanctions, investigations	General counsel	Outside counsel on retainer
Operations lead	Production, supply, logistics, safety, continuity (Module 10)	Chief operating officer	Head of supply chain
Communications lead	Messages to employees, customers, media and the public, with legal review	Head of communications	External adviser
People lead	Employee welfare, labor law, retention of key staff, internal updates	Chief people officer	Senior HR business partner
Secretary and scribe	Agendas, minutes, decision log, action tracking	Chief of staff or deputy CFO	Second scribe

Source: author's design for teaching. The design adapts to the size and kind of company, and Module 13 discusses the partnership between the CFO and the chief executive.

Decision rights. A crisis does not suspend the law of governance. The board retains the decisions that belong to it, such as approving a major financing, a restructuring, a sale of assets, a waiver of the code of conduct and the disclosure of material information, and management must know in advance what it may decide alone. The simplest instrument is a decision rights table agreed before a crisis, which states for each class of decision who decides, who must be consulted and who must be informed, and which sets a limit above which the board must approve and a limit below which a member of the team may act at once. Exhibit 11 shows an example, and counsel should confirm that it fits the charter and the loan agreements.

Exhibit 11 Decision Rights in a Crisis (Example)

Decision	Decides	Must be consulted	Informed	Limit or note
Draw on the revolver within availability	CFO	Treasurer, counsel on conditions	CEO, board chair	Within 15.0 without board approval, above it with the board
Freeze hiring and discretionary spend	CEO	CFO, function heads	Board	Immediate, reported at the next meeting

Decision	Decides	Must be consulted	Informed	Limit or note
Approach lenders for a waiver or amendment	CEO and CFO	Counsel, board chair	Audit committee	Before the covenant test date, never after
Extend supplier terms beyond policy	CFO	Head of supply chain, counsel	CEO	Only with a message to each supplier
Reduction in workforce	CEO	CFO, people lead, counsel	Board	Board approval above a stated number of positions
Sale of assets or a business line	Board	CEO, CFO, counsel, banker	Lenders as required	Consent rights in loan agreements may apply
Public statement or filing on the crisis	CEO	CFO, counsel, communications	Board, audit committee	Counsel approves each filing and release
Notice of an allegation of fraud	Audit committee chair	Counsel	Board	Management does not investigate itself

Source: author's design for teaching. The limit of 15.0 is an illustration in millions of dollars for the fictional company of this module. Counsel must confirm the charter, the bylaws and the loan agreements.

3. Practical applications and tools

The tools of this section are worked on one fictional company, Calloway Precision Products, a manufacturer with annual revenue of 520.0 million dollars, a margin of earnings before interest, taxes, depreciation and amortization (EBITDA) of 8 percent, or 41.6 million, net debt of 116.0 million and a revolving credit line of 60.0 million of which 18.0 million is drawn. All amounts are in millions of dollars unless stated, the company and its figures are fictional, and every calculation was made in Python and checked by assertion. The company faces a demand shock in which weekly sales fall by 20 percent, the failure of one customer and the tightening of supplier terms, which is a common combination in a recession. The aim is to show how a CFO would see the squeeze, test the covenants, order the levers and prepare the decisions, using methods that apply to any company.

A. Building the 13 week cash flow forecast. A forecast of this kind is built from the bottom up, from the actual timing of cash and not from the income statement. The method has six steps. First, fix the opening cash by bank account, net of trapped and pledged balances, and the opening availability under the borrowing base. Second, forecast receipts by customer, using the age of each invoice and the true payment behavior of each customer, with special care for the largest accounts. Third, forecast payments by type and by date: payroll on its pay dates, suppliers according to terms, rent, tax, interest and principal on their due dates, and capital spending according to commitments. Fourth, compute the weekly net cash flow and the closing cash, and compare the closing cash with the minimum that the company has set. Fifth, run the forecast in at least one stress case, and sixth, update it every week, comparing the forecast of each week with the actual result so that its accuracy improves and its users learn how far to trust it. The BDO page on 13 week cash flow forecasts that was opened for this module gave only a high level description of purpose, which is to see cash needs for decisions about inventory, projects and funding, and the page did not set out a method, so the method here is the author's own. Exhibit 12 shows the result for the stress case.

Exhibit 12 13 Week Cash Flow Forecast, Stress Case, Fictional Calloway Precision Products (Millions of Dollars)

Week	Receipts	Suppliers	Payroll	Other costs	Debt, tax, capex	Net flow	Cash, stress	Cash, no shock	Available credit
1	10.00	5.20	0.00	1.33	0.40	3.07	15.07	15.00	42.0
2	10.00	5.20	5.20	1.33	0.40	(2.13)	12.94	12.80	42.0
3	10.00	5.20	0.00	1.33	0.40	3.07	16.01	15.80	42.0
4	10.00	5.20	4.78	1.33	1.20	(2.51)	13.50	12.80	42.0
5	10.00	7.28	0.00	1.33	0.40	0.99	14.49	15.80	42.0
6	10.00	5.20	4.78	1.33	0.40	(1.71)	12.77	13.60	41.1
7	8.00	5.20	0.00	1.33	0.40	1.07	13.84	16.60	41.1
8	8.00	4.16	4.78	1.33	1.20	(3.47)	10.37	13.60	41.1
9	5.50	4.16	0.00	1.33	0.40	(0.39)	9.98	16.60	36.0
10	8.00	4.16	4.78	1.33	0.40	(2.67)	7.30 *	14.40	36.0
11	8.00	4.16	0.00	1.33	2.20	0.31	7.61 *	15.60	36.0
12	8.00	4.16	4.78	1.33	1.20	(3.47)	4.14 *	12.60	36.0
13	8.00	4.16	0.00	1.33	1.50	1.01	5.15 *	14.50	36.0
Total	**113.50**	**63.44**	**29.12**	**17.29**	**10.50**	**(6.85)**			

Fictional. Computed in Python. Opening cash 12.0, minimum cash 8.0, revolver commitment 60.0 with 18.0 drawn. Sales fall from 10.0 to 8.0 per week from week 1, collections lag sales by six weeks, supplier payments lag production by four weeks, production is held at 10.0 through week 3. Week 9 shows the failure of a customer (2.5 not collected). Week 5 includes 2.08 of payment pulled forward by suppliers. An asterisk marks cash below the 8.0 minimum. Total 113.50 less 63.44, 29.12, 17.29 and 10.50 is (6.85).

What the forecast shows. Without the shock the company would end the quarter with cash of 14.5, a gain of 2.5. In the stress case the cash flow of the quarter is (6.85), the closing cash is 5.15, and cash first falls below the minimum of 8.0 in week 10, reaching a low of 4.14 in week 12, which is 3.86 below the minimum. Three features deserve attention. The first is the delay: collections do not fall until week 7, because customers pay for goods sold six weeks before, while suppliers and payroll respond to the lower volume only after a lag, so that the first six weeks look healthy and the squeeze arrives when the company has already begun to relax. The second is the lumpiness: payroll, interest, tax and the amortization of the term loan fall in particular weeks, and an average of the weekly cash flow of (0.53) conceals weeks of (3.47). The third is the combination of shocks. Neither the failure of the customer nor the supplier pull forward is large in itself, yet together they remove 4.58 of cash within five weeks. The availability under the revolver falls from 42.0 to 36.0, because receivables fall and the receivables of the failed customer cease to be eligible, and the borrowing base of 0.85 on eligible receivables and 0.50 on inventory then limits the line.

B. Runway and the severity ladder. A single stress case is a story, and a ladder of cases is a method. Exhibit 13 repeats the forecast with the fall in sales set at zero, 10, 20 and 30 percent, keeping every other assumption. For each case it shows the low point of cash, the week in which the minimum is first breached, the amount needed to restore the minimum and the liquidity at the end of the quarter. Runway is read from the same forecast. At the end of the moderate case the company has 5.15 in cash, which is already below the minimum, and availability of 36.0, so that liquidity of 41.1 less the cash minimum of 8.0 is 33.1. Measured against the average weekly cash use of 1.45 in the last six weeks, that is a runway of 22.9 weeks, but only if the revolver may be drawn in full, and on cash alone the company has already crossed its minimum. The

distinction between the two is the subject of the next test.

Exhibit 13 Stress Severity Ladder for the 13 Week Forecast (Fictional, Millions of Dollars)

Case	Net cash flow, 13 weeks	Lowest cash	First week below 8.0	Amount to restore the minimum	Cash at week 13	Liquidity at week 13
No shock	2.50	12.60	None	0.00	14.50	56.5
Mild: sales down 10 percent	(4.47)	6.08	12	1.92	7.54	47.3
Moderate: sales down 20 percent	(6.85)	4.14	10	3.86	5.15	41.1
Severe: sales down 30 percent	(9.24)	2.20	10	5.80	2.76	34.9

Fictional. Computed in Python by rerunning the forecast of the previous exhibit with weekly sales of 10.0, 9.0, 8.0 and 7.0 from week 1, with the same customer failure and supplier pull forward in the stressed cases. The restoration amount is the minimum cash of 8.0 less the lowest cash. Liquidity is cash plus availability under the borrowing base.

C. Covenant headroom. Cash is one clock and the covenant is another, and the second often strikes first. A leverage covenant limits the ratio of net debt, which is debt less cash, to the earnings of the trailing twelve months, tested at each quarter end. Because the earnings are those of the whole year, a fall in sales of 20 percent is felt in the ratio not at once but over four quarters as good quarters drop out of the year and bad ones enter it. In the fictional agreement the maximum net leverage is 4.25 times at the first test and 3.75 times thereafter. Before the shock the company stands at 2.79 times, with net debt of 116.0 and earnings of 41.6, so that headroom today is 10.67 of earnings: the earnings could fall to 30.93 before the 3.75 limit is reached. The loss of earnings in each quarter of the shock is 8.84, being 13 weeks of 2.0 of lost sales at a contribution of 34 percent, and the first quarter also bears the write off of 2.5 for the failed customer. Exhibit 14 compares two paths: no action, and the operating plan of the next exhibit, which combines the working capital levers and cost actions of 2.34 in the first quarter and 4.5 in each later quarter.

Exhibit 14 Net Leverage Covenant Path Over Three Quarters (Fictional, Millions of Dollars)

Case	Test date	Trailing earnings	Net debt	Net leverage	Limit	Earnings needed	Headroom
No action	Quarter 1	30.26	121.75	4.02 times	4.25 times	28.65	5.3 percent
No action	Quarter 2	21.42	127.79	5.97 times	3.75 times	34.08	(59.1) percent, breach
No action	Quarter 3	12.58	133.83	10.64 times	3.75 times	35.69	(183.7) percent, breach
Operating plan	Quarter 1	32.60	109.35	3.35 times	4.25 times	25.73	21.1 percent
Operating plan	Quarter 2	28.26	110.89	3.92 times	3.75 times	29.57	(4.6) percent, breach
Operating plan	Quarter 3	23.92	112.43	4.70 times	3.75 times	29.98	(25.3) percent, breach

Fictional. Computed in Python. Trailing earnings: 41.6 less 8.84 and 2.5 is 30.26 at the first test, less 8.84 each later quarter. Net debt at the first test: 108.9 term debt plus 18.0 revolver less cash of 5.15 is 121.75, rising by 6.04 a quarter. Plan: lever cash of 10.06 and savings of 2.34, 4.5 and 4.5 reduce net debt and add to earnings. Earnings needed equal net debt divided by the limit. Headroom is 1 less needed earnings divided by actual earnings. Covenant earnings are assumed equal to model earnings, and the agreement controls.

What the covenant test shows. Without action the company breaches at the second test, at 5.97 times against 3.75, and the position then deteriorates. With the operating plan the first test is met with headroom of 21.1 percent, and the second is missed by a small margin: the company would need earnings of 29.57 and has 28.26, a shortfall of 1.31. The lesson is that even a competent operating response may be insufficient where the limit steps down and the trailing earnings are still falling, and that the conversation with the lenders must begin before the first test, while there is good news in the plan and before a breach has occurred. Three further points belong with this test. A breach is commonly an event of default, which can allow the lenders to refuse further drawings, to charge a higher rate of interest and to accelerate repayment, and counsel must read the agreement and tell the company what its rights are, including any right to cure a breach. The 18.0 million already drawn matters less than the 36.0 million not yet drawn, because the second can be withdrawn. And the lenders will ask for the 13 week forecast, and a company that can produce a credible one in a day gains credibility that no assurance can supply.

D. The table of liquidity levers. The levers of Section 2 are priced in Exhibit 15. Each has a gross amount, a probability that it will be delivered, a one time cost, and the first week in which cash arrives. The expected cash is the gross amount multiplied by the probability. The probability is the most important column, because plans that assume full delivery of every lever overstate the cash that will arrive. The first five levers, which lie within the control of management, have gross value of 16.55, expected cash of 13.12 and, after costs of 0.72, net cash of 12.40. That is 3.2 times the peak shortfall of 3.86, and, when the net cash is spread over the weeks in which each lever acts, the lowest cash of the stress case rises from 4.14 to 12.94, comfortably above the minimum of 8.0. The financing levers are held in reserve, and the sale of a business line does not deliver within the quarter. The cost per dollar of cash differs widely, from nothing for the freeze in spending to 11.4 percent for the sale of surplus stock at a discount, and the order of use follows the cost and the speed.

Exhibit 15 Liquidity Lever Table With Probability of Delivery (Fictional, Millions of Dollars)

No.	Lever	Gross	Chance	Expected	Cost	Net	First week	Basis
L1	Working capital: Collections push, with a 1 percent early payment discount	5.71	80%	4.57	0.30	4.27	6	Five days of sales at 8.0 per week
L2	Working capital: Sell down surplus finished goods and components	4.00	70%	2.80	0.32	2.48	7	Discounts of 8 percent on 4.0 of stock
L3	Working capital: Extend terms with non critical suppliers by seven days	2.08	60%	1.25	0.10	1.15	8	Half of materials spend, one week
L4	Spending: Freeze hiring, contractors and discretionary spending	2.60	90%	2.34	0.00	2.34	4	No cash cost, some opportunity cost
L5	Spending: Defer 60 percent of capital spending from week 5	2.16	100%	2.16	0.00	2.16	5	0.4 per week for nine weeks
L6	Financing: Sale and leaseback of owned equipment	6.00	50%	3.00	0.29	2.71	11	Fees and nine percent lease cost
L7	Financing: Draw on the revolver, within availability	10.00	100%	10.00	0.19	9.81	1	7.5 percent for 13 weeks on 10.0

No.	Lever	Gross	Chance	Expected	Cost	Net	First week	Basis
L8	Asset sale: Sell a non core product line	12.00	0%	0.00	0.00	0.00	After 26	Closes after week 26
	Operating levers L1 to L5	**16.55**		**13.12**	**0.72**	**12.40**		**Within management control**

Fictional. Computed in Python. Expected cash is gross times probability: L1 5.714 x 0.80 = 4.571; L2 4.0 x 0.70 = 2.80; L3 2.08 x 0.60 = 1.248; L4 2.6 x 0.90 = 2.34; L5 2.16 x 1.00 = 2.16. Expected total for L1 to L5 is 13.12, costs 0.72 and net cash 12.40. L7 is a drawing on a committed line subject to its conditions. L8 closes after the 13 week window.

E. Recession: break even and operating leverage. Break even revenue is fixed cost divided by the contribution margin, which is the share of each dollar of revenue that remains after variable cost. For Calloway, variable costs are 66 percent of revenue, so the contribution margin is 34 percent, contribution is 176.8, fixed costs are 135.2 and EBITDA is 41.6. Break even revenue is therefore 397.65, which is 23.5 percent below the current level, a distance known as the margin of safety. The degree of operating leverage, contribution divided by EBITDA, is 4.25, which means that each 1 percent fall in revenue reduces EBITDA by about 4.25 percent. Exhibit 16 shows the effect of declines in revenue from zero to 30 percent, with the cumulative effect of the three tiers of pre agreed action described in the next exhibit.

Exhibit 16 Break Even, Operating Leverage and the Effect of Pre Agreed Actions (Fictional, Millions of Dollars)

Revenue change	Revenue	Contribution	EBITDA, no action	Margin	After Tier 1	After Tiers 1 and 2	After Tiers 1 to 3
None	520.0	176.8	41.60	8.0%	49.60	63.60	83.60
-5 percent	494.0	168.0	32.76	6.6%	40.76	54.76	74.76
-10 percent	468.0	159.1	23.92	5.1%	31.92	45.92	65.92
-15 percent	442.0	150.3	15.08	3.4%	23.08	37.08	57.08
-20 percent	416.0	141.4	6.24	1.5%	14.24	28.24	48.24
-30 percent	364.0	123.8	(11.44)	(3.1)%	(3.44)	10.56	30.56

Fictional. Computed in Python. Contribution is 34 percent of revenue and fixed costs are 135.2. At a decline of 20 percent, revenue of 416.0 gives contribution of 141.44 and EBITDA of 6.24, a fall of 85 percent from 41.6 and 4.25 times the fall in revenue. Break even revenue is 135.2 / 0.34 = 397.65. After all three tiers fixed costs fall by 42.0 and break even revenue falls to 274.1, which is 47.3 percent below current revenue. One time cost of Tier 3 (12.0) is excluded.

Scenario triggers and pre agreed actions. The weakness of most recession plans is not in the arithmetic but in the timing. Managers cut late, because each month seems likely to bring recovery, and then cut deeply. A cure is to agree the actions in advance, to attach each to a trigger that is observable and does not depend on opinion, and to name an owner. A good trigger is a leading indicator, such as orders, backlog, the pipeline of qualified sales, or the days sales outstanding of the largest customers, and not a lagging one such as the quarterly result. Exhibit 17 gives an example for the fictional company, in which each tier is released by the trigger, applied by the owner and reversed when the trigger clears for two consecutive months. Three tiers with savings of 8.0, 14.0 and 20.0 million a year raise EBITDA at a revenue decline of 20 percent from 6.24 to 28.24 after the first two tiers, and at a decline of 30 percent from a loss of 11.44 to a profit of 30.56 after all three. The third tier costs 12.0 in severance and exit charges, which is why it is reserved for the severe case.

Exhibit 17 **Scenario Triggers and Pre Agreed Actions in Three Tiers (Example)**

Tier	Trigger	Pre agreed actions	Annual saving	One time cost	Owner
Tier 1	Orders below plan by 8 percent for four weeks, or days sales outstanding up by 5 days	Freeze hiring, contractors and discretionary spend, defer 60 percent of capital spending, suspend travel and events	8.0	None	CFO and function heads
Tier 2	Orders below plan by 15 percent for four weeks, or headroom under the covenant below 15 percent	Pay freeze, reduce temporary labor and overtime, renegotiate supplier prices, delay programs, close open roles	14.0	1.0	CEO and CFO
Tier 3	Orders below plan by 25 percent, or headroom below 10 percent, or the covenant projected to fail within two quarters	Reduction in workforce, consolidation of sites, exit of unprofitable lines, with board approval	20.0	12.0	Board on proposal of the CEO
Reversal	Trigger cleared for two consecutive months	Release the tier in reverse order, reinstate hiring for critical roles first	None	None	CEO

Source: author's design for teaching, with fictional amounts in millions of dollars. Savings of 8.0, 14.0 and 20.0 are cumulative additions to EBITDA, and the one time cost of Tier 2, 1.0, is an assumption. Employment actions must be reviewed by counsel.

F. A tariff shock, worked with fictional rates. Suppose that Calloway buys 130.0 million dollars of components a year from a country that becomes subject to a duty of 15 percent. The rate is fictional and has been chosen only to make the arithmetic clear. The added cost is 19.5 a year, which would reduce EBITDA from 41.6 to 22.1, and the margin from 8.0 to 4.25 percent, if the company absorbed the whole of it. The question is how much of the cost to pass on. If the company raises prices by a percentage that recovers its share of the duty, the volume sold will fall, and the fall depends on the elasticity of demand, the percentage change in volume for a 1 percent change in price. The calculation takes revenue after the price change and volume change, deducts variable cost and duty on the lower volume, and deducts the unchanged fixed costs. Exhibit 18 shows the result under two elasticities.

Exhibit 18 **Margin Effect of Passing On a Fictional Duty of 15 Percent, by Demand Elasticity (Millions of Dollars)**

Share of the duty passed on	Price increase	Volume, elasticity of minus 2.0	EBITDA, elasticity of minus 2.0	Volume, elasticity of minus 3.0	EBITDA, elasticity of minus 3.0
0 percent	0.00 percent	100.00 percent of base	22.10	100.00 percent of base	22.10
50 percent	1.88 percent	96.25 percent of base	25.59	94.38 percent of base	22.45
100 percent	3.75 percent	92.50 percent of base	28.34	88.75 percent of base	21.71

Fictional. Computed in Python. Duty cost is 130.0 x 0.15 = 19.5. Price increase equals the share passed on times 19.5 / 520.0. EBITDA equals revenue x (1 + price rise) x volume factor, less variable cost of 343.2 and duty of 19.5 on the volume factor, less fixed cost of 135.2. At elasticity of minus 2.0 and full pass through, 499.04 less 317.46, 18.04 and 135.2 is 28.34. Rates are fictional and must be confirmed with customs counsel.

What the tariff example teaches. The best price depends on the elasticity, and the CFO who does not know the elasticity is guessing. If demand is only moderately sensitive, with a response of minus 2.0, passing on the whole duty raises EBITDA to 28.34, which is 6.24 above the position in which the company absorbs it, though still 13.26 below the position before the duty. If demand is very sensitive, with a response of minus 3.0, the best course is to pass on about half, and the gain over absorbing the duty is slight, at 0.35, while passing on the whole duty reduces EBITDA below the level of absorbing it. Prices should be tested in the market, in the contracts that allow surcharges and with the response of competitors in view, and Module 6 treats pricing power in more detail. The Federal Reserve Bank of Richmond reported on September 24, 2025, from its CFO Survey, that firms attributed just under 40 percent of total unit cost growth in 2025 and 2026 to tariffs, and about one third of 2025 price growth, which is evidence that cost increases were being passed on only in part. The survey is of opinion and describes a past period.

Sourcing and inventory. Two other responses are common, and each has costs that the CFO must price. Moving part of the volume to a supplier outside the affected trade lane avoids duty but usually costs more per unit and takes months to qualify. Buying ahead of an announced change avoids the duty on the stock bought, but ties up cash. Exhibit 19 prices both for the fictional company, under the same fictional duty of 15 percent. The shift of 40 percent of the volume to a source without duty saves 7.80 of duty and costs 3.64 of premium at 7 percent, a net gain of 4.16 a year against a qualification cost of 2.4, a payback of about 0.58 of a year after the new source is running. The purchase of ten weeks of extra stock, 25.0 million of cash, avoids 3.75 of duty at a cost of 0.68 in capital and storage, a gain of 3.07, but it raises net debt from 116.0 to 141.0 and net leverage from 2.79 to 3.39 times, and it cuts headroom under the 3.75 limit from 10.67 to 4.00 of earnings. The saving is real, and the cost in covenant headroom is larger than the saving would suggest. The purchase is therefore a financing decision as much as a trade decision, and it should not be made without the covenant test.

Exhibit 19 Pricing the Responses to a Tariff Shock (Fictional Duty, Millions of Dollars)

Response	Annual or one time benefit	Cost	Net	Effect on liquidity and covenants	Time to effect
Move 40 percent of volume to a source without duty	Duty avoided 7.80 a year	Premium of 7 percent on 52.0, or 3.64 a year, and qualification of 2.4 once	4.16 a year, payback of 0.58 of a year	Small cash cost of qualification, no effect on net debt after payback	Many months, qualification and capacity
Buy ten weeks of extra imported stock	Duty avoided 3.75 once	Capital cost 0.43 and storage 0.25	3.07 once	Net debt rises by 25.0, leverage 3.39 times, headroom falls to 4.00	Immediate, before the effective date
Absorb the duty	None	19.50 a year	(19.50) a year	EBITDA falls to 22.1, headroom shrinks at once	Immediate
Pass on the duty in part	See the previous exhibit	Loss of volume	Depends on elasticity	Improves earnings and cushion, but volume may not return	Weeks to months, subject to contracts
Use lawful duty management tools	Varies	Compliance and adviser cost	Varies	KPMG lists foreign trade zones, drawback and first sale, with rules that counsel must apply	Months

Fictional. Computed in Python. Sourcing: 0.4 x 19.5 = 7.80 saved less 0.4 x 130.0 x 0.07 = 3.64 premium leaves 4.16, and 2.4 / 4.16 is 0.58 of a year. Inventory: 130.0 / 52 x 10 = 25.0, duty avoided 3.75, capital cost at 9 percent for ten weeks 0.43 and storage at 1 percent 0.25, net 3.07. Leverage 141.0 / 41.6 = 3.39 times, required earnings 141.0 / 3.75 = 37.6, headroom 41.6 less 37.6 is 4.0.

G. Supply chains: safety stock and its economics. A supply chain breaks in two ways, and the remedies differ. The ordinary way is variation: demand and lead times move around their averages, and a stock of **safety stock** absorbs the variation. The extraordinary way is disruption: a source is lost for weeks, and ordinary safety stock is far too small. For ordinary variation a standard formula gives the safety stock as the product of the service factor z, the weekly standard deviation of demand and the square root of the lead time in weeks. The service factor is the number of standard deviations that gives the target probability of not running out during the lead time, and it is 1.645 for 95 percent, 1.282 for 90 percent and 2.326 for 99 percent, computed with the normal distribution routines of Python. The formula assumes that demand in different weeks is independent and roughly normal, which is a simplification. For a component used in a product family of the fictional company, weekly demand averages 3,000 units with a weekly standard deviation of 600 units, and each unit costs 280 dollars to buy and costs 22 percent a year to carry. Exhibit 20 shows the safety stock for a lead time of six weeks, from a distant sole source, and three weeks, from a nearer one.

Exhibit 20 Safety Stock for Demand Variation, by Service Level and Lead Time (Fictional)

Service level	Service factor z	Safety stock, 6 week lead time, units	Value, thousands of dollars	Carrying cost a year, thousands	Safety stock, 3 week lead time, units	Carrying cost a year, thousands
90 percent	1.282	1,883	527.4	116.0	1,332	82.0
95 percent	1.645	2,417	676.9	148.9	1,709	105.3
99 percent	2.326	3,419	957.3	210.6	2,418	148.9

Fictional. Computed in Python. Safety stock equals z x 600 x the square root of the lead time. At 95 percent and six weeks: 1.6449 x 600 x 2.4495 = 2,417 units, worth 2,417 x 280 = 676.9 thousand dollars and costing 148.9 thousand a year at 22 percent. Halving the lead time cuts safety stock by the square root of two, to 1,709 units. The formula covers ordinary variation only.

Disruption and contingency sourcing. The economics of protection against disruption are different, and they are less comfortable. Suppose that the sole source of the component fails with a probability of 15 percent a year, and that a failure lasts twelve weeks, during which the product family loses its sales. Weekly contribution is 1.02 million, being 3,000 units at 1,000 dollars at a margin of 34 percent, and a twelve week outage costs 12.24 million, or 29.4 percent of annual EBITDA. The company could hold four extra weeks of stock, which costs 3.36 million in inventory and 0.74 million a year to carry, or qualify a second source for 30 percent of the volume at a premium of 6 percent, which costs 0.79 million a year plus 0.9 million to qualify, or do both. Exhibit 21 compares the four courses. On the expected annual cost alone the answer is uncomfortable, since doing nothing is the cheapest, at 1.84 million a year, against 1.96 for extra stock, 2.25 for the second source and 2.56 for both. The picture changes when the loss is set against the headroom of the covenant. A loss of 12.24 is 115 percent of the 10.67 of earnings headroom under the 3.75 limit, so that a single disruption would by itself breach the covenant, while extra stock brings the loss to 8.16, which is 76 percent of the headroom. Resilience is insurance, and it should be bought where the tail loss threatens survival, the covenant or the confidence of lenders, and not where an average of probabilities says that it does not pay. The broker should also be asked to price contingent business interruption cover, which transfers part of the loss and may cost less than holding the stock.

Exhibit 21 **Economics of Protection Against a Twelve Week Loss of a Sole Source (Fictional, Millions of Dollars)**

Course of action	Loss in a disruption year	Share of covenant headroom used	Extra inventory	Carrying cost a year	Premium a year	Expected annual cost, with loss
A. Do nothing	12.24	115 percent	0.00	0.00	0.00	1.84
B. Hold four weeks of extra stock	8.16	76 percent	3.36	0.74	0.00	1.96
C. Qualify a second source for 30 percent of volume	8.57	80 percent	0.00	0.00	0.79	2.25
D. Both B and C	5.71	54 percent	3.36	0.74	0.79	2.56

Fictional. Computed in Python. Loss equals (12 less weeks of stock) x (1 less second source share) x 1.02. Option B: 8 x 1.02 = 8.16. Option C: 12 x 0.70 x 1.02 = 8.568. Option D: 8 x 0.70 x 1.02 = 5.712. Expected annual cost is 0.15 x loss plus carrying cost, premium and the qualification cost of 0.9 spread over five years. Headroom of 10.67 is earnings above the level at which the 3.75 limit is reached today.

H. Fraud analytics: a worked test. Simple tests of the data, run each month, find more than intuition does. A well known one looks at the distribution of payment amounts around an approval limit. Where a payment above 10,000 dollars needs a second approval, an honest process shows amounts spread smoothly on both sides of the limit, and a process in which someone is avoiding review shows a pile of amounts just below it. In the fictional company 1,820 payments were tested. The four bands of 1,000 dollars below the band next to the limit held 44, 41, 38 and 40 payments, an average of 40.75, while the band from 9,000 to 9,999 held 117, which is 2.87 times the average and an excess of 76.25. Under a simple count model the excess is about 11.9 standard deviations, which is far beyond chance. The flagged payments total 1,125,540 dollars. Exhibit 22 lists this test with three others and their results. The finding is a reason to ask questions, and there may be an innocent explanation, such as a contract that fixes the price of a recurring service at 9,620 dollars. The response is to open the file and not to accuse anyone, and if the questions are not answered, to follow the protocol of Exhibit 9.

Exhibit 22 **Four Analytics Tests Run on Fictional Payment and Journal Data**

Test	Population	Flagged	Flag rate	Value flagged, dollars	Next step
Payments clustered just below the 10,000 approval limit	1,820 payments	117	6.4 percent	1,125,540	Review contracts and approvers for the three vendors that account for most of the cluster
Duplicate payments: same vendor, same amount, within seven days	1,820 payments	28	1.5 percent	186,400	Confirm duplicates with the vendor and recover. Review the matching control
Vendor bank account that matches an employee bank account	412 vendors	1	0.2 percent	212,000	Escalate at once to counsel under the protocol, secure vendor file and payment records, do not alert the employee
Manual journal entries posted after close, by one preparer	960 entries	23	2.4 percent	1,384,000	Review the preparer, the approvals and the support for each entry, with an independent reviewer

Test	Population	Flagged	Flag rate	Value flagged, dollars	Next step
Total value flagged				**2,907,940**	

Fictional. Computed in Python. Cluster: 117 payments at an average of 9,620 dollars is 1,125,540. Flag rates: 117 / 1,820 = 6.4 percent, 28 / 1,820 = 1.5 percent, 1 / 412 = 0.2 percent, 23 / 960 = 2.4 percent. Sum of values: 1,125,540 + 186,400 + 212,000 + 1,384,000 = 2,907,940. A flag is a question and not a finding, and counsel must direct any inquiry.

I. The communication plan. In a crisis, silence is rarely neutral, since people fill an absence of information with the worst version of events. The CFO has a direct part in the communication with lenders, investors, auditors and regulators, and an indirect part in the rest, and the main rules are common to all: say what is known and what is not, say when the next update will come and keep to it, make sure that no audience hears material news after another, and have counsel review every statement. For a public company, disclosure rules and the rule against trading on undisclosed material information add strict constraints, and counsel must be consulted before anything is said outside the company. Exhibit 23 sets out, for each audience, the owner, the timing, the content and the constraint.

Exhibit 23 Communication Plan by Audience

Audience	Owner	Timing	Content	Constraint
Employees	CEO, with the people lead	Same day, before the news is public, then at fixed intervals	What happened, what the company is doing, what is asked of staff, when the next update will come	Do not promise what is not certain, and respect employment law
Lenders	CFO	Before any covenant test or drawing that may be at risk, never after	13 week forecast, covenant projection, operating plan, the request and the timetable	Equal information to all lenders, and counsel on the agreement
Customers	Head of sales, with the CEO for key accounts	Within a day for affected customers	Effect on service, what is being done, a contact, and any change in terms	Contract rights and the risk of statements that create obligations
Suppliers	CFO and head of supply chain	Before any change in payment terms	Plan for payment, the reason, and the commitment to critical suppliers	Unequal treatment may cause prepayment demands
Investors and the board	CEO and CFO	Immediately to the board, and to investors at the time disclosure rules allow	Facts, the plan, the cash position and the risks, without optimism that the facts do not support	Disclosure and selective disclosure rules, and counsel
Auditors	CFO and audit committee chair	As soon as the matter may affect the accounts	Facts, the effect on estimates, going concern assessment and subsequent events	No pressure on the audit. Counsel for investigations
Regulators and law enforcement	General counsel	As the law and counsel require	As required by the rule or the request	Counsel decides who speaks and what is said

Source: author's design for teaching, stated from the author's own knowledge. Disclosure and notification duties vary by company, exchange and country, and counsel must be consulted. Module 16 treats executive communication and negotiation.

J. The first 72 hours. The first three days of a crisis set its direction. The danger in this period is not a lack of ability but disorder: facts that conflict, people who act without telling each other, and messages that differ by audience. A checklist does not replace judgment, but it ensures that the essential things are done in the right order by someone, and the CFO should have a copy of the part that concerns finance. Exhibit 24 arranges the actions by hour. The checklist is for the finance function, and the operational response, including continuity and disaster recovery, follows the plans of Module 10.

Exhibit 24 The First 72 Hours: Checklist for the Finance Function

Window	Actions of finance	Output
Hours 0 to 4	Convene the command team and appoint a scribe. Secure evidence if fraud or cyber is suspected. Freeze nonessential payments above a limit. Confirm cash by account and the availability under every line. Brief counsel.	Situation note of one page, decision log opened, payment freeze in force
Hours 4 to 24	Build the 13 week forecast on the facts known. Test covenants at the next two test dates. Identify the first levers and their owners. Prepare the lender call with counsel. Brief the board chair and audit committee chair. Preserve records.	Forecast version 1, covenant projection, list of levers, board chair informed
Hours 24 to 48	Speak to lenders before they speak to the company. Begin collections and payment actions. Review insurance policies and notices. Prepare messages to suppliers, customers and employees with counsel. Assess disclosure duties and the going concern question.	Lender call held, notice to insurers sent, messages approved, disclosure assessment started
Hours 48 to 72	Update the forecast with actual cash. Confirm the plan with the command team and decide the tier of action. Brief the board in full. Brief auditors. Set the daily and weekly rhythm of meetings and reports.	Forecast version 2, board briefing, rhythm set, plan approved
After 72 hours	Run the weekly cycle of forecast, actual comparison, lender report and decision log. Begin the after action record while memory is fresh.	Weekly report, running decision log, after action notes

Source: author's design for teaching. The list is a starting point and each company must adapt it, with counsel, to its agreements, its sector and the nature of the event. Module 10 treats the operational response.

K. Deciding under pressure: pre mortems and red teams. Under pressure people commit early to a story and then collect evidence for it. Two disciplines reduce the error. A pre mortem asks the team, before a decision is made, to assume that the plan has failed a year later and to write the reasons, which lets people say what they feared and did not dare to say. A red team is a group, outside the planning team, charged with finding the flaws in a plan and with the freedom to do so. The CFO's role is to make these disciplines normal and short, since a crisis allows hours and not weeks, and to insist that the decision log records the facts that were known, the facts that were assumed and the point at which each assumption would be reviewed. A useful rule is to decide as late as the facts allow and as early as the clock demands, and to prefer reversible steps when information is poor. Exhibit 25 applies the method to the decision of the case study of Section 4, the approach to lenders.

Exhibit 25 Pre Mortem and Red Team Applied to the Lender Decision

Method	Question	Example answer for the lender decision	What changes in the plan
Pre mortem	It is twelve months later and the approach to lenders has failed. Why?	We approached them after the first test, we offered an unrealistic forecast, lenders compared notes and found different messages, the sponsor refused to support us	Approach before the test, build a forecast that was tested by a red team, send one set of facts to all lenders, secure the sponsor in advance

Method	Question	Example answer for the lender decision	What changes in the plan
Pre mortem	It is twelve months later and the cost plan has failed. Why?	Savings were assumed at full value, people left whom we needed, customers saw the cuts	Use probabilities as in the lever table, protect key roles, review the effect on sales
Red team	What would the lenders say about this forecast?	The collection of overdue accounts is too optimistic, the failed customer could affect others	Cut the probability of the collections lever, add a second customer failure to the stress case
Red team	What assumption, if wrong, would end the company?	Availability under the revolver, which a breach may remove	Test unconditional liquidity, ask counsel for the conditions to drawing
Assumption log	What do we assume, and when do we check?	Sales recover in two quarters, the supplier will keep terms	Name the date and the indicator that would show the assumption to be wrong

Source: author's design for teaching. The pre mortem is a method of structured imagination that the author states from general knowledge. The answers are fictional.

L. Financial resilience as a design principle. The best crisis management is a company that needs less of it. Financial resilience is the ability to absorb a shock and continue to operate, and it can be designed in calm times by choices about buffers, diversification and optionality. A **buffer** is a store of liquidity, stock or capacity that is held for a bad day. **Diversification** is the spreading of dependence over more than one supplier, customer, lender or market. **Optionality** is the right, without the obligation, to take an action later, such as an undrawn committed credit line or a second qualified supplier, and its value is greatest in the states of the world in which it is needed. The test of a liquidity buffer is whether it covers the severe case without depending on a source that may disappear. In the fictional company, the severe case, with sales down 30 percent, has a 13 week net cash flow of (9.24), and a policy that holds the minimum cash of 8.0 plus that outflow requires 17.24 of liquidity that does not depend on the lenders. The company has cash of 12.0, so that the unconditional buffer falls short by 5.24, even though the headline liquidity, with the revolver, is much larger. Exhibit 26 shows the test and the options for closing the gap. The Treasury, Liquidity and Working Capital Master Class in this series treats the sizing of buffers in depth.

Exhibit 26 Test of the Liquidity Buffer Against the Severe Case (Fictional, Millions of Dollars)

Item	Amount	Note
Cash today	12.00	Unrestricted, in accounts that the company controls
Availability under the revolver today	42.00	Conditional on covenants and on the borrowing base
Headline liquidity	**54.00**	**Cash plus availability**
Severe case: 13 week net cash outflow	9.24	Sales down 30 percent, same customer failure and supplier pull forward
Minimum cash policy	8.00	Operating floor
Unconditional liquidity needed	**17.24**	**Floor plus the severe outflow**
Shortfall of unconditional liquidity	5.24	Needed less cash today. Closing options: term out part of the revolver, secure a committed term facility, hold more cash, arrange a standby line with a covenant lite structure, agree equity support in advance

Fictional. Computed in Python. Availability today: borrowing base 0.85 x 0.9 x 60.0 plus 0.5 x 41.6 is 66.7, capped at the commitment of 60.0, less 18.0 drawn is 42.0. Severe outflow 9.24 plus minimum cash 8.0 is 17.24, and 17.24 less 12.0 is 5.24.

What the buffer test shows. The result is the opposite of the comfort that the headline figure of 54.0 suggests. Most of that liquidity is a promise from lenders that holds only while the company keeps its own promises, and the severe case is exactly the one in which the covenant is most likely to fail. The cure is not necessarily more cash, which is costly to hold, but cash that cannot be taken away, and the choices in the last row of the exhibit differ in cost and in the time that they take. Exhibit 27 widens the test to the other dimensions of the company.

Exhibit 27 Designing Resilience Into the Company

Dimension	Design principle	Test of resilience	Cost and trade off
Liquidity	Hold cash and committed lines that cover the severe case, with maturities spread and few covenants	Unconditional liquidity at least the severe case outflow plus the minimum cash	Cost of carry and of commitment fees, lower return on cash
Funding	More than one lender and more than one type of funding, no large maturities clustered in a year	Share of debt maturing within twenty four months, number of lenders	Higher fees and administration
Suppliers	Dual sourcing for critical inputs, safety stock where the tail is severe, mapping to the second tier	Share of critical spend with a qualified second source, weeks of cover	Price premium, inventory carrying cost
Customers	No single customer large enough to threaten the covenant	Largest customer as a share of revenue and of receivables, credit insurance	Lower growth from concentration limits
Cost structure	Convert fixed cost to variable where it is cheap to do, keep discretionary fixed cost high	Operating leverage and break even, time to flex each cost class	Higher unit cost in good times
Information	A forecast that is built weekly and a close that is fast, with a clear owner	Forecast accuracy over four weeks, time to produce the lender pack	Staff time and systems

Source: author's design for teaching. The tests are examples, and the board should set its own limits. Module 17 supplies the scenarios against which each test should be run.

M. Recovery and the after action review. A crisis that is not studied is likely to be repeated. The after action review is a structured conversation, held within weeks of the event, that asks four questions: what was supposed to happen, what did happen, why was there a difference, and what will we do differently. It must be blameless in tone and exacting in substance, because a team that expects to be blamed will conceal the facts that matter most. The CFO should own the financial part of the review: the accuracy of the forecast, the speed of the lender pack, the timing of each lever against plan, and the cost of the crisis in fees, discounts and lost value. Exhibit 28 is a template, with an example of the entries.

Exhibit 28 After Action Review Template With Example Entries

Question	What to examine	Evidence	Example finding (fictional)	Action and owner
What was supposed to happen?	The plan, triggers and decision rights	Playbook, decision rights table	Tier 1 was to start at orders 8 percent below plan	Not applicable
What did happen?	Timeline, cash, decisions	Decision log, 13 week forecast against actual	Tier 1 began three weeks late, forecast error in week 9 was 2.1	Not applicable

Question	What to examine	Evidence	Example finding (fictional)	Action and owner
Why the difference?	Causes, not people	Interviews, data	Orders were measured monthly and the trigger was seen late	CFO: measure orders weekly, by 31 March
What will we do differently?	Changes to plan, tools and training	Revised playbook	Add weekly trigger dashboard, rehearse lender call	CEO: rehearsal in the next quarter
What went well?	Practices to keep	Feedback from lenders and staff	The 13 week forecast was produced in 18 hours	CFO: keep the template current

Source: author's design for teaching, based on the general practice of after action reviews. The example entries are fictional.

4. Executive case study and decisions

The case (fictional). Calloway Precision Products is the fictional manufacturer of Section 3, with revenue of 520.0 million dollars, EBITDA of 41.6 million, net debt of 116.0 million and a revolving credit line of 60.0 million, of which 18.0 million is drawn. Its credit agreement limits net leverage to 4.25 times at the first quarterly test and to 3.75 times at each test after it, and the board has set a minimum cash balance of 8.0 million. In the first quarter of the year the company's sales fall by 20 percent, suppliers tighten their terms, and in week 9 the largest customer after the shock fails and leaves 2.5 million unpaid and a further 6.0 million of receivables that the lenders will no longer count. Exhibit 29 gives the position at the end of week 8, when the chief financial officer must decide how to approach the lenders. All figures were computed in Python.

Exhibit 29 Position of the Fictional Company at the End of Week 8 (Millions of Dollars)

Item	Fact at the end of week 8	Source in this module
Cash	10.37 against a minimum of 8.0	Exhibit 12
Availability under the revolver	41.1, conditional on covenants and the borrowing base	Exhibit 12
Forecast for the quarter, no action	Cash of 5.15 at week 13, a low of 4.14 in week 12, below the minimum from week 10	Exhibit 12
Operating plan of levers L1 to L5	Net cash of 12.40, lifting the low point of cash to 12.94	Exhibit 15
First covenant test, with the plan	3.35 times against 4.25, headroom 21.1 percent	Exhibit 14
Second covenant test, with the plan	3.92 times against 3.75, short by 1.31 of earnings	Exhibit 14
Second covenant test, no action	5.97 times against 3.75	Exhibit 14
Owners	Equity held by a financial sponsor, six lenders in a syndicate, an agent bank	Case fact

Fictional. Figures from the exhibits of Section 3, computed in Python. The agreement is described in simplified form, and a real agreement must be read by counsel, including the definition of earnings, the right to cure a breach and the conditions to drawing.

The decision point. The company can meet its payments for the quarter with the operating plan, and the fictional CFO knows it. The question is the covenant. The first test is passed, the second is missed by 1.31 of earnings even if every lever is delivered at its expected value, and the trailing earnings will fall again in the third quarter, so that the position grows worse for several quarters even if sales stop falling. The CFO must advise the chief executive and the board on whether to approach the lenders now, with an operating plan and a request, or to wait until the plan has produced results, and whether to ask the sponsor for support. Exhibit 30

compares five options, using the covenant path of Section 3 and the costs described in the notes. Option A is to wait for results before saying anything, and it is the course that most boards follow by default, since nobody wishes to alarm the lenders. Option B is to carry out the operating plan and say nothing until a test is missed. Option C is to carry out the plan and to ask the lenders, before the first test, to reset the limits, in return for a fee, a higher margin and weekly reporting. Option D is to ask the sponsor to inject equity that counts as earnings under a cure right, if the agreement gives one. Option E is to sell a product line with earnings of 3.0 million to repay debt. Each option is tested against the covenant at the second and third dates, against the liquidity of the company and against its cost.

Exhibit 30 Five Options for the Lender Decision (Fictional, Millions of Dollars)

Option	Second test	Third test	Liquidity	Cost	Principal risk
A. Wait and see, no plan	5.97 times against 3.75, breach	10.64 times, breach	Cash falls below the minimum from week 10, and availability of 36.0 may be withdrawn	Default interest of 2 percent on 126.9, or 2.54 a year, plus fees	Lenders learn of the problem from the covenant certificate and not from the company
B. Operating plan only	3.92 times against 3.75, short by 1.31	4.70 times, breach	Cash stays above 12.9 through the quarter	Little in the first quarter, 2.54 a year of default interest if the breach is not waived	Breach at the second test, with no relationship to cushion it
C. Operating plan and early amendment	3.92 times against 5.50, headroom 28.7 percent	4.70 times against 5.50, headroom 14.5 percent	Cash above 12.9, availability protected by the amendment	Fee of 0.5 percent of 168.9, or 0.84, and margin of 1 percent on 126.9, or 1.27, a total of 2.11 in the first year	Lenders demand tighter terms, weekly reporting and a minimum liquidity test, or refuse
D. Operating plan and equity cure of 9.0	2.98 times against 3.75, within the limit	3.42 times, within the limit	Cash above 12.9 and the cure adds to liquidity if paid in cash	9.0 of new equity and its dilution	The agreement may limit cures, and the sponsor may not agree
E. Operating plan and sale of a line with earnings of 3.0	Not complete by the second test	4.66 times at a price of five times earnings, still above 3.75	Cash rises by the price, but sale closes after week 26	Discount to value in a forced sale	A sale helps only if the multiple exceeds current leverage (Exhibit 31)

Fictional. Computed in Python. Option A uses the no action path of the covenant exhibit. Options B to E use the operating plan path. Option C: amended limit of 5.50 gives required earnings of 110.89 / 5.5 = 20.16 and headroom of 28.7 percent at the second test, and 112.43 / 5.5 = 20.44 and 14.5 percent at the third. Option D adds 9.0 to earnings: 110.89 / 37.26 = 2.98 and 112.43 / 32.92 = 3.42. Fee of 0.5 percent applies to 108.9 of term debt and 60.0 of revolver commitment.

Reading the options. Two features of the table deserve a remark before the recommendation. The first is that Options B and E leave the company in breach at the third test, so that neither can be the whole answer, and Option A is worse than either. The second is that Options C and D differ in kind: C changes the terms of the contract, at a cost paid to the lenders, while D changes the earnings that the contract measures, at a cost paid by the owners. Sale of a business line, shown in the next exhibit, is the least obvious case, since the instinct to repay debt with the proceeds of an asset can fail on the arithmetic.

Exhibit 31 Asset Sale Arithmetic: Selling a Line With Earnings of 3.0 Before the Third Test (Millions of Dollars)

Multiple of earnings paid	Sale price for earnings of 3.0	Net debt after sale	Earnings after sale	Net leverage at third test	Against 4.70 before sale
4 times	12.00	100.43	20.92	4.80 times	Worse by 0.10
5 times	15.00	97.43	20.92	4.66 times	Better by 0.04
6 times	18.00	94.43	20.92	4.51 times	Better by 0.19
7 times	21.00	91.43	20.92	4.37 times	Better by 0.33
8 times	24.00	88.43	20.92	4.23 times	Better by 0.47

Fictional. Computed in Python from the operating plan at the third test (net debt 112.43, earnings 23.92, leverage 4.70). At a multiple of 5: net debt 112.43 less 15.0 is 97.43 and earnings 23.92 less 3.0 is 20.92, giving 4.66. A sale reduces leverage only if the multiple exceeds the leverage before the sale. Taxes and costs of sale are ignored.

The recommended path. The CFO recommends Option C, supported by a prepared contingency of Option D. The operating plan of Option B is necessary, since it protects cash and shows the lenders that management acts, but it is not sufficient, because it leaves a breach at the second test and a larger one at the third. The amendment costs about 2.11 million in the first year, which is 83 percent of the 2.54 million that default interest alone would cost in a year, before fees, legal costs and the loss of availability that a default would bring. Approaching the lenders before the first test, with a 13 week forecast, a tested plan and a specific request, is the strongest position that the company will ever have, because the first test is still met and the lenders are asked to reset a limit and not to forgive a breach. The CFO also recommends that the company offer weekly reporting of the forecast against actual, since the agreement of the lenders is likely to depend on the credibility of the numbers, and that the sponsor be told in advance and asked, quietly, whether it would support a cure if one were needed. The sale of the product line in Option E is not recommended for the covenant purpose, since at plausible multiples it improves leverage only slightly, as Exhibit 31 shows, and it removes earnings.

What a weaker answer misses. A weaker answer would look at the 13 week forecast, note that cash stays above the minimum with the plan, and conclude that the company is safe, never testing the covenant at the second and third dates. It would assume that the levers deliver their gross amounts, and not their expected amounts. It would regard the availability under the revolver as liquidity, when a breach would let the lenders withdraw it. It would wait for results before speaking to the lenders, which turns a negotiation into a notice of default, and it would send different versions of the facts to different lenders, which destroys trust. It would consider the sale of a division as a cure, without testing whether the multiple exceeds the leverage. It would leave the decision unrecorded, so that nobody could later show what was known and when, and it would forget the people: the employees who read about the company's difficulties in the press, and the key staff who leave when pay is frozen without explanation. A stronger answer treats the crisis as a sequence of tests, each with its own clock, and answers each in the right order.

The wider lesson. The case shows that a company can pass the test of cash and still fail the test of the covenant, and that the covenant is the test that decides whether the cash can be used. It shows too that the value of preparation lies in speed and credibility: the forecast, the tiers of action and the decision rights existed before the crisis, and they allowed the CFO to approach the lenders in days with a plan and not in weeks with an apology. The fictional company could have done more in calm times, by negotiating a covenant structure with more headroom when it borrowed, by spreading its funding among more lenders and by holding a larger buffer of unconditional liquidity, and these are the matters on which the board should now be asked to decide. The principle is general: the terms that a company accepts in good times are the constraints that it lives with in bad ones.

5. Boardroom discussion and key takeaways

In a crisis the board relies on the CFO for facts and for judgment, and a board that has asked the right questions in calm times will be better placed to act in a storm. The questions in Exhibit 32 can be asked by any director, and the CFO should be ready to answer each from the exhibits of this module. Module 9 describes how the audit committee organizes this oversight, and Module 13 describes the relationship between the CFO and the chief executive on which a crisis depends.

Exhibit 32 Ten Questions Directors Should Ask About Crisis and Resilience

Question a director should ask	What a ready CFO can say
How many weeks of cash do we have in the stress case, and how much of our liquidity could a lender withdraw?	The 13 week forecast, the severity ladder and the unconditional liquidity test (Exhibit 12, Exhibit 13, Exhibit 26)
At the next two covenant test dates, how much headroom do we have, in earnings and in ratio terms?	The covenant path with and without the plan, and the earnings needed at each date (Exhibit 14)
In what order will we pull the levers of cash, and what is the probability that each delivers?	The lever table with probabilities, costs and first weeks (Exhibit 15)
At what revenue do we break even, and which actions are pre agreed at each step of decline?	Break even, operating leverage and the tiers with triggers and owners (Exhibit 16, Exhibit 17)
What share of our cost is exposed to trade policy, and what would we do about price, sourcing and inventory?	Exposure by country and product, the pass through analysis and the pricing of each response, with fictional rates replaced by confirmed ones (Exhibit 18, Exhibit 19)
Which suppliers or customers could break us, and what protection do we hold?	Concentration, safety stock and disruption economics, with the effect on the covenant (Exhibit 20, Exhibit 21)
What would we do in the first 72 hours, and who decides what?	The command team, decision rights and the checklist of the first 72 hours (Exhibit 10, Exhibit 11, Exhibit 24)
How would we respond to an allegation of fraud involving management?	The protocol, with independence, the audit committee and counsel (Exhibit 9)
Who speaks to lenders, employees, customers, investors, auditors and regulators, and when?	The communication plan (Exhibit 23) and the rule that no audience hears material news after another
What have we learned from the last crisis, and how have we tested the playbook since?	The after action review and the date of the last rehearsal (Exhibit 28)

Source: author's synthesis. Cross references are to modules in this program: Module 9 for governance, Module 10 for risk and continuity, Module 13 for enterprise leadership, Module 16 for communication and Module 17 for scenarios.

Advising the CEO and the board. The CFO should make three arguments. The first is that the time to prepare is now, since the forecast, the playbook and the relationships with lenders cannot be built in the week in which they are needed. The second is that the covenant and the cash are separate problems with separate clocks, and that the second cannot be solved without the first. The third is that honesty is the strongest strategy with lenders, auditors and staff alike, because every audience compares what it was told, and a company that tells each a different story will lose all of them. The Deloitte survey of Danish finance leaders reported in June 2026 that CFOs were focused on stronger risk management, cost discipline and resilient organizations, and that the shift in the view of vulnerability was embedding resilience in the core agenda of finance. The sample was small and local, and it describes intention.

Common errors. Eight errors recur. The first is to rely on the income statement when the problem is timing of cash. The second is to count the availability of a revolver as safe liquidity. The third is to test the covenant at

the last date and not at the coming ones. The fourth is to assume that every lever delivers its gross amount. The fifth is to cut late and deeply because each month seems likely to bring a recovery. The sixth is to approach the lenders after a breach and not before. The seventh is to allow management to investigate its own conduct, or to tell different audiences different stories. The eighth is to end the crisis without an after action review, so that the lesson is lost.

Key takeaways. First, a 13 week forecast built from the bottom up, updated weekly and tested in a stress case, is the central instrument of a liquidity crisis. Second, cash and covenants run on different clocks, and the covenant often strikes first because it is measured on trailing earnings. Third, pull the levers in the order of speed, cost, reversibility and signal, and price each by its probability of delivery. Fourth, in a recession operating leverage multiplies a fall in revenue, so write the triggers and the actions in advance. Fifth, for a tariff, separate the channels of cost, price, sourcing and inventory, test the elasticity before passing on the cost, and test any purchase ahead of the change against the covenant. Sixth, protect against supply disruption where the tail loss threatens the covenant, and not where an average of probabilities says that it does not pay. Seventh, in a fraud, preserve the evidence, keep the inquiry independent and involve the audit committee and counsel. Eighth, organize the crisis with a command team, decision rights, a communication plan and a checklist for the first 72 hours. Ninth, use pre mortems and red teams to fight the commitment to a first story. Tenth, design resilience in calm times and learn from every crisis by an after action review.

6. The executive artifact: a crisis playbook one pager and a liquidity lever table

The executive artifact has two parts. The first is a one page crisis playbook that lists the triggers, the owners and the actions for the first 72 hours, in a form that the chief executive and the board chair can keep in a folder. The second is a liquidity lever table, completed with the owner, the decision date and the expected cash of each lever. The reader should prepare both for the company, with real triggers and real owners, review them with counsel and the lenders' documents, and rehearse them at least once a year. Exhibit 33 shows the playbook completed for the fictional company.

Exhibit 33 Crisis Playbook One Pager, Completed for the Fictional Calloway Precision Products

Trigger	Threshold	Owner	First 72 hour actions	Decision right
Liquidity	13 week forecast shows cash below 8.0 within six weeks, or unconditional liquidity below the severe case need	CFO	Rebuild forecast daily, freeze payments above 0.25, start levers L1 to L5, brief the board chair, call the agent bank	CFO draws within 15.0, above it the board
Covenant	Projected headroom below 15 percent at either of the next two test dates	CFO	Project both tests, draft the request, retain counsel, call the sponsor, call the lenders before the test	CEO and CFO approach the lenders
Demand	Orders below plan by 8, 15 or 25 percent for four weeks	CEO	Release Tier 1, 2 or 3 of the pre agreed actions, update break even, brief the board	CEO for Tiers 1 and 2, board for Tier 3
Customer failure	Largest ten customers: a missed payment, a downgrade or a filing	Credit manager and CFO	Stop shipments on open credit, recompute eligible receivables, assess exposure and contract rights with counsel	CFO for credit, counsel for rights
Supply break	A critical supplier misses a delivery or declares an event	Chief operating officer	Compute weeks of cover, release safety stock, start the second source, quantify revenue at risk	COO, with the CFO on cost

Trigger	Threshold	Owner	First 72 hour actions	Decision right
Trade policy	Announced change in duty on a product or lane worth more than 5 percent of spend	CFO and head of supply chain	Compute exposure, test price pass through, test pre purchase against covenant, brief customs counsel	CEO on price, CFO on inventory
Fraud allegation	Any credible allegation, above all one involving management or financial reporting	Audit committee chair	Preserve evidence, notify the committee and counsel, no management investigation, decide disclosure	Audit committee

Fictional. Thresholds and limits are illustrations in millions of dollars and percent, drawn from the exhibits of Section 3. The playbook is a proposed program standard, and counsel must review the notices, the disclosure steps and the rights under the loan agreements.

The liquidity lever table. The second part of the artifact is the lever table in its working form. Each lever has an owner, a decision date and a status, and the totals are compared at every weekly meeting with the shortfall that the forecast shows. The table below uses the figures of Exhibit 15 and adds the decision details. A lever that is marked as not started a week after its decision date should be escalated, and a lever whose probability falls should be replaced by another before the cash is needed.

Exhibit 34 Liquidity Lever Table in Working Form, Completed for the Fictional Company (Millions of Dollars)

No.	Lever	Owner	Decision date	Expected cash	Net of cost	Status
L1	Collections push, with a 1 percent early payment discount	Credit and collections manager	Week 5	4.57	4.27	Started
L2	Sell down surplus finished goods and components	Head of supply chain	Week 6	2.80	2.48	Planned
L3	Extend terms with non critical suppliers by seven days	Procurement lead and CFO	Week 7	1.25	1.15	Planned
L4	Freeze hiring, contractors and discretionary spending	CEO and function heads	Week 3	2.34	2.34	In force
L5	Defer 60 percent of capital spending from week 5	COO and CFO	Week 4	2.16	2.16	Planned
L6	Sale and leaseback of owned equipment	Treasurer	Week 8	3.00	2.71	Reserve
L7	Draw on the revolver, within availability	CFO	As needed	10.00	9.81	Reserve
L8	Sell a non core product line	Board	Week 12	0.00	0.00	Not started
	Operating levers L1 to L5			**13.12**	**12.40**	**Covers the peak shortfall 3.2 times**

Fictional. Figures from the lever table of Section 3 (L1 4.571, L2 2.80, L3 1.248, L4 2.34, L5 2.16, total 13.12 expected and 12.40 net of costs of 0.72). The sale and leaseback and the revolver are held in reserve, and the sale of the product line does not deliver within the quarter. The table is a proposed program standard.

Using the artifact. The playbook is useful only if it is short enough to be read in the first hour of a crisis and specific enough to be acted on, which is why each trigger has a number, an owner and a first action. It should be tested in a rehearsal in which the command team works through a scenario drawn from Module 17, with the

13 week forecast rebuilt in a few hours, so that weaknesses in data, authority and communication appear in an exercise and not in the event. The lever table should be refreshed monthly in calm times, with the probabilities reviewed against what actually happened in the last crisis and the last rehearsal, and the board should see both documents at least once a year.

7. Research and Perspectives from the Leading Firms

The publications below were found by search, and each page was opened before it was described. Where a page returned only part of its content, or did not state a date or a figure, the description says so and states only what was returned. The 13 week model, the covenant path, the lever table, the break even and tariff examples, the safety stock and disruption economics and the fraud analytics of Sections 2 and 3 are the author's own and not taken from these pages. Rules and practice change quickly in this field, and the reader should confirm the current text before relying on any item.

Exhibit 35 Publications and Standards Used in This Module

Source	Title and URL	What it says
KPMG	KPMG 2026 Tariff Survey (April 10, 2026; page metadata also lists April 1, 2026). https://kpmg.com/us/en/articles/2026/kpmg-2026-tariff-survey.html	Survey of 300 United States C-suite leaders at organizations with at least one billion dollars of revenue, fielded in February and March 2026. The share passing more than half of tariff costs to customers rose from 13 percent in May 2025 to 34 percent in February 2026, 55 percent planned further price rises of up to 15 percent within six months, 51 percent reported margin declines, 68 percent were delaying investments, and 26 percent were planning or executing reshoring, up from 10 percent six months earlier
KPMG	2026 Trade Outlook: A Herculean Effort, KPMG Economics (February 3, 2026). https://kpmg.com/us/en/articles/2026/global-trade-outlook-2026	Lists foreign trade zones, duty drawback and first sale for export as ways to reduce tariff bills, describes a shift toward resilience over speed in supply chains through supplier diversification, nearshoring, inventory buffers and new technologies, and notes legal uncertainty over the authority for part of the tariffs. The page contains tariff rates and forecasts that were not used in this module, and it gave no explicit recommendations for CFOs
Deloitte	CFO Survey, Spring 2026, Denmark (June 12, 2026). https://www.deloitte.com/dk/en/services/consulting/research/cfo-survey-2026.html	Survey of 122 finance leaders at Danish companies, conducted in April 2026 by Epinion for Deloitte. 38 percent felt less optimistic than three months earlier, and CFOs were focusing on stronger risk management, cost discipline and resilient organizations, with resilience described as a growing priority as geopolitical instability shapes risk. The page did not mention tariffs
Deloitte	Procurement at the Tipping Point: Deloitte's 2025 Chief Procurement Officer Survey, press release (August 19, 2025). https://deloitte.com/us/en/about/press-room/2025-chief-procurement-officer-survey.html	Survey of more than 250 chief procurement officers in 40 countries. The most effective strategies to reduce supply chain risk were maintaining active alternative sources (74 percent), greater visibility (64 percent) and better information sharing with suppliers (61 percent). The page gave no tariff statistics

Source	Title and URL	What it says
PwC	The Resilience Revolution: PwC's Global Crisis and Resilience Survey 2023 (March 30, 2023). https://www.pwc.com/gx/en/issues/crisis-solutions/global-crisis-survey.html	Organizations in 42 countries, data collected September to November 2022. 89 percent said resilience is among their most important strategic priorities, and 70 percent were confident in their ability to respond to disruptions. The page gave no respondent count, and a later edition was not found
Federal Reserve Bank of Richmond	Uncertainty Declines, Tariffs Persist: Measuring the Impact of Tariffs on CFOs' Price and Cost Growth Forecasts, Edwards and Weitz (September 24, 2025). https://www.richmondfed.org/research/national_economy/cfo_survey/research_and_commentary/2025/20250924_research_commentary	30 percent of respondents cited tariffs or trade policy as a pressing concern, down from nearly 40 percent in the prior quarter, and firms attributed just under 40 percent of total unit cost growth in 2025 and 2026 to tariffs and about one third of 2025 price growth
ACFE	Occupational Fraud 2026: A Report to the Nations, 14th edition (page opened October 2026). https://www.acfe.com/fraud-resources/report-to-the-nations	Analyzes 2,402 cases of occupational fraud from 143 countries and territories and lists median losses by behavioral red flag, for example 532,000 dollars where excessive pressure from within the organization was present. The page did not state the overall median loss, total losses or the share of cases found by tips
COSO and ACFE	Fraud Risk Management Guide (2016), as summarized by the Journal of Accountancy (September 29, 2016). https://www.journalofaccountancy.com/news/2016/sep/coso-fraud-risk-management-guide-201615264.html	Describes five elements of fraud deterrence: fraud governance, an anti fraud culture, a periodic fraud risk assessment, preventive and detective controls and a quick response to allegations. The summary notes that the guide builds on a 2008 publication. The guide itself was not read
PCAOB	AS 2401, Consideration of Fraud in a Financial Statement Audit. https://pcaobus.org/standards/auditing-standards/details/AS2401	States that three conditions generally are present when fraud occurs, being incentives or pressures, opportunities and attitudes or rationalizations, and that fraudulent reporting often involves management override of controls that may appear to operate effectively
SEC	Regulation S-K Item 303, Management's discussion and analysis, as published in the electronic Code of Federal Regulations. https://www.ecfr.gov/current/title-17/chapter-II/part-229/subpart-229.300/section-229.303	Item 303(b)(1) requires a registrant to analyze its ability to generate and obtain cash in the next 12 months and beyond, to identify known trends, demands, commitments, events or uncertainties that are reasonably likely to change liquidity in a material way, and to describe sources of liquidity and material cash requirements
BDO USA	13-Week Cashflow Forecast Guide. https://insights.bdo.com/13-Week-Cashflow-Forecast-Guide.html	The page, which states no date and shows a copyright of 2026, described the purpose of a rolling 13 week forecast, which is to give a view of cash needs for decisions on inventory, projects and funding. Most of the body text was placeholder, and no method or statistic was available

Each page was opened and the descriptions follow what the tool returned. No publication of EY, RSM US, Grant Thornton, Baker Tilly, Crowe, Forvis Mazars, CBIZ, Moss Adams, CohnReznick, CLA or EisnerAmper was read for this module, and none is cited. Survey statistics are self reported. The Journal of Accountancy summary is a secondary source for the COSO and ACFE guide.

What the research agrees on. The sources differ in kind, from rules and standards to surveys of executives, and they should not be read as one body of evidence. They agree that trade policy has moved costs, margins

and investment decisions of large companies, that companies are passing on a growing share of the cost, and that resilience, through alternative sources, visibility and buffers, has risen in priority. They agree that fraud arises where pressure, opportunity and rationalization meet, and that the response to an allegation must be prompt, independent and governed. None of them sets a minimum cash balance, a covenant limit or a pass through share for any company, and those decisions remain with management and the board.

How a CFO can use the research. The surveys are best used to calibrate expectations, for example on how many peers had begun to pass on tariff costs, and the standards are best used as a checklist for fraud risk and liquidity disclosure. The rules on liquidity discussion in Item 303 are the most consequential for a public company, since they require known trends and uncertainties to be discussed, and counsel should confirm the present text. The surveys describe opinions in particular periods and places and are a poor basis for a plan, and the CFO's own forecast, built from the company's own data, as in Exhibit 12, is the better foundation for decisions.

8. The ten question self assessment

Rate each statement from 1 to 5 using the scale below, and mark one box in each row. The ratings must rest on actual experience or documented evidence, such as a 13 week forecast you built, a lender negotiation you led or a crisis you managed, and not on confidence. A rating of 1 means Unprepared: limited understanding and no meaningful application. A rating of 2 means Developing: conceptual familiarity, relying heavily on others. A rating of 3 means Competent: able to apply the capability independently in conventional situations. A rating of 4 means Advanced: the capability is integrated into strategy and delivers measurable results. A rating of 5 means Future-ready: enterprise wide impact, anticipation of change and the development of others.

No.	Statement of demonstrated capability	1	2	3	4	5
1	I have built a 13 week cash flow forecast from the bottom up, updated it weekly, compared it with actual results and run it in a stress case.	☐	☐	☐	☐	☐
2	I can compute liquidity runway, covenant headroom at the coming test dates and revolver availability, and I know which part of our liquidity a lender could withdraw.	☐	☐	☐	☐	☐
3	I can state the order in which the levers of working capital, spending, financing and asset sales should be pulled, with the cost, speed and probability of delivery of each.	☐	☐	☐	☐	☐
4	I know our fixed and variable cost structure, our break even and our operating leverage, and we have scenario triggers with pre agreed actions and owners.	☐	☐	☐	☐	☐
5	I can trace a tariff or trade shock through cost, price, sourcing and inventory to margin, and I have tested the elasticity of demand and the covenant effect of a purchase ahead of the change.	☐	☐	☐	☐	☐
6	I understand our supplier concentration, I can compute safety stock and weigh the economics of contingency sourcing against the tail loss to the covenant.	☐	☐	☐	☐	☐

No.	Statement of demonstrated capability	1	2	3	4	5
7	I can explain the fraud triangle, name the red flags, run simple analytics for them and follow a response protocol with independence, the audit committee and counsel.	☐	☐	☐	☐	☐
8	We have a crisis command structure, decision rights, a communication plan for each audience and a checklist for the first 72 hours that we have rehearsed.	☐	☐	☐	☐	☐
9	I use pre mortems and red teams, keep a decision log with the facts and assumptions at the time, and decide under pressure with incomplete information.	☐	☐	☐	☐	☐
10	I have designed buffers, diversification and optionality into our financial position, and I run an after action review after every crisis and near miss.	☐	☐	☐	☐	☐

Total score: _____ out of 50. Ten statements rated from 1 to 5 give a minimum of 10 and a maximum of 50 points. Exhibit 36 gives the proposed interpretation. The scale is that of the source proposal for this program, and the statements are specific to this module.

Exhibit 36 Proposed Interpretation of the Module 12 Score

Score	Reading	Suggested use
10 to 19	Unprepared	Study the module in full, and rebuild the 13 week forecast, the covenant path and the lever table with your own figures before the next planning cycle
20 to 29	Developing	Build a 13 week forecast for your own company, write the triggers and tiers of action for a demand shock, and ask a peer or your lenders' relationship manager to challenge them
30 to 39	Competent	Test your covenants at the coming dates, write the decision rights and communication plan, and run a first rehearsal of the first 72 hours
40 to 45	Advanced	Run annual rehearsals with the board, test the unconditional liquidity buffer against the severe case and report the results to the audit committee
46 to 50	Future-ready	Share the playbook and the forecast discipline across the enterprise, invite independent challenge by a red team, and coach other leaders through rehearsals and after action reviews

These bands are proposed program standards and have not been empirically validated against a broad population of finance executives. Module 12 is not one of the five critical modules, but a weak score here is a warning about readiness for the most testing quarter of a CFO's career.

Development actions by pattern. A single total can hide the pattern behind it, so look at which statements received the lowest ratings. Exhibit 37 suggests three actions for each pattern.

Exhibit 37 Development Actions for Low Score Patterns

Low scores on	Pattern	Three suggested development actions
Statements 1, 2 and 3	Liquidity gap: the reader cannot yet see cash, covenants and levers together	1. Build the forecast of Exhibit 12 for your company and compare it with actual for four weeks. 2. Project the covenant at the next two test dates as in Exhibit 14. 3. Price your own levers with probabilities as in Exhibit 15

Low scores on	Pattern	Three suggested development actions
Statements 4 and 5	Demand and trade gap: the reader cannot yet trace a shock to margin	1. Compute your break even and operating leverage as in Exhibit 16. 2. Write three tiers of action with triggers as in Exhibit 17. 3. Map exposure by country and product and test pass through as in Exhibit 18
Statements 6 and 7	Supply and fraud gap: the reader cannot yet weigh protection or respond to a discovery	1. Compute safety stock and the disruption economics for your largest sole source as in Exhibit 20 and Exhibit 21. 2. Run the four tests of Exhibit 22 on your data with the controller. 3. Agree the protocol of Exhibit 9 with counsel and the audit committee chair
Statements 8, 9 and 10	Governance and learning gap: the reader cannot yet lead the response or learn from it	1. Agree the command team and decision rights of Exhibit 10 and Exhibit 11. 2. Rehearse the first 72 hours with a pre mortem and a red team as in Exhibit 24 and Exhibit 25. 3. Test your buffer as in Exhibit 26 and hold an after action review as in Exhibit 28

Source: author's suggestions. The mapping of statements to patterns is the author's proposal, and ratings should rest on experience or documented evidence.

A closing thought. A crisis does not create the character of a company or of its CFO, but it reveals it. The leader who has built the forecast, written the playbook, spoken to the lenders in good times and told the truth in bad ones will be able to say, on the worst day, that the company is ready, which is the most valuable sentence that a CFO can offer.

9. Currency check and sources

Currency check: this field changes, and statistics, trade rules, lending terms, survey results and regulations shown here may already have changed. The publications in Exhibit 35 were opened in October 2026, and their statistics are largely self reported. The following were confirmed on pages read: the KPMG 2026 Tariff Survey statistics; the KPMG 2026 trade outlook list of mitigation tools and its description of supply chain strategies; the Deloitte Denmark CFO survey statistics; the Deloitte 2025 procurement survey statistics; the PwC 2023 survey statistics; the Richmond Fed statistics of September 24, 2025; the ACFE 2026 page statements on case count, countries and the median loss for excessive pressure; the Journal of Accountancy summary of the COSO and ACFE guide; the three conditions and management override statements of PCAOB AS 2401; and the Item 303(b)(1) statements of the electronic Code of Federal Regulations. No current tariff rate is stated: every rate in the examples is fictional, and the reader must confirm rates and classification with customs counsel. The following come from the author's own knowledge and were not confirmed in a source read: the order of the levers of cash; the definitions of liquidity measures; the cost classification; the safety stock formula and the assumptions behind it; the typical consequences of a covenant breach and the typical features of credit agreements; the fraud red flags other than those in the pages read; the fraud response protocol; the crisis command structure, decision rights, communication plan and first 72 hour checklist; the pre mortem and red team methods; and the after action review. The company and all figures in the exhibits are fictional, and all sums, ratios, probabilities and path values were computed in Python and checked by assertion. This module is educational and is not accounting, tax, legal, securities, insurance or employment advice. Readers must consult qualified professionals in accounting, tax, legal and other relevant services before acting, and matters such as loan agreements and covenant breaches, disclosure duties, investigations of fraud, sanctions, customs and employment actions in particular require the advice of qualified counsel. Every rate and assumption in the exhibits is an illustration, and a reader who applies the method must replace each with the company's own figure. The playbook, the tiers of action and the decision rights shown here are proposed program standards and not rules of any regulator, and each company must adapt them to its charter, its credit agreements, its sector and the law of the places in which it operates.

Sources: KPMG 2026 Tariff Survey; KPMG 2026 Trade Outlook; Deloitte CFO Survey Spring 2026 Denmark; Deloitte 2025 Chief Procurement Officer Survey; PwC Global Crisis and Resilience Survey 2023; Federal Reserve Bank of Richmond CFO Survey commentary (September 2025); ACFE Occupational Fraud 2026; COSO and ACFE Fraud Risk Management Guide (2016) via the Journal of Accountancy; PCAOB AS 2401; SEC Regulation S-K Item 303; BDO 13-Week Cashflow Forecast Guide. Titles, dates and URLs appear in Exhibit 35. Calloway Precision Products and every figure in its exhibits are fictional.