

Working Capital and Short-Term Finance

Most businesses that fail are profitable when they do it. The proximate cause is almost never an absence of demand; it is an inability to pay something on the day it falls due, while the accounts show a perfectly respectable margin. This chapter is about the gap between those two facts and how to manage it.

The material divides into two halves that are usually taught apart and belong together. The first is how much capital the operating cycle absorbs and what changes it. The second is what short-term money costs, which turns out to be far more than its headline rate suggests and is routinely the most expensive financing a firm uses.

HOW TO USE THIS CHAPTER

This chapter derives working-capital intensity in general form, gives the framework for pricing a change in credit terms, derives the effective annual rate hidden in supplier discounts, and compares the short-term instruments available across African markets on cost and on availability.

The videos take an industrial supplier being asked to double its revenue and work out what that would cost, then price each financing option open to it.

The case puts a large purchase order in front of a firm that cannot obviously fund it.

4.1 Why Growth Consumes Cash

Chapter 1 traced one trade: buy on credit, sell on credit, and wait. The profit was earned immediately and the cash arrived two months later. A business that repeats this trade at a constant volume funds the gap once and then coasts, because each collection funds the next purchase. **A business that repeats it at a growing volume never stops funding it**, because each cycle is larger than the one before.

The quantity absorbed has a name and a general form. **Net working capital**, for this purpose, is receivables plus inventory less payables — the money spent and not yet recovered. Divide it by revenue and you have the **working-capital intensity** of the business: the funding required per unit of sales.

$$\text{Net working capital} = \text{Revenue} \times \text{DSO}/365 + \text{Cost of sales} \times \text{DIO}/365 - \text{Cost of sales} \times \text{DPO}/365$$

Written this way, the whole of working-capital management is visible in one line. **The three day-counts are the only things a manager controls**, and each converts directly into money at a rate given by the volume of the business. Take a firm with a 25 percent gross margin operating on 55 days of collection, 40 days of stock, and 30 days of supplier credit.

WORKING CAPITAL PER 100 OF REVENUE

COMPONENT	WORKING	AMOUNT
Receivables	$100 \times 55/365$	15.07
Inventory	$75 \times 40/365$	8.22
Less payables	$75 \times 30/365$	(6.16)
Net working capital		17.12
Intensity	$17.12 / 100$	17.1%

Now the number does real work. **Every additional unit of revenue requires 17.1 percent of a unit of funding, permanently.** Growing revenue by 40 requires a further 6.85 of capital that will not come back while the firm continues to trade at the new level. This is the arithmetic behind the observation that fast-growing distributors run out of money.

It is worth being explicit about what that 6.85 has just bought, because the accounting hides it. The firm has **made an investment** — as surely as if it had bought a delivery vehicle for 6.85. The money has left the bank, it now sits in the business as stock on a shelf and invoices in a ledger, and it will not come back for as long as the firm trades at the new level. It differs from the vehicle in three ways, and all three make it easier to miss: it never appears as capital expenditure, it is never depreciated, and nobody signs anything to authorise it. It arrives instead as the automatic consequence of a sales decision taken by somebody who was not thinking about capital at all.

That is why Chapter 8 subtracts an increase in working capital in the same column as capital expenditure. They are the same act — money committed today in order to earn a return later — and only one of them requires a board paper.

Compare that requirement against what the growth earns. A firm on a five percent net margin earns 2.00 on 40 of extra revenue and must find 6.85 to support it. **The growth consumes more than three times what it produces**, and the shortfall is permanent rather than a timing difference. That comparison — intensity against margin — is the single most useful calculation in this chapter, because it tells you immediately whether a growth plan funds itself.

The two ways to reduce the requirement

- **Lower the intensity.** Collect sooner, hold less stock, pay later. Each day removed cuts the required working-capital stock by the daily rate of the relevant flow. The transition releases that amount once; the lower funding requirement and its annual carrying-cost benefit persist. Achieving it costs negotiation and administration rather than capital.
- **Grow more slowly.** Always available, rarely popular, and worth quantifying so that the trade-off is explicit rather than assumed.

The first is almost always the better answer and is usually reached last. A firm that reduces collection by ten days and stock by five releases capital immediately, improves its sustainable growth rate from Chapter 3, and has given nothing up.

IN THE VIDEOS Video 4.1 works the intensity calculation for a supplier asked to double, and shows the shortfall against the profit the doubling would earn.

4.2 Credit Policy: What Extending Terms Costs

Offering longer payment terms wins business, and it is a financing decision disguised as a commercial one. Every day of extra credit is a day the firm lends money to its customer, at whatever it costs the firm to borrow, and the decision deserves the same arithmetic as any other loan.

The framework has three terms and is general.

$$\text{Net effect} = \text{Extra gross profit} - \text{Carrying cost of the extra receivables} - \text{Expected bad debt}$$

Each term is straightforward on its own, and the discipline is in remembering all three.

THE THREE TERMS

TERM	COMPUTED AS	WATCH FOR
Extra gross profit	Incremental revenue $\times$ gross margin	Use gross margin, not net
Carrying cost	Increase in receivables $\times$ cost of funds	Applies to the whole book if terms change for everyone
Expected bad debt	Incremental revenue $\times$ default rate	Slower payers default more often

Two features of this arithmetic catch people out, and both push the same way.

First, **the carrying cost applies to the whole receivables book if the new terms are offered to existing customers as well as new ones.** A firm extending terms to win 15 percent more revenue often ends up carrying 60 percent more receivables, because the existing 85 percent of the book also takes longer to pay. The incremental profit is computed on the increment; the cost is computed on the total.

Second, **the bad-debt term is usually decisive and is usually guessed.** A decision that is marginally positive before bad debt is negative after even a small default rate, because gross margin on incremental sales is a percentage while a default costs the entire invoice. On a 20 percent margin, one customer in twenty defaulting removes the profit from the other nineteen. This asymmetry is the reason credit decisions belong with finance rather than sales.

The practical output is not a yes or a no but a threshold: the default rate at which the decision reverses. Stating it that way turns an argument about optimism into a question about a number that can be estimated from the firm's own history.

IN THE VIDEOS Video 4.2 prices a proposed extension of terms and finds the decision turning almost entirely on the bad-debt assumption.

4.3 The Interest Rate Hidden in Supplier Terms

Trade credit looks free, and mostly it is. It stops being free the moment a supplier offers a discount for early payment, because at that point the invoice contains two prices and the difference between

them is interest.

Terms quoted as "2/10 net 30" mean two percent off if paid within ten days, with the full amount due at thirty. Declining the discount is borrowing the net amount for the extra twenty days at a cost of two percent. Twenty days is a short loan, and two percent over twenty days annualises to a number that surprises everyone the first time.

$$\text{Effective annual rate} = [1 / (1 - d)] ^ { (365 / (N - D)) } - 1$$

Here d is the discount, D the discount period, and N the net period. The exponent counts how many times the borrowing period fits into a year, and it is that exponent — not the discount — that does most of the damage.

EFFECTIVE ANNUAL COST OF DECLINING COMMON TERMS

TERMS	DISCOUNT	DAYS OF CREDIT GAINED	EFFECTIVE ANNUAL RATE
1/10 net 30	1.0%	20	20.1%
2/10 net 30	2.0%	20	44.6%
2.5/10 net 30	2.5%	20	58.7%
3/10 net 30	3.0%	20	74.3%
2/10 net 45	2.0%	35	23.5%
2/10 net 60	2.0%	50	15.9%
1.5/15 net 45	1.5%	30	20.2%

Read down the last column and two patterns emerge. **The cost rises far faster than the discount** — doubling it from 1 to 2 percent takes the annual rate from 20.1 to 44.6 percent, rather more than doubling it — because the same twenty-day window now has to earn back twice as much. And **the cost falls sharply as the net period lengthens**, because the borrowing lasts longer for the same fee. The same two percent costs 44.6 percent over twenty days and 15.9 percent over fifty.

The practical rule follows directly. **Take a discount whenever its effective rate exceeds your cost of borrowing, and borrow to do it if necessary.** A firm with an overdraft at 30 percent that is declining 2/10 net 30 terms is paying 44.6 percent to avoid paying 30. This is one of the few genuinely free improvements available in corporate finance, and it is missed constantly, because the cost never appears as interest anywhere in the accounts — it sits invisibly inside cost of goods sold as a discount not taken.

One qualification. Stretching payment beyond the net period is a different act. It is cheaper still, and it consumes supplier goodwill, which is not free and is not recorded anywhere. Firms that pay at 75 days on 30-day terms find their prices rising, their allocations shrinking when supply is tight, and their credit limits reduced at exactly the moment they need them.

IN THE VIDEOS *Video 4.3 computes several of these rates and compares them against the firm's actual borrowing cost.*

4.4 Short-Term Instruments

The instruments below appear across most African markets under local names. The important observation is not the list but its ordering: **the cheapest instruments are the hardest to obtain, and the easiest to obtain are the most expensive**. A firm's real choice is usually constrained to the bottom of the table, and the way out is to become the kind of borrower who qualifies for the top.

SHORT-TERM FINANCING, ROUGHLY IN ORDER OF COST

INSTRUMENT	WHAT IT IS	SECURITY	TYPICAL AVAILABILITY
Supplier credit	Payment deferred by agreement	None	Widely available
Overdraft	A revolving facility on the current account	Often a debenture or property	Requires a banking relationship
Term loan, short	A fixed amount repaid on a schedule	Usually secured	Requires history and collateral
Invoice discounting	Borrowing against approved invoices	The receivable itself	Requires creditworthy customers
Factoring	Selling receivables outright	The receivable, sold	As above, plus a fee for collection
Purchase-order finance	Funding to fulfil a specific order	The order and its proceeds	Available without a balance sheet
Trade finance and letters of credit	Bank undertaking on an import	The goods	Requires the bank to know the trade

To compare any two of these, convert both to an effective annual rate on the amount actually received. Two adjustments matter and both raise the true rate above the quoted one.

- **Arrangement and commitment fees are part of the cost.** A one percent arrangement fee on a 90-day facility adds roughly four percentage points to the annual rate, because it is paid once for a quarter of a year.
- **Rates quoted on the facility limit rather than the drawn balance** overstate what you get. Divide the total cost by the money you actually had use of.

The ordering has one further consequence worth stating plainly, because it shapes what a young firm should be trying to achieve. Purchase-order finance and factoring exist precisely because they do not require a strong balance sheet — they lend against a specific transaction rather than against the company. They are therefore available to firms that can get nothing else, and they cost two to four times what an overdraft costs. **A firm that uses them successfully for two years and builds a record has usually earned access to the cheaper tier**, and moving up that table is worth more than most operational improvements available to it.

IN THE VIDEOS *Video 4.4 converts three of these instruments to a common annual rate for the same borrowing, and the ranking by cost comes out as the reverse of the ranking by availability.*

4.5 Inventory

Stock is the least visible of the three working-capital accounts and frequently the most expensive, because its cost is spread across several lines that nobody adds up.

THE COMPONENTS OF CARRYING COST

COMPONENT	TYPICAL ANNUAL RATE	NOTE
Cost of funding the stock	Cost of borrowing	The largest component in most markets
Storage, handling, and insurance	2–6%	Higher for cold chain or hazardous goods
Shrinkage, theft, and damage	1–5%	Depends heavily on the product
Obsolescence and spoilage	1–25%	Dominates for perishable and fashion goods

Added together, carrying cost commonly lands somewhere between 25 and 40 percent a year in markets where borrowing is expensive. That figure changes how inventory decisions look. A buyer taking a five percent bulk discount in exchange for holding three months of additional stock is paying roughly a quarter of the carrying rate — call it seven to ten percent — to save five. **Bulk discounts are frequently a loss disguised as a saving**, and the calculation is one line.

The general trade-off is between ordering cost and carrying cost: order in large quantities and you pay to hold stock; order in small quantities and you pay to order and risk running out. The formal solution to this is the economic order quantity, which balances the two, and the reason it appears here only in passing is that its assumptions — constant demand, fixed lead time, no supply interruption — rarely hold in practice. What survives from it is the shape of the answer: **the cost curve is flat near its minimum**, so being approximately right about order size is worth nearly as much as being exactly right, and effort is better spent on lead time and reliability.

Safety stock is the part of inventory held against uncertainty rather than against demand, and it is sized by lead time and by variability, not by comfort. The general form is straightforward: the longer and less reliable the resupply, the more must be held. In markets where imports clear a port on an unpredictable schedule, safety stock is properly large, and criticising it as inefficiency mistakes a rational response to variability for waste. **Reduce the variability and the stock falls out on its own**; attack the stock while the variability remains and the firm simply runs out.

IN THE VIDEOS *Video 4.5 puts numbers on carrying cost for one firm and prices a reduction in stock days against the risk it creates.*

4.6 The Short-Term Cash Forecast

Everything above concerns the size of the working-capital requirement. A separate tool addresses its timing, and it is the instrument most used by finance staff in businesses under cash pressure: a **rolling weekly cash forecast**, usually run thirteen weeks ahead.

Thirteen weeks is a quarter, which is long enough to see a problem while something can still be done and short enough that the individual receipts and payments are genuinely knowable. The forecast is built from transactions rather than from percentages, which is what distinguishes it from Chapter 3's annual model.

WHAT GOES INTO A THIRTEEN-WEEK FORECAST

LINE	BUILT FROM	NOT FROM
Receipts from customers	The aged receivables ledger, invoice by invoice, at expected pay dates	A percentage of forecast revenue
Payments to suppliers	The aged payables ledger at agreed due dates	A percentage of forecast cost
Payroll and statutory	The known payment calendar	An average
Loan service	The amortisation schedule	An annual figure divided by 52
Capital and one-off items	Commitments already made	Budget allocations

Three practices make it useful rather than decorative.

- **Roll it forward every week and keep the old versions.** The value compounds: after a few weeks you can compare what was forecast against what happened, and the gap tells you how optimistic the collection assumptions are. Most firms discover they are consistently optimistic by a predictable margin, which can then be corrected for.
- **Forecast the low point, not the closing balance.** A month that ends comfortably can contain a week that does not, and the week that does not is the one that causes a missed payment. The relevant output is the minimum balance across the period.
- **Attach the actions to the forecast.** A projected shortfall in week seven is only useful if it is paired with what will be done about it — a collection push, a drawdown, a deferred payment — and with the date by which each must be decided.

The relationship between this tool and the annual model is worth being clear about. **The annual forecast tells you whether the business is fundable; the weekly forecast tells you whether it survives until then.** Firms fail on the second question while the first still has an encouraging answer, which is the observation this chapter opened with.

4.7 Managing the Cycle in Practice

The techniques above become a management system when they are attached to someone and measured. The following is the order in which the levers are usually worth pulling.

- **Invoice on the day of delivery.** A surprising share of slow collection is slow invoicing, and it is free to fix.
- **Agree terms in writing before delivery, and make them a condition of the order.** Disputes about terms are settled after the goods are gone, which is the weakest possible position.
- **Age the receivables book weekly** and act on the oldest items first. Collection probability falls sharply with age; an invoice unpaid at 120 days is a different asset from one unpaid at 40.
- **Concentrate on the largest balances.** In most books a small number of accounts hold the majority of the value, and the effort should follow the money rather than the number of invoices.

- **Take every discount whose effective rate exceeds your borrowing cost**, and decline every one that does not.
- **Pay suppliers on the agreed day** — not earlier, which is a free loan to them, and not later, which is an expensive one to you.
- **Review stock by line, not in total.** Aggregate stock days conceal a fast-moving core and a slow tail, and the tail is where the capital is.

One organisational point underlies all of these. Working capital is created by decisions taken in sales, purchasing, and operations, and is measured in finance. **The department that reports the number does not control it.** Any real improvement requires the day-counts to become targets for the people whose decisions produce them, which is a management problem rather than an analytical one.

4.8 Reference

CHAPTER 4 • FORMULA REFERENCE

QUANTITY	FORMULA	NOTE
Net working capital	Receivables + inventory – payables	Excludes cash and debt
Working-capital intensity	Net working capital / Revenue	Funding required per unit of sales
Funding needed for growth	Intensity × increase in revenue	Compare against margin on that increase
Receivables from days	Revenue × DSO / 365	Denominator is revenue
Inventory from days	Cost of sales × DIO / 365	Denominator is cost of sales
Payables from days	Cost of sales × DPO / 365	Denominator is cost of sales
Cash released by a day	The relevant daily flow	One-time release; lower funding need persists
Credit-policy net effect	Extra gross profit – carrying cost – bad debt	All three terms, always
Effective annual rate of a discount	$[1/(1-d)]^{(365/(N-D))} - 1$	d discount, D discount days, N net days
Effective cost of a facility	Total cost / amount actually drawn, annualised	Include fees

CARRY FORWARD

Compare intensity against margin. If working capital per unit of sales exceeds the profit per unit of sales, growth consumes more than it produces and must be funded from outside.

A discount not taken is interest not recorded. Terms of 2/10 net 30 cost 44.6 percent a year, and the cost never appears on the income statement as a financing item.

Cheap short-term money is hard to get and expensive money is easy. Moving up the instrument table is worth more to a young firm than most operational improvements.

Days are set by sales, purchasing, and operations. Finance measures working capital; it does not create it.