

# Comparables and Multiples

Chapters 8 through 10 valued a business by forecasting its cash flows and discounting them. This chapter values one by looking at what similar businesses are worth. The second method is faster, more widely used in practice, and easier to do badly, because almost all of its difficulty is concentrated in a step that involves no arithmetic at all: deciding which businesses count as similar.

That is the honest summary of relative valuation. **The comparable set is the valuation.** A defensible set of comparables and a careless calculation will land close to the right answer; a careless set and immaculate arithmetic will not. This chapter is therefore mostly about judgement, with the mechanics kept short because they are short.

## HOW TO USE THIS CHAPTER

**This chapter** derives multiples from the discounting model so that you can see what each one is a shorthand for, states the consistency rule that governs which numerator pairs with which denominator, sets out the criteria for selecting comparables and the framework for adjusting between them, and explains why the average of a set of multiples is usually the wrong statistic.

**The videos** value one Ghanaian restaurant group three times against three different comparable sets, arriving at answers that differ by a factor of more than two and a half with no arithmetic error anywhere.

**The case and the capstone** are that company. The capstone asks you to defend a number.

## 11.1 What a Multiple Is

A multiple is a price expressed relative to a fundamental quantity. It says that a business of this kind is worth some number of times its earnings, or its EBITDA, or its revenue.

$$\text{Multiple} = \text{Value} \div \text{A measure of size or performance}$$

The logic is a syllogism with an assumption buried in the middle. Similar businesses should be worth similar amounts relative to their earnings; this business is similar to those; therefore it should be worth a similar multiple. **The middle statement carries all the weight**, and the whole of section 11.4 is about whether it is true.

Two properties make multiples useful and are worth stating plainly, because their limitations are the mirror image of their strengths.

- **They are fast, and they use market information.** A multiple reflects what buyers and sellers actually did, which is evidence of a kind a discounted cash flow can never produce. A model is an opinion; a transaction is a fact.
- **They are relative, not absolute.** A multiple tells you what a business is worth *\*if\** the comparable set is correctly priced. When an entire sector is expensive, every company in it

looks reasonably priced against its peers. Multiples cannot detect this, and a discounted cash flow can — which is one reason to compute both.

## 11.2 The Consistency Rule

Multiples divide into two families, and mixing them is the most common technical error in this chapter. Chapter 5 gave the reason: enterprise value belongs to all providers of capital, and equity value belongs to the owners alone.

**The numerator and the denominator must be claimed by the same parties.**

A measure stated **before** interest is available to lenders and owners together, so it pairs with enterprise value. A measure stated **after** interest belongs to the owners, so it pairs with equity value.

### WHICH NUMERATOR GOES WITH WHICH DENOMINATOR

| MULTIPLE         | NUMERATOR        | DENOMINATOR       | CLAIMED BY  |
|------------------|------------------|-------------------|-------------|
| EV / EBITDA      | Enterprise value | Before interest   | All capital |
| EV / EBIT        | Enterprise value | Before interest   | All capital |
| EV / Revenue     | Enterprise value | Before everything | All capital |
| Price / Earnings | Equity value     | After interest    | Owners only |
| Price / Book     | Equity value     | Owners' capital   | Owners only |

An enterprise value divided by net income, or a share price divided by EBITDA, is not a conservative or aggressive measure. It is a category error, wrong by the size of the debt, and it produces numbers that look plausible enough to survive a review.

The rule has a practical consequence when comparing firms with different leverage. **EV/EBITDA is comparable across capital structures and P/E is not.** Two identical businesses, one funded with debt and one without, will report different net income and therefore different P/E ratios while their EV/EBITDA multiples agree. When a comparable set contains firms with materially different borrowing, enterprise multiples are the honest choice.

### WHEN EACH MULTIPLE EARNS ITS PLACE

| MULTIPLE   | BEST USED WHEN                                                    | FAILS WHEN                           |
|------------|-------------------------------------------------------------------|--------------------------------------|
| EV/EBITDA  | Comparing across capital structures; capital intensity is similar | Capital intensity differs sharply    |
| EV/EBIT    | Depreciation differs and matters                                  | Accounting lives differ              |
| EV/Revenue | Earnings are negative or erratic                                  | Margins differ across the set        |
| P/E        | Firms are similarly financed; earnings are stable                 | Leverage or one-off items differ     |
| P/Book     | Assets are marked near market, as in banking                      | Assets are stale or intangible-heavy |

One further caution on EBITDA, since it is the most used measure in the table. It is not defined by either major accounting standard, so firms compute it differently and several exclude items that recur every year. **Rebuild it yourself from operating income plus depreciation and amortisation** rather than accepting a reported figure, and do it identically for every company in the set. A comparison of multiples computed on inconsistent denominators is worth nothing.

**IN THE VIDEOS** Videos 11.1 and 11.2 connect multiples back to the discounting model and work through choosing between them for one specific company.

## 11.3 Where a Multiple Comes From

A multiple is not an alternative to discounting. It is a compressed form of it, and deriving one shows exactly which assumptions are hidden inside a number that appears to contain none.

Start from the growing perpetuity of Chapter 6, applied to dividends. If a company pays out a fixed share of earnings and grows at a constant rate, its value is next year's dividend divided by the rate less growth. Dividing both sides by earnings gives the forward price-to-earnings ratio.

$$\text{Forward P/E} = \text{Payout ratio} \div (r - g)$$

Three inputs, and the multiple is nothing more than their combination. A firm paying out 45 percent of earnings, with a required return of 13 percent and growth of 6 percent, should trade at  $0.45 / 0.07$ , or **6.4 times**.

### WHAT MOVES A PRICE-TO-EARNINGS RATIO

| CHANGE                             | NEW VALUE        | MULTIPLE |
|------------------------------------|------------------|----------|
| Base case: payout 45%, r 13%, g 6% | —                | 6.43     |
| Growth rises to 9%                 | $r - g = 4\%$    | 11.25    |
| Required return rises to 16%       | $r - g = 10\%$   | 4.50     |
| Payout rises to 65%                | Same denominator | 9.29     |

Three points of growth nearly doubled the multiple, and three points on the required return cut it by nearly a third. **A multiple is a statement about growth and risk**, and firms that trade at very different multiples are not necessarily priced inconsistently — they may simply have different prospects and different risk. The work is in establishing which.

The same derivation applies to enterprise multiples, and it connects directly to Chapter 8's capital-expenditure rule.

$$\text{EV} / \text{EBIT} = (1 - \text{tax rate}) \times (1 - g / \text{ROIC}) \div (\text{WACC} - g)$$

The term  $(1 - g/\text{ROIC})$  is the reinvestment constraint from section 8.4, appearing here inside a multiple. It carries the same message in a new place: **growth is only worth paying for when the return on capital is high enough to make it cheap**.

## EV/EBIT IMPLIED BY FUNDAMENTALS

Tax 25%, WACC 13%

| RETURN ON CAPITAL | G = 3% | G = 5% | G = 7% |
|-------------------|--------|--------|--------|
| 10%               | 5.25   | 4.69   | 3.75   |
| 13%               | 5.77   | 5.77   | 5.77   |
| 15%               | 6.00   | 6.25   | 6.67   |
| 20%               | 6.37   | 7.03   | 8.12   |
| 25%               | 6.60   | 7.50   | 9.00   |

Read across the bottom row and down the right column. At a 25 percent return on capital, moving growth from 3 to 7 percent adds more than a third to the justified multiple. At 15 percent it adds barely a tenth, because almost all of the additional growth has to be reinvested to achieve it. **Two firms growing at the same rate do not deserve the same multiple unless they earn the same return on capital**, and this table is the most useful cross-check available when a comparable set contains a wide spread.

Now read it down a column instead, and the most important fact in corporate finance appears. At a return on capital of 13 percent — exactly the cost of capital assumed here — the multiple is 5.77 at every growth rate in the table. Growth changes nothing whatever. One row above, it changes something worse: a business earning 10 percent while its capital costs 13 is worth *\*less\** the faster it grows, and the penalty widens as growth rises. Only above that line is growth worth paying for.

That is the test this course has been building toward since Chapter 2, and it can now be stated in full. **Growth creates value only when the return on invested capital exceeds the cost of capital. When the two are equal, growth is neutral. When the return is lower, growth destroys value, and destroys it faster the faster the firm grows.** The arithmetic behind it is nothing more than the reinvestment constraint: a firm earning less than its cost of capital must put money in at a price above what it earns on it, so every additional unit of growth consumes more value than it creates.

Two consequences are worth carrying out of this chapter. A fast-growing company can be a poor investment and a slow-growing one an excellent one, which is why growth on its own is never a reason to pay a higher multiple. And the first question to ask about any expansion plan — a new outlet, a new region, an acquisition — is not how large the growth is but what return the capital behind it earns.

## 11.4 Choosing Comparables

This is the step that determines the answer. A comparable should resemble the subject in the things that drive value — which is to say in growth, in risk, and in return on capital — rather than in what it happens to sell.

## CRITERIA, IN ROUGH ORDER OF IMPORTANCE

| CRITERION          | WHY IT MATTERS                                | TYPICAL FAILURE                                 |
|--------------------|-----------------------------------------------|-------------------------------------------------|
| Business model     | Determines margin structure and capital needs | Franchised compared against owner-operated      |
| Growth prospects   | Enters the multiple directly                  | A mature firm against an expanding one          |
| Return on capital  | Determines what growth costs                  | Asset-light against asset-heavy                 |
| Market and country | Risk, currency, and the achievable rate       | A developed-market set for a frontier firm      |
| Size and liquidity | Small and illiquid firms trade lower          | Large listed firms as a proxy for a private one |
| Accounting basis   | Determines whether the figures mean the same  | Different standards or reporting conventions    |

The first row is worth an illustration because it is the trap most often walked into. A restaurant group that **franchises** collects fees on other people's outlets: little capital, high margins on a small revenue base, and a multiple to match. A group that **owns and operates** its outlets carries the property, the equipment, and the staff, and earns a thinner margin on a much larger revenue figure. The two appear in the same industry classification, serve identical food, and are not comparable in any way that matters. Applying a franchisor's multiple to an operator overstates the operator by a factor, and the sentence in the valuation memo — "comparable quick-service restaurant businesses" — will be literally true.

Two practical rules follow from this table.

- **Prefer a small, genuinely comparable set to a large approximate one.** Four close comparables beat fifteen loose ones. Adding companies to reduce noise works only when the additions are drawn from the same population, and the usual effect of a long list is to import the very differences the analysis is meant to control for.
- **Say what you excluded and why.** A comparable set is an argument, and an argument that hides its exclusions cannot be evaluated. This single habit does more for the credibility of a valuation than any refinement of the arithmetic.

## Trading multiples and transaction multiples

Two sources of multiples exist and they answer different questions. **Trading multiples** come from listed share prices and represent the value of a minority stake in a company that continues as it is. **Transaction multiples** come from completed acquisitions and represent the value of control, which normally includes a premium — a buyer acquiring the whole company can change management, capture synergies, and redirect strategy, and pays for the privilege.

The distinction determines which set is appropriate. **Valuing a whole company for sale calls for transaction multiples; valuing a minority holding calls for trading multiples.** Using transaction multiples to value a small stake overstates it by the control premium, and using trading multiples to value control understates it. In thin markets the choice is often made for you by whichever data exists, in which case the adjustment should be stated explicitly rather than ignored.

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IN THE VIDEOS *Video 11.3 values one company against three different comparable sets, producing answers separated by a factor of more than two and a half with no arithmetic error anywhere.*

## 11.5 Adjusting Between the Set and the Subject

No comparable is identical to the subject, so the multiple observed in the market has to be walked down — or up — to the subject. Doing this in named, separately justified steps is what distinguishes a defensible valuation from a chosen number.

### THE WALK-DOWN FRAMEWORK

| DIFFERENCE                   | DIRECTION                      | TYPICAL REASONING                          |
|------------------------------|--------------------------------|--------------------------------------------|
| Business model               | Down if more capital-intensive | Lower return on capital, more reinvestment |
| Country and currency         | Down for higher country risk   | A higher discount rate, per Chapter 10     |
| Size                         | Down for a smaller firm        | Less resilient, fewer options              |
| Liquidity                    | Down for a private company     | No ready market for the shares             |
| Growth                       | Up or down, against the set    | Enters the multiple directly               |
| Margin and return on capital | Up or down, against the set    | Determines what growth costs               |

Two disciplines make this framework honest rather than decorative.

First, **each step must be justified separately and stated in the memo.** A walk from 14 times to 6 times is a large claim; presented as one movement it is an assertion, and presented as five named adjustments it is an argument that a reader can dispute line by line. Disputing it line by line is exactly what you want, because that is how the number improves.

Second, **cross-check the destination against an independently constructed set.** If a walk-down from developed-market comparables lands at six times, and a directly assembled set of regional comparables also trades at around six times, two independent routes have converged and the conclusion is far stronger than either alone. If they land far apart, one of the two contains an error worth finding before the valuation goes anywhere.

The size of these adjustments is worth internalising, because students consistently underestimate them. Moving a business model from franchised to owner-operated, a market from a developed exchange to a frontier one, and a company from large-listed to small-private can easily halve a multiple or worse. **A large adjustment is not evidence of manipulation; refusing to make one is.**

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IN THE VIDEOS *Video 11.4 walks a developed-market multiple down through four named adjustments and lands within a quarter-turn of an independently assembled regional set.*

## 11.6 Averaging a Set of Multiples

Having assembled a set, some single figure must be extracted from it, and the obvious choice is usually the wrong one. Take three comparables trading at 10, 20, and 40 times.

### THREE STATISTICS FROM THE SAME THREE COMPANIES

| STATISTIC       | VALUE | APPLIED TO EARNINGS OF 8 |
|-----------------|-------|--------------------------|
| Arithmetic mean | 23.33 | 186.7                    |
| Median          | 20.00 | 160.0                    |
| Harmonic mean   | 17.14 | 137.1                    |

The three answers span nearly fifty units of value from identical data. The arithmetic mean is the highest, and it is the one almost everyone reaches for.

The arithmetic mean is sensitive to the high observation because a multiple has no upper bound while the yield it inverts is squeezed towards zero. A company at 40 times is trading at an earnings yield of 2.5 percent; one at 10 times yields 10 percent. Averaging those **earnings yields** and inverting the result gives the harmonic mean: the three yields here are 10, 5, and 2.5 percent, averaging 5.83 percent, which inverts to 17.14 times. That is a useful answer when “invert the average yield” is the intended question; it is not the uniquely correct way to summarize every comparable set.

- **Use the median as the default.** It is robust to outliers, easy to explain, and the standard practice in most transaction work.
- **Use the harmonic mean when the average earnings yield is the intended weighting.** State that interpretation rather than presenting the statistic as universally correct.
- **Treat the arithmetic mean cautiously.** It gives equal weight to the observed multiples but is highly sensitive to large outliers; it is not inherently invalid.
- **Show the range as well as the centre.** A set trading between 10 and 40 times says something important that no single statistic can carry: that the market does not regard these companies as equivalent, and the comparable set may need narrowing.

## 11.7 When Discounted Cash Flow and Multiples Disagree

Two methods, two answers. The disagreement is information rather than a problem, and the productive response is to find the source rather than to split the difference.

### WHERE TO LOOK WHEN THE TWO METHODS DIVERGE

|                                    |                                                                                                                          |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| The multiple is higher             | The comparable set may be richer in growth or return on capital than the subject, or the sector may be broadly expensive |
| The discounted cash flow is higher | The forecast may embed growth or margin improvement the market is not paying for anywhere                                |
| Both, in a thin market             | The comparable set may be too small or too loose to carry the weight placed on it                                        |

A specific reconciliation is available and should be used whenever the two disagree materially. **Convert the discounted cash flow into the multiple it implies** — divide the enterprise value it produces by the subject's EBITDA — and compare that directly against the comparable set. This puts both methods in the same units and turns a vague disagreement into a precise one: not "the

DCF is higher" but "the DCF implies nine times where the market pays six," which is a question about a specific assumption.

The reverse conversion is equally useful. Take the multiple the market is paying and solve for the growth rate that would justify it, using the derivation in section 11.3. If the market's price implies perpetual growth of two percent and your forecast assumes eight, the disagreement has been located exactly, and the remaining conversation is about whether the business can grow at eight — a question the operating people in the room can help with.

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**IN THE VIDEOS** *Video 11.5 reconciles a discounted cash flow against a comparable set that disagrees with it, and locates the disagreement in a single assumption.*

## 11.8 Presenting a Valuation

The output of this chapter is a range, and how it is presented determines whether the analysis is used or ignored.

- **Give a range with a basis.** "Seventy-five to ninety, supported by regional comparables at five and a half to six and a half times, cross-checked against a discounted cash flow at eighty-two."
- **Never average across methods.** A discounted cash flow, a set of trading multiples, and a set of transaction multiples are three separate arguments about the same business. Averaging them produces a figure that no method supports, that no assumption underpins, and that nobody in the room can defend when it is questioned. Show them side by side and explain the differences.
- **Name the assumption the answer turns on.** Every valuation depends on one or two things more than everything else. Saying which, in a sentence, is the most useful contribution the analysis makes.
- **Date-stamp the comparable set.** Multiples move. A set assembled four months ago is evidence about four months ago, and any exhibit built from one should carry the date it was pulled.
- **Say what would change your mind.** A valuation that specifies the evidence that would move it is far more persuasive than one that does not, because it demonstrates that the conclusion followed the analysis rather than the other way round.

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**IN THE VIDEOS** *Video 11.6 assembles a full recommendation from three methods that disagree, and argues the range rather than averaging it.*

## 11.9 Errors Worth Naming

- **Crossing enterprise and equity measures.** Wrong by the size of the debt, and it looks entirely plausible.
- **A comparable set chosen by industry label.** Franchised and owner-operated businesses share a classification and nothing that determines value.
- **Accepting reported EBITDA.** Rebuild it identically for every firm in the set.
- **Averaging multiples without naming the estimand.** Use the median by default; use the harmonic mean when average earnings yield is the intended weighting; explain any arithmetic mean and its outlier sensitivity.

- **Using trading multiples for control, or transaction multiples for a minority stake.** Wrong by the control premium in either direction.
- **Making no adjustment between the set and the subject,** or making one large unexplained adjustment instead of several named ones.
- **Averaging across methods.** Produces a number no method supports.
- **An undated comparable set.** Evidence about an unspecified moment is not evidence.

## 11.10 Reference

### CHAPTER 11 • FORMULA REFERENCE

| QUANTITY                       | FORMULA                                               | NOTE                                                    |
|--------------------------------|-------------------------------------------------------|---------------------------------------------------------|
| Consistency rule               | Numerator and denominator claimed by the same parties | Enterprise with pre-interest; equity with post-interest |
| Forward P/E                    | Payout ratio / (r – g)                                | A statement about growth and risk                       |
| EV/EBIT                        | $(1-t)(1-g/ROIC) / (WACC - g)$                        | Contains Chapter 8's reinvestment constraint            |
| Implied multiple from a DCF    | Enterprise value / EBITDA                             | The reconciliation between the two methods              |
| Implied growth from a multiple | Solve the expressions above for g                     | Locates the disagreement precisely                      |
| Harmonic mean                  | $n / \sum(1/\text{multiple})$                         | Inverse of the average earnings yield                   |
| Control premium                | Transaction multiple / trading multiple               | Applies to whole companies, not stakes                  |

#### CARRY FORWARD

**The comparable set is the valuation.** Everything after it is arithmetic, and no amount of care in the arithmetic repairs a set chosen by industry label.

**A multiple is a compressed discounted cash flow.** It contains assumptions about growth, risk, and return on capital whether or not anyone states them — and section 11.3 lets you read them back out.

**Use the median as the default centre.** Use the harmonic mean when the average earnings yield is the intended weighting, and explain any arithmetic mean's sensitivity to high observations.

**Never average across methods.** Present the range, name what it turns on, and say what would change your mind.