CHARTA LEARNING · LESSON NOTES

Forecasting and analyst research reports

CFA Level I · Equity Investments

You will learn: How an analyst builds a company forecast, values a share across several scenarios, writes the result up, and why two analysts with one model can still disagree.

Running example: Worked examples follow one made-up company, Brightwell Bikes ($ millions). Last year: volume 4m bikes at $50, revenue 200, variable costs 60% of revenue (120), fixed costs 50 (including depreciation 10), EBIT 30, working capital 20% of revenue (40), tax rate 30%.

1. Building a forecast model

- A forecast is built from parts, not by growing last year's profit by a percentage: a flat growth rate leaves nothing to test.
- A model builds the financial statements forward line by line: revenue (volume × price), then costs, then profit, then what growth costs (capital spending and working capital) and how it is funded (debt, new shares, retained cash).
- The balance sheet must balance. If it does not, cash has been assumed out of thin air.
- Fixed costs create operating leverage: profit moves faster than sales, and falls faster when sales fall. Brightwell keeps 40 cents of each sales dollar after variable costs, so profit moves 80 ÷ 30 = 2.67 times as fast as sales.

Free cash flow to the firm = EBIT × (1 − tax rate) + depreciation − capital spending − increase in working capital

BRIGHTWELL, NEXT YEAR (VOLUME +5%, PRICE +3%)

Revenue	200 × 1.05 × 1.03	**216.30**
Variable costs (60%)		**129.78**
Operating profit (EBIT)	216.30 − 129.78 − 50	**36.52 (+21.7% on sales +8.2%)**
EBIT after 30% tax	36.52 × 0.70	**25.56**
Free cash flow	25.56 + 10 − 14 − 3.26	**18.30**

2. Scenario analysis and expected value

- One forecast is one guess from many possible futures. Scenario analysis builds a bear, base and bull case, each fully consistent, values the share in each, and weights the values by probability.
- Probabilities are honest estimates and must add up to one. The expected value is a probability-weighted average, not a prediction: it may be a number no scenario produces.
- Show the spread as well as the average: upside and downside tell what one number cannot. Test the probabilities, because they are judgements.

Expected value = $p_1V_1 + p_2V_2 + p_3V_3$, with $p_1 + p_2 + p_3 = 1$

BRIGHTWELL: VALUE PER SHARE = (10 × EBIT − NET DEBT 60) ÷ 10M SHARES (A RULE MADE UP FOR THE LESSON)

Bear (30%)	revenue 192.0, EBIT 26.8	**$20.80**
Base (50%)	revenue 216.3, EBIT 36.52	**$30.52**
Bull (20%)	revenue 234.0, EBIT 43.6	**$37.60**
Expected value	6.24 + 15.26 + 7.52	**$29.02**
vs price of $27	upside +7.5%; bear case −23%	
Gloomier weights 40/50/10	8.32 + 15.26 + 3.76	**$27.34 (upside only 1.3%)**

Watch out: Growing profit without paying for the growth; treating every cost as a percentage of revenue; probabilities that do not sum to one; calling the weighted value a prediction.

3. What a research report contains

- The front page is for a reader with 30 seconds: the rating (buy, hold or sell), the target price and its time horizon, and the key reasons.
- The body is for a reader with an afternoon: the investment thesis (the central claim about why the market is right or wrong), the business and industry, financial analysis and forecasts, valuation, risks, and disclosures about whose interests might pull on the opinion.
- An initiation of coverage is the first, longest report and sets out the whole model. Later reports are shorter updates that revise forecasts. A good report separates facts from forecasts, states assumptions, and says what would change the conclusion.

> **Target price = forecast EPS × target P/E. Expected total return = (target price − price + dividend) ÷ price; if it clears the analyst's hurdle, the rating is buy.**

BRIGHTWELL TARGET PRICE

EPS	25.56 ÷ 10m shares	**$2.56**
Target price at P/E 12	12 × 2.5560	**$30.68**
Price return	30.68 ÷ 27 − 1	**13.6%**
Total return (dividend $0.80)	(30.68 − 27 + 0.80) ÷ 27	**16.6% → Buy (hurdle 15%)**
Sensitivity	P/E 10 → $25.56 (below price); bear EPS $1.88 at P/E 12 → $22.51	

4. Who writes research, and who gains

- Sell side (brokers and investment banks): published to clients; supports trading and advisory fees, so rules require disclosures and a separation of research from banking.
- Buy side (asset managers, pension funds): private, written for the firm's own portfolio managers and judged by whether acting on it made money.
- Activist short sellers: borrow and sell shares, then publish research arguing the company is overvalued. They profit directly when the price falls, so treat the report as a claim to check against filings, not a finding. Some have exposed real frauds; others were wrong.
- Exam trap: confusing who the reader is. Sell side serves clients, buy side serves its own portfolio, short sellers serve their own position.

SHORT SELLER EXAMPLE (VEXLER RETAIL)

Sells short 100,000 shares at $40; price falls 30% to $28	gain $12 a share	**$1,200,000**
If price rises to $52 instead	loss $12 a share, and a price can rise without limit	

5. Why two analysts can differ

- A model is a framework; the answer comes from the inputs (growth, margins, investment, financing, required return) and from judgement (which scenario is most likely, which items were one-offs, how long an advantage lasts).
- Value is very sensitive to the gap between required return and growth, because it sits in the denominator. Cutting the required return by one point adds more value than raising it by one point removes.
- A credible report states its key assumptions, shows how sensitive value is to them, and explains why it differs from the market price.

> **Value today = next year's free cash flow ÷ (required return − growth rate)**

TWO ANALYSTS, ONE MODEL (MARKET PRICE $58)

A: cash flow 3.00, required return 9%, growth 3%	3 ÷ 0.06	**$50 (13.8% below price: sell)**
B: cash flow 3.30, growth 3.5%, required return 8.5%	3.30 ÷ 0.05	**$66 (13.8% above: buy)**
Step by step	better margins → 55; add B's growth → 60; add B's required return → 66	**B is 32% above A**
Analyst A at 8% / at 10%	3 ÷ 0.05 / 3 ÷ 0.07	**$60 / about $43**

Key takeaways

- Build forecasts from drivers, end in free cash flow, and check that the balance sheet balances.
- Fixed costs make profit swing faster than sales (operating leverage).
- Expected value weights scenarios by probability. It is an average, not a prediction, and the spread matters.
- Target price = EPS × P/E; the rating follows from expected total return against a hurdle.
- Ask who pays for the research and who gains if you believe it.
- Value depends on required return minus growth, so small input changes move it a lot.

Quick check

1. Revenue 100, variable costs 60% of revenue, fixed costs 25. Revenue grows 10%. New operating profit?
   Answer: 110 − 66 − 25 = 19, up from 15.
2. Values 12, 20, 30 with probabilities 0.25, 0.5, 0.25. Expected value?
   Answer: 3 + 10 + 7.5 = 20.5.
3. Cash flow 4.00 next year, required return 10%, growth 4%. Value?
   Answer: 4 ÷ 0.06 = 66.67.