

A horizontal banner with a light blue background. On the left, there is a small dark blue square. The rest of the banner is light blue and features a large, stylized white arrow pointing to the right. The word "Equity" is written in white, bold, sans-serif font, centered within the light blue area.

Equity

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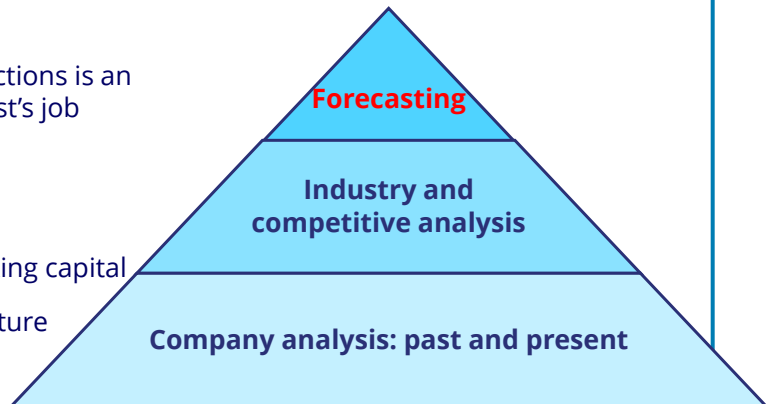
Company Analysis: Forecasting



Exam Focus

Forecasting

- Developing forecasts or projections is an important aspect of the analyst's job
- Principles and approaches
- Revenues
- Operating expenses and working capital
- Capital investments and structure
- Scenario analysis



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Forecast Approaches

- Analysts focus on **forecast objects**, which may be the following:
 - A financial statement line, a driver of a line, summary measures (e.g., FCF, EPS), or ad hoc objects
- Forecast approaches
 1. Historical (assume past is precedent)
 2. Historical base rates and convergence
 3. Management guidance
 4. Analyst discretionary

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Revenue and Gross Margins: **Example**

- Top-down vs. bottom-up approaches covered in earlier module
- Gross margins may change as input costs change, even if costs are passed on

Assume a company's COGS as a percentage of sales equals 25% and output volume is stable. If input costs double and this is fully passed on to customers, calculate the impact on gross profit margin.

	Period 1	Period 2
Sales	100	
COGS	25	
GP	75	
GP margin	75%	

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Working Capital

Working capital forecasts are typically made using efficiency ratios as the forecast object, combined with sales and costs forecasts.

Using the information on the following slide, estimate:

1. The current-year DSO, DOH, DPO
2. The 3-year-ahead forecast sales and COGS
3. The 3-year-ahead forecast receivables, inventory, and payables

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Working Capital: Example

	Current Year Actual (CNY millions)
Revenue	245,866
COGS	209,114
Accounts receivable	10,161
Inventory	41,671
Accounts payable	72,199

The analyst forecasts revenue growth of 18%, 16%, and 13%, and gross margins of 17%, 17%, and 16% for the next three years.

Efficiency ratios are expected to stay at current levels.

Working Capital: Solution

$$\text{DSO} = \frac{10,161}{245,866} \times 365 = 15.1 \text{ days}$$

$$\text{AR T/O} = \frac{245,866}{10,161} = 24.198$$

$$\text{DOH} = \frac{41,671}{209,114} \times 365 = 72.7 \text{ days}$$

$$\text{Inv T/O} = \frac{209,114}{41,671} = 5.018$$

$$\text{DPO} = \frac{72,199}{209,114} \times 365 = 126.0 \text{ days}$$

$$\text{AP T/O} = \frac{209,114}{72,199} = 2.896$$

DPO calculated
with COGS rather
than purchases in
this module

Working Capital: **Solution (cont.)**

Predicted 3Y ahead revenue = 245,866 =

Predicted 3Y ahead COGS = × =

Predicted 3Y ahead receivables = =

Predicted 3Y ahead inventory = =

Predicted 3Y ahead payables = =

(all unrounded)

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Balance Sheet Modeling Fixed Assets: **Example**

Using the information on the following slide, calculate the expected total fixed assets for the next year (Year 4) assuming the following:

- Capital expenditure on PP&E relative to revenue remains at the Year 3 level
- Capital expenditure on intangibles relative to revenue remains at the Year 1 level
- Goodwill to remain at the Year 3 level
- Depreciation/amortization to remain at the Year 3 level relative to the opening net asset balance (i.e., depreciation relative to net PPE and amortization relative to opening intangibles)
- Year 4 revenue forecast to be CNY 290,122m

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Fixed Assets: Example

	Year 1	Year 2	Year 3
	(CNY Millions)		
PP&E, net	5,068	6,992	6,306
Goodwill	282	248	253
Intangible assets, net	1,779	1,424	4,013
Total fixed assets	7,129	8,664	10,572
Cap ex (PP&E)	3,785	3,405	3,026
Cap ex (intangibles)	333	142	3,310
Depreciation expense	220	324	518
Amortization expense	529	486	666
Revenue	174,915	205,839	245,866

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Fixed Assets: Solution

Capex (PP&E) relative to revenue Year 3: $\frac{3,026}{245,866} = 0.0123$ or 1.23%

Capex (intangible) relative to revenue Year 1: $\frac{333}{174,915} = 0.0019$ or 0.19%

Depⁿ based on opening net assets Year 3: $\frac{518}{6,992} = 0.0741$ or 7.41%

Amort² based on opening net assets Year 3: $\frac{666}{1,424} = 0.4677$ or 46.77%

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Fixed Assets: **Solution**

	Year 4 CYN'm Estimate
Opening total fixed assets	10,572
Cap ex (PP&E)	$1.23\% \times 290,122$
Cap ex (intangibles)	$0.19\% \times 290,122$
Depreciation	$7.41\% \times 6,306$
Amortization	$46.8\% \times 4,013$
Closing total fixed assets	

(all unrounded)

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Balance Sheet Modeling Debt: **Example**

Using the information below, calculate the expected gross debt for Year 6.

Assume a Year 6 target EBITDA margin of 6% and gross debt/EBITDA ratios of 1.25, 1.5, and 2.0 for Years 4, 5, and 6 respectively. Year 6 predicted revenue is \$380,292m.

	Year 1 CNY'm	Year 2 CNY'm	Year 3 CNY'm
Gross debt	10,931	17,624	17,597
Revenue	174,915	205,839	245,866
EBITDA	9,304	12,343	14,190

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Balance Sheet Modeling Debt: **Solution**

Predicted Year 6 EBITDA =

=

Predicted Year 6 gross debt =

=

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Scenario Analysis

- Future outcomes are likely to be different from expectations
- Build in different outcomes and likely probabilities
- Build different scenarios
 - E.g., different input costs
 - Changing demand
 - Cannibalization of sales of other products
- Can summarize impact on (say) EPS as a matrix when allow two key assumptions to change

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Solutions

Revenue and Gross Margins: **Example**

- Top-down vs. bottom-up approaches covered in earlier module
- Gross margins may change as input costs change, even if costs are passed on

Assume a company's COGS as a percentage of sales equals 25% and output volume is stable. If input costs double and this is fully passed on to customers, calculate the impact on gross profit margin.

	Period 1	Period 2	
Sales	100	125	
COGS	25	50	
GP	75	75	Same
GP margin	75%	60%	Reduced

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Working Capital: **Solution (cont.)**

Predicted 3Y ahead revenue = $245,866 \times 1.18 \times 1.16 \times 1.13 = 380,292$

Predicted 3Y ahead COGS = $380,292 \times 16\% = 319,445$

Predicted 3Y ahead receivables = $380,292 / 24.198 = 15,716$

Predicted 3Y ahead inventory = $319,445 / 5.018 = 63,657$

Predicted 3Y ahead payables = $319,445 / 2.896 = 110,292$

(all unrounded)

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Fixed Assets: **Solution**

	Year 4 CYN'm Estimate	
Opening total fixed assets	10,572	
Cap ex (PP&E)	3,571	$1.23\% \times 290,122$
Cap ex (intangibles)	552	$0.19\% \times 290,122$
Depreciation	(467)	$7.41\% \times 6,306$
Amortization	(1,877)	$46.8\% \times 4,013$
Closing total fixed assets	12,351	

(all unrounded)

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Balance Sheet Modeling Debt: **Solution**

Predicted Year 6 EBITDA = $6.0\% \times \$380,292\text{m} = \$22,818\text{m}$

Predicted Year 6 gross debt = $2.0 \times \$22,818\text{m} = \$45,635$

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