

Forecasting Sales

F305 Intermediate Corporate Finance

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Fall 2025 - B1 Slide Set B1 - Forecasting Sales

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Overview

Forecasting Income Statements and ultimately cash flows will be how some of you spend the first part of your careers.

It is neither Rocket Surgery nor Brain Science.



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Sales Forecasting:

The 1st Step in Valuation

- Everything we've done so far and will do in this course starts with forecasting cash flows
- Forecasting cash flows starts with sales
- Sales are generally the biggest driver of forecasts
 - Income statement is affected because variable costs depend on sales
 - Balance sheet is affected because fixed assets and some NWC items triggered from sales forecasts (e.g., Days Receivables, Days in Inventory)

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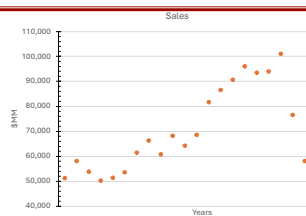
How to Start

What do we do with this?

Is there a trend?

Are there macroeconomic factors to consider?

- Effect of Recessions?
- Correlation to GDP?



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Correlation of Sales & GDP

How closely does the firm's revenue track GDP?

Four Examples

Johnson & Johnson
HealthCare
Medical Supplies & Pharma
Revenues: \$85BN 60% US Sales

General Dynamics
Defense/Aerospace
Planes/Tanks/Ships/Tech
Revenues: \$42.3BN 72% of Sales to US Govt

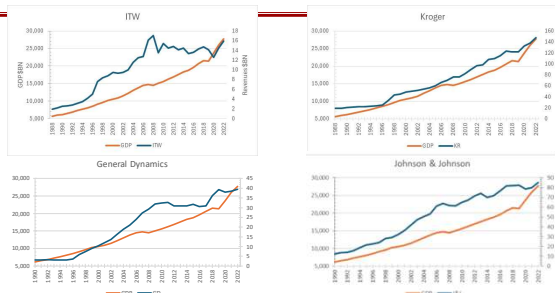
Kroger
Consumer Staples
Grocery Stores
Revenues: \$150BN

Illinois Tool Works
Industrial
Diversified Equip Mfg
Revenues: \$16BN

Which do you think will have the highest and lowest correlations with the overall economy?

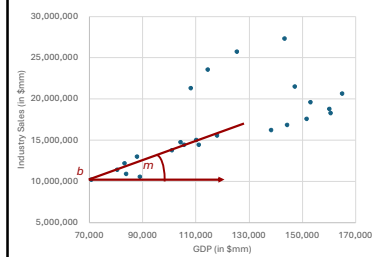
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Revenue to GDP (nominal)



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Statistical Way to Measure



Regression: Better than Eyeballing

Assume there's a linear relationship between x and y

- $y = b + mx$
- b = intercept
- m = slope

Use regression to estimate m and b

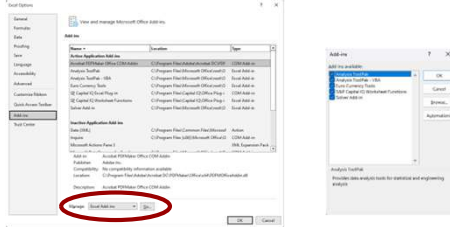
Validate how reliable your estimates are

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Data Analysis Tool Pak

In Excel: Data Analysis | Regression

Office Button | Excel Options | Add-Ins | Manage Excel Add-Ins Go | check the box for Analysis ToolPak | OK



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Regression Results – Excel Data Analysis

Which have the highest and lowest correlations with the overall economy?

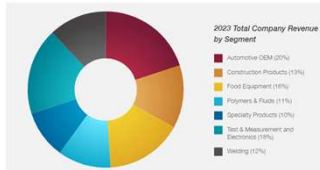
ITW		KROGER	
Regression Statistics		Regression Statistics	
Multiple R	0.842933	Multiple R	0.989441
R Square	0.710537	R Square	0.978994
Adjusted R Square	0.701765	Adjusted R Square	0.978358
Standard Error	2.673472	Standard Error	5.896629
Observations	35	Observations	35
GENERAL DYNAMICS		JOHNSON & JOHNSON	
Regression Statistics		Regression Statistics	
Multiple R	0.938477	Multiple R	0.947235
R Square	0.88074	R Square	0.897255
Adjusted R Square	0.876893	Adjusted R Square	0.89394
Standard Error	4.663917	Standard Error	8.059359
Observations	33	Observations	33

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Illinois Tool Works

Broad exposure to many industries

Illinois Tool Works
Industrial
Diversified Equipment Mfg
Revenues: \$16BN

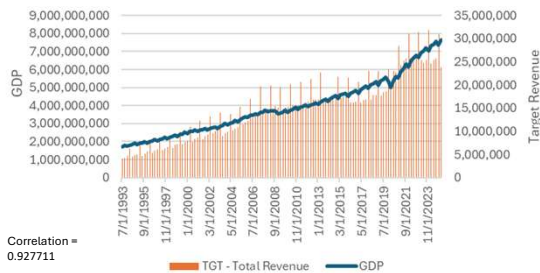


This lack of correlation to the overall economy is why CONGLOMERATES are formed.

It's effectively a portfolio diversification strategy.

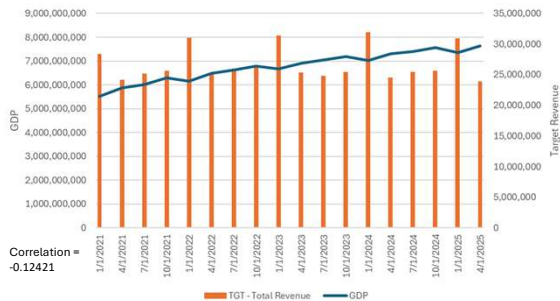
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TGT Revenue vs. GDP Since 1973



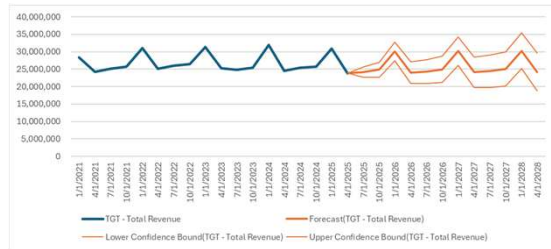
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TGT Revenue vs. GDP Since 2021



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Excel's Forecast Sheet Tool



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How to Project Sales

- Absent a change in strategy or a dramatic change in situation, HISTORY is a good guide
- Understand the macroeconomic factors affecting the industry and the company
- Analyze the competitive landscape and the strategies being used by others

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Understanding the History

- Were there Acquisitions/Divestitures in the recent past?
 - Could throw off the trend
- How much is inflation affecting the sales/revenue number?
 - Are they SELLING MORE UNITS (Really growing)?
 - Are they just raising prices along with (or more than) inflation?
- Has the firm's marketing strategy changed recently?

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How to Project Sales

In the short-term...

- Macroeconomic conditions tend to be more important than industry dynamics
 - Competitive positions of companies are unlikely to change much in the short run
- GDP forecast is reliable
 - Use REAL GDP forecasts
 - Use history and industry outlook to project firm's short-term sales

In the long-term...

- GDP forecast is NOT infallible
 - Economists have correctly predicted 15 of the last 3 recessions
- Firms' competitive positions likely to change
 - Use time-series analysis to project firm's long-term sales

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How to Project Sales

Short-term sales forecast (out 2-3 years)

- Look at the industry
 - What's the overall outlook?
 - Linkage to the macro economy
- Look at the market shares and material movements

Long-term sales forecast (Beyond 3 years)

- Fast or slow?
- Stable or non-stable (product life cycle) growth?
- Analyze the trend of sales growth

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Forecasting The Short-Term

Aggregate level of macroeconomic activity

- GDP and GNP
- Orders for plant and equipment, stock prices, money supply...

Index of leading economic indicators

- Produced monthly by Bureau of Economic Analysis of the Department of Commerce
- Leads by about ½ a year
- Consecutive changes (trend) more informative

Predictions of economists for future economic trends

- Published monthly by **Blue Chip Economic Indicators**
- Project growth in GDP over 2 years
- Project inflation rate

Other sources:

- FRB St. Louis (<http://www.stls.frb.org/fred/>)

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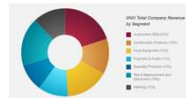
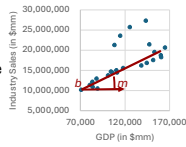
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IF You Have Market Share Data (unlikely)

$$Sales_{t+1} = Market\ Share_{t+1} * Industry\ Sales_{t+1}$$

Industry sales driven by macro conditions

- If you've got that, you can do a regression vs. GDP and use that to forecast
- Determining Market Share is a challenge if you're looking at a **DIVERSIFIED BUSINESS**
 - Can you break the business down and do market shares for each unit?



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Projecting the Firm's Sales When You Know Market Share

Company sales will depend on

- The overall industry sales
- The Company's market share

$$\text{Projected Firm Sales} = \text{Projected Industry Sales} * \text{Projected Market Share}$$

$$= (1 + \text{Industry Sales Growth Rate}) * (1 + \% \text{ Change in Market Share}) * (1 + \text{Firm Sales Growth Rate})$$

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Example

$$\text{Projected Firm Sales} = \text{Projected Industry Sales} * \text{Projected Market Share}$$

Suppose industry sales are expected to grow at 20%. However, the market share of the firm that you are evaluating is expected to drop from 20% to 15%. What is the growth rate of firm's sales?

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Example (cont.)

$$(1 + \text{Industry Sales Growth Rate}) * (1 + \% \text{ Change in Market Share}) = (1 + \text{Firm Sales Growth Rate})$$

$$(1 + 20\%) \times \left(1 + \frac{-5\%}{20\%}\right) - 1 = -10\%$$

	Was	Is		Was	Is
Industry Sales	100	120	Industry Sales	100	120
Market Share	20%	15%	Market Share	20%	15%
			Firm Sales	20	18
					-10.00%

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A word about Market Share

Projecting market shares can be tricky

Some imperfect solutions...

- Has the firm's growth rate historically been higher or lower than industry growth rate?
 - That should tell you whether it has been gaining or losing market share
- Look at marketing expenditures of firm relative to industry marketing expenditure
 - Change in marketing expenditures higher than the industry should correlate to higher market share
 - Except when it doesn't

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Forecasting Long-Term Sales Growth

Analyzing sales growth patterns:

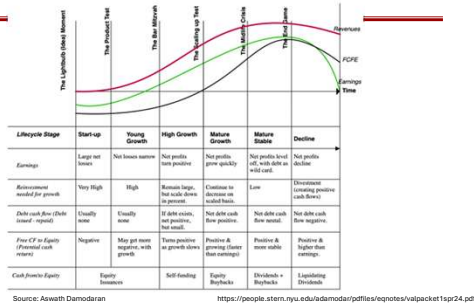
- Stable growth
 - Large established firms/ industries grow at steady rate forever
 - Often close to GNP growth rate
 - Characteristics: Average risk and average-to-low reinvestment rate
- Two-stage growth
 - Smaller firms/ industries grow at a high rate initially, then settle down to a stable growth rate
 - Characteristics: Moderate to high risk and moderate-to-high reinvestment rate

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Lifecycle of the Firm



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Adjusting for Inflation

- Sales analysis should be done on real sales (i.e., sales expressed in constant dollars with respect to a **base year**)

$$\text{Sales}_{\text{Old}} * \frac{\text{CPI}_{\text{Base}}}{\text{CPI}_{\text{Old}}} = \text{Sales}_{\text{Base}}$$

- NOTE:** Translate all past sales to real sales first, **before** doing sales analysis

Example: Sales in 2012 were \$16,410, the CPI was 139.6 in 2012 and 162.6 in 2018. What is the real value of 2012's sales in 2018 dollars?

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Solution

	2012	2018
Sales	16,410	
CPI	139.60	162.60

$$\text{Sales} * \frac{\text{CPI}_{2018}}{\text{CPI}_{2012}} = 19,113.65$$

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The Gift of Working with Public Companies

When dealing with publicly-traded firms, we have “perfect information”

- Past financial statements
 - Give us the ability to calculate past growth, always a good starting point
- Analyst Estimates
 - Professionals who cover these companies have a good handle on the near-term
 - No one has a good handle on the long-term

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Capital IQ

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CapIQ

My Favorite Resource

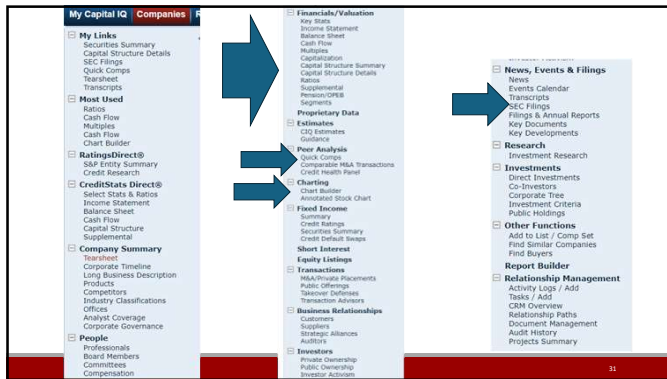
- SEC Filings
- Transcripts / Company Presentations
- Downloadable Data
 - Financials
 - Ratios / Multiples
 - Comparable Companies
 - Capital Structure / Security Info

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The Most Important Thing

Is what we HAVE NOT discussed:

- How will the Company's stated strategy affect its short- and long-term results?
- What are they saying about their future?
- Do you agree with it? Do you think it will work?
- Will it change their cost structure? (Better or worse?)
- What happens if it doesn't work?
- What happens if there's a recession? Or an economic boom?

These are the things that really drive the analysis
Do your best to THINK ABOUT IT and draw conclusions

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Conclusion

- Sales is the first and most critical step in building proformas: It drives other predictions
- Historical growth, economic analysis and industry analysis can help to project sales growth rate for a particular company

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Up Next

Ratio Analysis

Sustainable Growth Rate

Internal Growth Rate

The DuPont Identity

Please sign up for a Capital IQ account
(and install the Excel plug-in, if you
wish)

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