PacificCPE

Excel Financial Modeling: Charting, Scenarios, Integrated Models

Course #4133A

Business

2 Credit Hours

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EXCEL FINANCIAL MODELING: CHARTING, SCENARIOS, INTEGRATED MODELS

This course offers a guide to help you create informative and enlightening financial models. All you need is a basic understanding of Excel to start building models with practical hands-on exercises. This course will focus on: techniques for building scenarios and sensitivity analysis, methods for displaying and presenting the output, and the components of an integrated financial statement.

LEARNING ASSIGNMENTS AND OBJECTIVES

As a result of studying each assignment, you should be able to meet the objectives listed below each individual assignment.

SUBJECTS

Applying Scenarios to Your Financial Model
Charting and Presenting Model Output
Building an Integrated Financial Statements Model

Study the course materials from pages 1 to 91

Complete the review questions at the end of each chapter

Answer the exam questions 1 to 10

Objectives:

- Recognize how analysis can be done using scenarios.
- Identify the usefulness of specific chart types.
- Identify the tools when linking financial models.

NOTICE

EXAM OUTLINE

- **TEST FORMAT:** The final exam for this course consists of 10 multiple-choice questions and is based specifically on the information covered in the course materials.

- **ACCESS FINAL EXAM:** Log in to your account and click Take Exam. A copy of the final exam is provided at the end of these course materials for your convenience, however you must submit your answers online to receive credit for the course.

- **LICENSE RENEWAL INFORMATION:** This course qualifies for **2** CPE hours.

- **PROCESSING:** You will receive the score for your final exam immediately after it is submitted. A score of 70% or better is required to pass.

- **CERTIFICATE OF COMPLETION:** Will be available in your account to view online or print. If you do not pass an exam, it can be retaken free of charge.

TABLE OF CONTENTS

CHAPTER 1: APPLYING SCENARIOS TO YOUR FINANCIAL MODEL

Chapter Objective
After completing this chapter, you should be able to:
• Recognize how analysis can be done using scenarios.

IN THIS CHAPTER

- Building drop-down scenarios with data validations

- Using data tables for sensitivity analysis

- Calculating probability-weighted predicted outcomes of scenario analysis

- Applying Scenario Manager to your financial model

One of the things that makes a financial model a financial model and not a spreadsheet is that it contains hypothetical outcomes or scenarios. When your model has been built properly, using links with data only entered once, adding scenarios to your model is a fairly straightforward process, and including scenarios doesn't require much work or redesign.

In this chapter, you take a couple of simple models that you've already built in previous chapters, and see how simple it is to add scenarios to improve the functionality. With a well-built model that has all inputs properly linked through to outputs, changing inputs and watching the outputs change is fairly easy. In fact, you could argue that this is pretty much the whole purpose of building a financial model in the first place!

Scenarios and sensitivity analysis are a great way to reduce risk by seeing all the possible outcomes of the project or venture you're modeling. What would be the absolute worst that could happen? If everything that can go wrong does go wrong, can you still afford to pay your staff? There are usually interdependent effects and interactions between multiple variables, which may change in the model. That's why it's so important to have links automatically calculating within a model. For example, if units sold increases, then revenue increases, so profitability increases, so cash flow increases, so borrowing decreases, so interest payable decreases, and so on… .

Scenarios can also help you make decisions. After you've built scenarios into the model, the hypothetical outcomes can be laid out so that the decision makers can see the expected impact of each course of action. How closely these outcomes reflect reality depends, of course, on the accuracy of the model as well as the assumptions that have been used — but you already knew that!

IDENTIFYING THE DIFFERENCES BETWEEN TYPES OF ANALYSIS

Scenario analysis, sensitivity analysis, and what-if analysis are all very similar to each other. In fact, they're really only slight variations of the same thing. Here's a breakdown:

- **What-if analysis:** What-if analysis is the process of testing to see "what would happen if" you change something in the model.

- **Sensitivity analysis:** Sensitivity analysis is the process of tweaking one key input or driver in a financial model and seeing how sensitive the model is to the change in that variable.

  For example, if you have an income statement with a profit of $1.2 million, you may want to know how that profit is affected by changes in price. If you reduce the per unit price of one of the products from $5.25 to $4.75, the profit may decrease to $975,000, so you can see that the business is quite sensitive to changes in the price for that product. This process of changing a single input in isolation is referred to as performing sensitivity analysis.

- **Scenario analysis:** Scenario analysis is the process of tweaking a whole series of inputs or drivers in a financial model and seeing what happens with the model.

  For example, a worst-case scenario could include not only the price decreasing but interest rates increasing, number of customers decreasing, and unfavorable exchange rates. Sometimes these inputs affect each other — for example, a reduction in sales affecting profitability may also cause sales commission or bonuses to go down, which would also affect profitability.

BUILDING DROP-DOWN SCENARIOS

The most commonly used method of building scenarios (and the one that I most often teach in my training courses) is to use a combination of formulas and drop-down boxes. In the model, you create a table of possible scenarios and their inputs and link the scenario names to an input cell drop-down box. The inputs of the model are linked to the scenario table. If the model has been built properly with all the inputs flowing through to the outputs, then the results of the model will change as the user selects different options from the drop-down box.

Data validation drop-down boxes are used for a number of different purposes in financial modeling, including scenario analysis. For an example of using data validations to reduce errors in a financial model, turn to Chapter 12.

Using data validations to model profitability scenarios

In Chapter 7, you create a simple one-page model to calculate costs based on particular inputs. I recommend that you build the model as described in Chapter 7 first so that you understand how this simple model works before adding the scenarios to it. Alternatively, you can find a copy of the completed

model by downloading File 0801.xlsx from https://www.sequoiacpe.com/description?cn=4030&d=. Open it and select the tab labeled 8-1-start.

The way I've modeled this, the inputs are lined up in column B. You could perform sensitivity analysis simply by changing one of the inputs — for example, change the customers per call operator in cell B3 from 40 to 45, and you'll see all the dependent numbers change. This would be a sensitivity analysis, because you're changing only one variable. Instead, you're going to change multiple variables at once in this full scenario analysis exercise, so you'll need to do more than tweak a few numbers manually.

To perform a scenario analysis using data validation drop-down boxes, follow these steps:

1. **Take the existing model that you created in Chapter 7 (or downloaded), and cut and paste the descriptions from column C to column F.**

   You can do this by highlighting cells C6:C8, pressing Ctrl+X, selecting cell F6, and pressing Enter.

   The inputs in cells B3 to B8 are the active range that drives the model and will remain so. However, they need to become formulas that change depending on the drop-down box that you'll create.

2. **Copy the range in column B across to columns C, D, and E.**

   You can do this by highlighting B3:B8, pressing Ctrl+C, selecting cells C3:E3, and pressing Enter. These amounts will be the same for each scenario until we change them.

3. **In row 2 enter the titles** Best Case, Base Case, **and** Worst Case, **as shown in Figure 8-1.**

   Note that the formulas still link to the inputs in column B, as we can see by selecting cell C12 and pressing the F2 shortcut key as shown in figure 8-1.

FIGURE 8-1: SETTING UP THE MODEL FOR SCENARIO ANALYSIS.