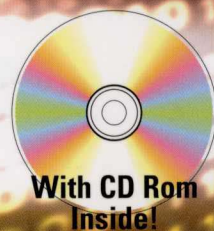


WILEY FINANCE

NEXT GENERATION EXCEL

Modeling in Excel for Analysts and MBAs

ISAAC GOTTLIEB



Next Generation Excel

*Modeling in Excel
for Analysts and MBAs*



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A Word from the Author

I have taught people how to utilize Excel for business since 1997. My focus has always been on the applications needed in a business environment.

As a result of years of teaching the application's extensive possibilities, I have found that step-by-step and hands-on approaches are the most effective.

When you get to the heart of the matter, you will find that the author is "speaking" to the reader, as I am doing now. This book was voluntarily written in a very informal tone, to keep the learning process as dynamic as it can be in a classroom or workshop setting.

I wanted to create a book that appeals to students, as well as practitioners and instructors. All the techniques in this book have been developed first with the professors and students attending my classes and workshops. What is in this book is the distillation of the feedback of many years' teaching. I have learned what people really want to know about Excel. One thing is certain: they don't want to read long, complicated explanations. They want a simple answer with visual figures or pictures; therefore, this book is filled with short explanations and "screen shots." It is organized in a way to help you "hit the ground running," and quickly at that!

I have verified the application of this book's subject matter outside of the classroom—in putting together projects, generating business plans, and other decision-making instances. I have applied the various techniques time after time in a variety of consulting projects. All the examples in this book are the direct result of real-life, hands-on experience.

Most people who use Excel want and need fast answers to their problems. The special features of the Excel software are covered in a manner inviting the user to apply the knowledge immediately.

While the book is written with Excel 2007 in mind, most chapters have an appendix for Excel 2003 or earlier versions, when the latest version implied different manipulations of the software. Every chapter has a few review questions at the end (with the answers!) to ensure that you really understand what you have read, by applying the knowledge to different problems to be solved than the ones covered in the chapter. I cannot encourage you enough to do these exercises.

WHO SHOULD READ THE BOOK?

You will find this book useful if you . . .

- spend more than 10 hours a week using Excel—you will save hundreds of hours a year applying this knowledge;
- are a decision maker at any level—you will improve your decision-making ability;

- are an analyst in the areas of accounting, finance, marketing & sales, HR, or strategy—you will learn to handle your analysis in a more efficient and creative way;
- have to make quantitative or graphical presentations;
- are an executive and have to train your staff in time-saving process applications;
- are an executive assistant—you can better support management with your improved skills;
- are an entrepreneur and need to create business plans;
- are dealing with accounting, marketing/sales, HR, finance, or other business disciplines;
- are a student or plan to become one;
- will be in a position to have to train people to use Excel.

Acknowledgments

Special thanks to Ms. Marianne Tan of our Executive MBA offices in Singapore. This book was actually her idea—she took the notes I give to students and handed them (to my great pleasure!) to Ms. CJ Hwu, Senior Publishing Editor at John Wiley & Sons (Asia). I am grateful to both for their support in this endeavor. I am grateful also to Ms. Lucie Alary for the countless hours spent proofreading the chapters' drafts, before they took the shape of a book. In her meticulous manner, she read the text, made suggestions, and pointed out many details which have improved the book a great deal.

Also thanks to my friends Avi Miller and Manny Zachodin. They acted as my sounding board as I developed the material for my Excel workshops and through the process of writing this book. They have been teaching MBA and other workshops with me for the last 10 years using the material in this book. Their wisdom, experience and feedback enabled me to improve the quality of many of the topics covered. I am grateful for their time, effort and of course their friendship.

The usual disclaimer is in order: Any mistakes in the work are my own.

Introduction and Overview

This book has eight parts. Read it in order or feel free to jump directly to any of the parts.

Part I explains how to use Excel efficiently. It covers the AutoFill, efficient selection, and highlighting functions in Excel. You will also learn how to use keyboard selection shortcuts. The second topic covered shows how to insert formulas or functions and the use of absolute versus relative addressing. The last two chapters describe the naming of cells and ranges and how one creates charts.

Part II covers two commonly needed skills: the use of the IF functions, which make Excel an invaluable tool for decision-making purposes, and the Text manipulation functions.

Part III introduces Statistical Tools. Statistics in Excel provide the user with a set of tools helpful in sorting out and solving a variety of problems. This part covers descriptive statistics and simple regressions.

Part IV is called “What-if Analysis.” What-if analysis enables the user to find out what will be the impact of change. This part of the book shows you how to take advantage of the What-if tools in the decision-making process. It demonstrates features such as naming cells for modeling, the goal seek, one- and two-way data tables, and the effective use of scroll bars.

Part V covers two chapters, Multi-Page Systems and Lookups. Most Excel users either keep their entire model or information on one worksheet or—when they use a number of sheets—do not take advantage of structuring the workbook/system so that they can use Excel more effectively. Studying the Multi-Page chapter will remedy this shortcoming.

The second portion of Part V discusses lookup functions. It demonstrates how to perform an exact lookup and how to perform range lookups. After you understand the lookup function described, you will be able to perform any of the other lookup functions.

Part VI looks at the Data menu and ribbon. This part of the book deals with the Data menu features of Excel. It covers all the following topics: Sorting data, Filters, Creating and Using Data Forms, Grouping Data, Subtotals, and Pivot Tables.

Part VII deals with the variety of Financial Tools Excel comes equipped with. What are the most frequently used financial formulas available, including those in the Analysis ToolPak, and how do we apply them using Excel efficiently?

Part VIII explains how to use the Solver Add-in. Solver is an Excel Add-in, which, in very simple terms, is a software tool for “solving” mathematical systems of equations for optimizations. This part of the book does not attempt to teach the mathematical aspect of using the Solver but it will demonstrate how to put it to good use for three different applications. The first application explains how to use the Goal Seek when you want to have more than one changing cell or decision variable. The second application demonstrates efficient use of the Solver for a linear optimization problem. The last case explains its use in a non-linear optimization problem.

The CD files include:

- Excel files for Excel 2007;
- Excel Files for Excel 2003 and earlier versions.

PowerPoint presentations for all the figures in the book are also included in the CD should you want to use the material for training.

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Using Excel Efficiently

Part I describes how Excel, the widely-used spreadsheet software, can be used efficiently to help build your spreadsheet for a variety of purposes. As an MBA student, an analyst, or an executive, you will develop enough expertise to perform the same tasks you were performing before—using other means—much faster and in a more efficient way. This part of the book demonstrates tools, shortcuts, and techniques for carrying out some common tasks quickly and efficiently.

Carrying out different tasks—this part will not turn you into an Excel expert in a short time, but by the end you should improve the tasks you can do—the types of tasks that make Excel into such an incredibly powerful and flexible tool for modeling, finance statistics, and data manipulation.

In Part I: Using Excel Efficiently we will cover the AutoFill, efficient selecting, and highlighting in Excel. You will also learn how to use keyboard selection shortcuts. The next topic covered is how to insert formulas, activate functions, and use absolute and relative addressing. The last two parts are the naming of cells and ranges, and creating simple charts.

AutoFill

The AutoFill feature in Microsoft Excel can automatically fill in cells with commonly used series (numbers, months, and days of the week) or with custom lists you can create. This chapter will demonstrate how to use the drag handle and other ways to fill in information. These operations work in all directions; top down, down up, left to right, and right to left. Figure 1.1 demonstrates this feature.

Select two adjacent cells and release the mouse. When you hover again over the lower right corner, your mouse pointer should change shape to a crosshair (+) called a drag handle. You can click and drag down the column and Excel will continue the initial two-cell series for you.

You can AutoFill several types of data including, but not limited to, numbers, dates, days, and annual quarters by selecting cells and dragging the handle as shown in Figure 1.1.

By default, a number of AutoFill lists are pre-installed in the program. For a list of the available AutoFill series, go to the Widows icon, click on Excel Options, and click on the Edit Custom Lists button. See Figure 1.2.

You may add your own lists as needed to Custom Lists. This will be explained at the end of the chapter.

Try to use the following example for using the Custom Lists shown in Figure 1.3. We filled in the information in the sheet. You may want to open the *AutoFill* sheet in the Excel file for Chapter 1 on the accompanying CD. The example illustrates the use of the AutoFill feature in Excel.

Select the first two values in column B (B2 and B3), click on the lower right drag handle of cell B3, and pull the drag handle down toward cell B10.

Dragging down the information created the desired AutoFill effect of continuing with the same series of numbers: 6, 9, 12, 15, . . . , 30. Try to drag down the information shown in columns C and D. You will create the information shown in Figure 1.4.

After you experiment with a couple of columns, try a more efficient way: select two vertical adjacent cells E2:E4. Release the mouse for a moment. Go to the drag handle. This time—do not drag—just **double-click**. Excel will drag it for you. See Figure 1.5. It will complete filling for you to the end of the adjacent column on the left. You may try double-clicking with more than one column selected at a time. Double-click works only in one direction: down.

You may want to try it yourself. As shown in Figure 1.6, all of the columns selected are highlighted and the crosshair handle appears at the lower right corner of the final column. In Figure 1.7, you can see the results after using the AutoFill double-click.

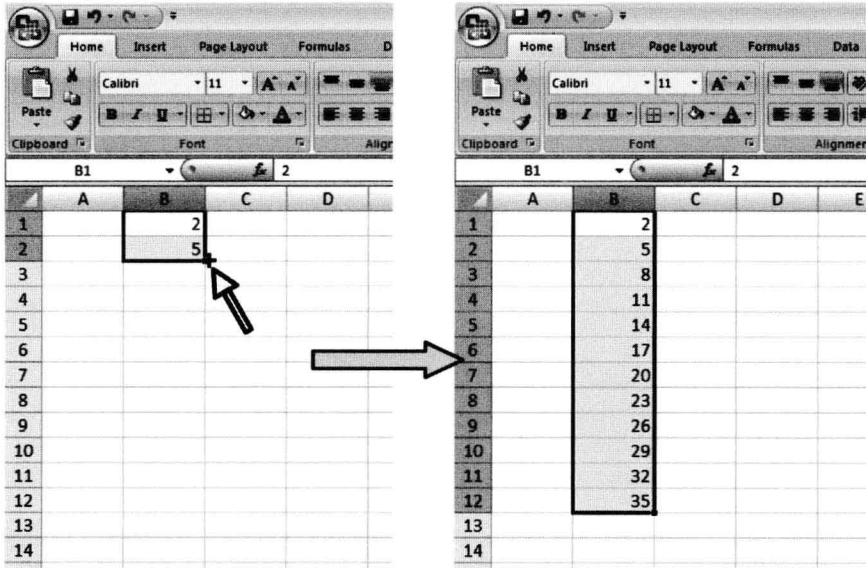


Figure 1.1 Using the drag handle

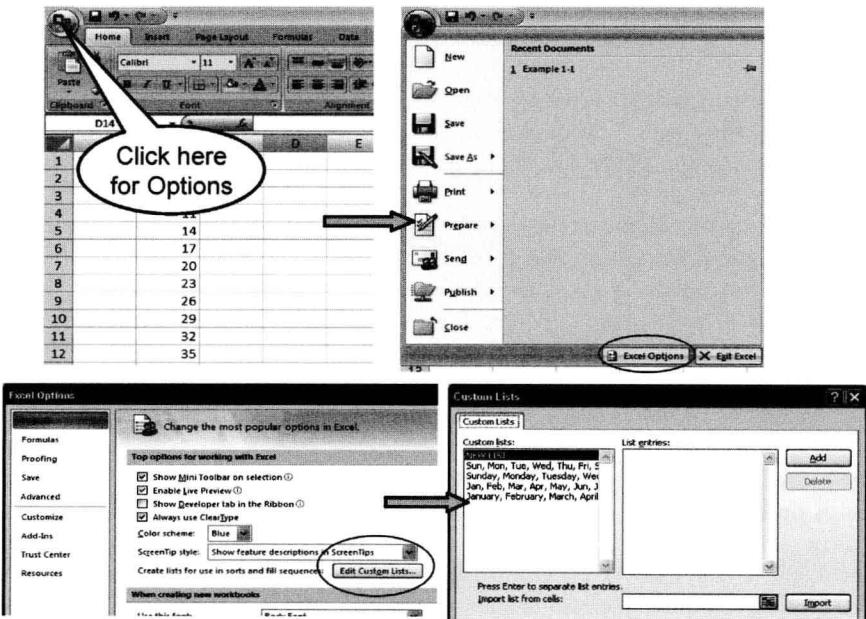


Figure 1.2 Custom Lists

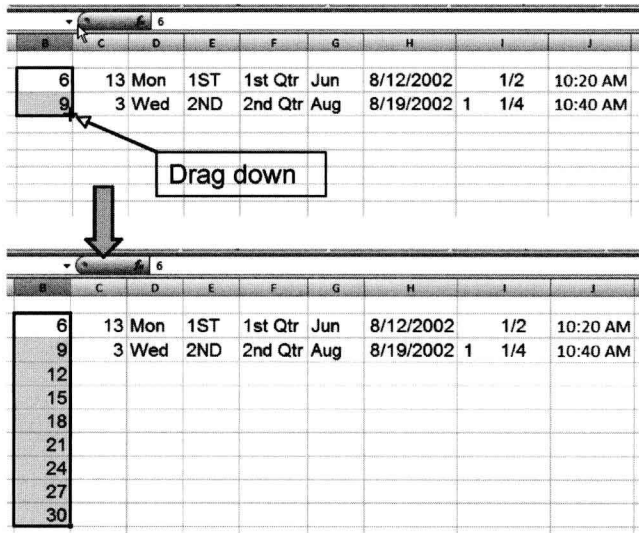


Figure 1.3 Drag handle and AutoFill

More features of the AutoFill function will be discussed in the context of regressions in Chapter 3. I will also explain the concept of Time in Excel in Chapter 3.

Creating Custom Lists in Excel enables you to use these lists as demonstrated with the AutoFill function. Custom Lists let you use them when you sort in Excel. In addition to sorting in numerical or alphanumeric order, you can also sort with these Custom Lists or with the ones you create. You can use the list created here later to sort a database.

	B	C	D	E
6		13 Mon	1ST	
9		3 Wed	2ND	
12		-7 Fri		
15		-17 Sun		
18		-27 Tue		
21		-37 Thu		
24		-47 Sat		
27		-57 Mon		
30		-67 Wed		

Figure 1.4 “Dragging” down the information