Introduction

INTRODUCTION

The book you just opened is different from most others on Excel that you might have seen. That's because it focuses on a topic that is deeply important to us all: money.

The novelist Rex Stout once wrote, facetiously, "The science of accounting has two main branches, first addition, and second subtraction." I kept that in mind when I was casting about for the book's theme. I wanted to write a book that would show people how to maximize profit, the result of combining those two branches.

Profit, of course, is not revenue. I can't teach you how to create revenue—that's more a matter for the heart, not the head—nor would I want to offer you MBA or CPA material. I did set out to write a book that any person engaged in any level of business could use as a refresher, from basic financial documents such as general ledgers and income statements, to the operational methods such as statistical process control, to the procedures such as business case analysis that underlie investment decisions.

I also wanted to structure the book around the most popular and sophisticated spreadsheet program available, Microsoft Excel. Therefore, each chapter in *Business Analysis with Microsoft Excel, Third Edition* provides information about a different business task or procedure, and discusses how best to apply Excel in that situation.

This book makes reference to many Excel functions and capabilities that you might already use in your daily business activities. And you might also find discussions of tools that you have never used or that you might never have considered using in the context of business analysis.

After all, no one can be completely familiar with every option in an application as extensive as Excel.

IN THIS INTRODUCTION

Several Internet newsgroups frequented by Excel users answer technical questions. Years ago, a user asked how to enter a number in a worksheet cell so that Excel would treat the number as text (this is quite a basic operation). Surprisingly, the question was posted by one of the most experienced, best-known, and creative Excel consultants in the country. I thought that it was a put-on and responded appropriately, but it turned out that the question was genuine.

So we all have gaps in our knowledge. The purpose here is to help fill in some of the gaps that might have entered your knowledge base since your last course in business or since you first learned how to use a worksheet.

Business Analysis with Microsoft Excel, Third Edition makes use of case studies—that is, situations that are typical of decisions or problems that you might face on any given workday. These case studies discuss, first, the problem itself: why it's a problem at all and how a solution can contribute to a company's profitability. Then the case studies demonstrate at least one possible solution that uses Excel as a tool. The intent is for you to mentally put yourself in the situation described, work through it, and then apply or adapt the solution to an actual situation that you face.

Taking It on Faith

Since the second edition of this book was published, the financial markets have sustained some severe shocks. Enron, which had been ranked seventh in the Fortune 500, entered bankruptcy, its CEO entered prison, and $60 billion in stock and $2 billion in pensions vanished. An old and highly respected accounting firm, Arthur Andersen, was found guilty of obstruction of justice in the Enron case. Although the Supreme Court later overturned the finding, "Uncle Artie's" staff fell from 28,000 to 200. And, by no means last, WorldCom revealed that it had improperly booked $3.8 billion in expenses—then, one month later, it filed for bankruptcy. Other familiar names: Global Crossing, Tyco, and Adelphia.

The basis for all this corporate malfeasance is the cooking of the books. Transactions were kept off the financial reports, and earnings and losses were misstated, in efforts to paint a pretty picture and pump up the stock price.

To some degree, the system works on trust. As investors, creditors, customers, and employees, we all rely on financial reports such as E/P ratios to make decisions about our lives. When the dollar amounts that are used to calculate those figures are seriously misrepresented, we can make seriously bad decisions.

Nothing here or anywhere else can fully protect you from people who keep bad news off the books. You have to be as close to things as Sherron Watkins, the Enron vice president, to see what's really going on in time to phone the cops. So it might seem pointless to pay attention to income statements, balance sheets, and other reports of a company's financial status.

But it's not pointless. The vast majority of North American businesses are generally honest, and if they sometimes skate, it's not by a really indecent margin. If you want to adopt a cynical viewpoint, consider that the incentives to misrecord financials are all wrong for

small and midsize businesses. It's in large businesses where the temptations are really huge, and—at least, since 2002—that's where the scrutiny is greatest.

Finally, you can't tell that a company's times-interest-earned ratio is really out of whack if you don't know how to calculate it.

About the Platform

As this edition was being written, Microsoft was beta-testing a new version of its Office suite, Office 2007. As you might well know by now, the component applications such as Excel 12 and Word 12 have a user interface that differs radically from that in earlier versions. The Ribbon, which is a sort of toolbar, stretches across the top of the Word document or Excel workbook or Access window in place of the traditional menu bar, with its File menu, Edit menu, Insert menu, and so on.

Instead of the menus, the Excel 12 Ribbon has tabs, with labels such as Home, Insert, Page Layout, and Formulas. Everything has been moved around, reorganized, relocated. Most of the old functionality is there; you just have to look for it.

My initial reaction, and that of my colleagues, was irritation. It was a hassle to have to search out the control for something as basic as naming a range of cells (it's on the Formulas tab). And my productivity during the early days of using Excel 12 dropped, I would guess, by 25% because I had to go looking for things that I could find immediately using the menu structure.

But that problem soon disappeared. It really doesn't take that long to get familiar with where things are in the new Ribbon interface.

I have heard and read that Microsoft believes the Ribbon structure is much more intuitive and results oriented (those are not my terms; they're the ones I've heard and read). A well-known technology columnist even termed the interface "simpler" and "more pleasant" in, of all places, the *New York Times*. Well, I've long thought he should stick to hardware.

I see no special advantage to the new interface, but it's not my role here either to hype it or to bash it—just to recognize it. My own guess is that a couple of releases down the road, Microsoft will return to the menu structure and relegate the Ribbon to optional status, much as it did with the Office Assistant.

Part of the process of recognizing the new interface is providing for it in this book's instructions. I've added parenthetical directions for you to use if you've come down with Excel 12. For example:

> **NOTE**
> With an Excel workbook open, choose Data, Import External Data, New Database Query. (In Excel 12, click the Ribbon's Data tab, and click the From Other Sources drop-down in the Get External Data group. Then choose From Microsoft Query from the drop-down list.)

Notice that the explanation for how to import external data is more than twice as long for Excel 12 than for previous versions. This is generally true of most things you do in Excel, and that's why I take issue with the terms "simpler" and "more pleasant." I think you'll find that even after you get used to the new interface, it still takes longer to accomplish something than it does in earlier versions.

How This Book Is Organized

You can look in the table of contents or the index of *Business Analysis with Microsoft Excel, Third Edition* whenever you encounter an unfamiliar or obscure situation, and read about how to solve it with the analysis tools in Excel. To make it easier to find related situations, the book is divided into four parts:

- **Part I, "Analyzing Financial Statements."** This section discusses fundamental financial concepts and tools such as income statements, balance sheets, cash flow, and ratio analysis.
- **Part II, "Financial Planning and Control."** This section covers budgeting methods such as pro formas, forecasting trends, and quality-control procedures, including process measurement and defect analysis.
- **Part III, "Investment Decisions."** You'll find business case analysis and profit planning in this section. It covers strategies for structuring and testing business cases, as well as ways to quantify and manage the degree of risk involved in entering a new line of business. You also find here a chapter on fixed assets, which normally account for the greatest portion of a company's capital investment.
- **Part IV, "Sales and Marketing."** Sales and marketing analysis, costing and pricing, and margin analysis are covered here. Since the publication of the original edition of this book, many businesses have placed their financial and operational records in true relational databases. Therefore, this edition includes a chapter that explains the most effective ways to import data into Excel directly from databases and from websites.

There's also a glossary that briefly defines important terms.

As I mentioned earlier, it's important that you be able to dip into this book to find particular topics and to make use of the information without necessarily reviewing everything that came before. Therefore, certain tips and recommendations on using Excel are (briefly) repeated from time to time. And in each chapter, you will find full, step-by-step descriptions of how to accomplish a given task using Excel.

Two Special Skills: Named Ranges and Array Formulas

Have you ever had to interpret someone else's worksheet? Or have you ever had to use a worksheet that you constructed months or perhaps years ago, and then been completely unable to figure out what you had in mind when you constructed it? You probably have, and, if so, you know what a headache it can be.

The principal difficulty with many otherwise useful worksheets is that their authors don't document them. Consider this worksheet formula:

```
=IF(AND(B12<30000,A12<5),C14*D14*.05,C14*D14*.075)
```

It could take a couple of minutes to figure out what that formula is up to, even if you know the worksheet's basic purpose. It would take you only a few seconds if the author had used this formula instead:

```
=IF(AND(YearToDateSales<30000,Tenure<5),Units*Price*LowCommission,
➥Units*Price*HighCommission)
```

It's not too difficult to infer what this formula says:

> If this person's sales during this year are less than $30,000, and this person was hired fewer than five years ago, return the sales amount times the lower commission; otherwise, return the sales amount times the higher commission.

So to help make your work self-documenting, in many instances, you should give names to Excel worksheet cells, ranges, and constants. Because you'll find this approach taken throughout the book, it's reviewed here.

Assigning Names

To name a *cell* or *range*, begin by selecting it on the worksheet. Choose Insert, Name, Define, and type the name you want to use in the Names in Workbook edit box; then click OK. (If you're using Excel 12, click the Ribbon's Formulas tab and click the Define Name drop-down in the Defined Names group. Choose Define Name in the drop-down list and type the name you want to use in the Name box. You can also specify the name's scope as sheet-level or book-level; see Chapter 2, "Balance Sheet: Current Assets," for more information on that distinction.)

Or use this quicker method: After you have selected the cell or range, click in the Name box (immediately above the column header for column A and left of the drop-down arrow), type the name, and press Enter.

To name a *constant* such as `LowCommission`, choose Insert, Name, Define, and type the name of the constant in the Names in Workbook edit box (or, in Excel 12, use the Define Name drop-down, as described in the previous paragraph). Then, in the Refers To edit box, type the value that you want to assign to the constant and click OK. (You can't use the Name box to define a constant.)

A side benefit of using names instead of cell or range addresses is that you can paste names into formulas as you are creating them. After you have started typing a formula, you can choose Insert, Name, Paste and select the name you want to use from the Paste Name list box. (In Excel 12, click the Ribbon's Formulas tab and select the Use in Formula drop-down from the Defined Names group. Then click the name you want in the drop-down list.) This approach saves you keystrokes and helps prevent misspellings. And you don't have to recall existing names: They're right there in the list box.

When you choose a name for a range or a constant, consider using both uppercase and lowercase letters: for example, `TotalLiabilities`. Mixing upper case and lower case makes the name easier to read (compare with `totalliabilities`. You should probably avoid using all uppercase letters. Excel's worksheet function names (for example, `SUM` and `AVERAGE`) use all uppercase letters, and you don't want to define a name that could be confused with a function.

Blank spaces and certain special characters, such as the percent symbol, aren't allowed in names. Some people like to use an underscore in place of a space, preferring to see `Total_Liabilities` instead of `TotalLiabilities`.

Using Array Formulas

Many of the formulas described in this book are a special type of Excel formula called an *array formula*. An array formula contains an array of values or a reference to an array of worksheet cells, as shown here:

```
=SUM(IF(MOD(ROW(SheetRange),2)=0,SheetRange))
```

This sums the values in the worksheet range named SheetRange if they are in an even-numbered row. The formula requires a special keyboard sequence to enter it correctly. On a computer running Windows, the sequence is Ctrl+Shift+Enter—that is, simultaneously hold down the Ctrl and Shift keys as you press Enter.

You can tell that Excel has interpreted your formula as an array formula if you see curly braces (sometimes termed French braces) around it in the formula bar. For example, the formula shown previously appears in the formula bar like this:

```
{=SUM(IF(MOD(ROW(SheetRange),2)=0,SheetRange))}
```

Don't type the braces yourself. If you do, Excel interprets the formula as text.

These are termed array formulas because they have within them arrays that you don't usually see, and that Excel doesn't normally expect. For example, if expanded, the previous formula would show an array of the row numbers in `SheetRange`. Excel doesn't normally expect that you'll present an array of values as conditions in an IF function, so you signal that's what you've done by using the Ctrl+Shift+Enter keyboard sequence.

You can explore the inner workings of array formulas by using the formula-evaluation tool in Excel 2002 or later, Evaluate Formula. Begin by choosing Tools, Formula Auditing, Evaluate Formula. (In Excel 12, click the Ribbon's Formulas tab and choose Evaluate Formula in the Formula Auditing group.)

Conventions Used in This Book

Business Analysis with Microsoft Excel, Third Edition uses a few typeface, terminology, and formatting conventions to emphasize special information:

- A sequence like this:

  Ctrl+Enter

  means that you should hold down the Ctrl key as you press Enter.

- When you should select a sequence of options from an Excel menu, you will see this:

  Choose Tools, Goal Seek.

  This means that you should first click on the Tools option in Excel's main menu and then click on Goal Seek in the Tools menu. The sequences for Excel 12, which has no main menu structure, are analogous.
- Data or formulas that you enter in an Excel worksheet cell are shown like this:
  `=SUM(CumulativeNetIncome)/ProductLife`
- New terms, or information that needs special emphasis, are shown in *italic*.
- Information about performing a task more efficiently or alternative ways to go about a task appear in tips. Tips are set apart from the main text, like this:

> **TIP** To copy the selected cells, press Ctrl+C.

- Information that is related to the current topic but that might not apply to it directly is shown like this:

> **NOTE** There is one distinct IRR for each change in sign in a series of cash flows.