



## Par for the course

**Stephen Wells tees off with a spreadsheet that will calculate your American-style golf handicap, continues a fair way with the financial analysis template for service companies, and drives home some pro tips for Excel.**

Southern California has so many golf courses that you keep having to drive around them. More of your friends are likely to have a bag of clubs than a tennis racket, and in some jobs you'll never meet the boss unless you play golf. So it was inevitable that there would be a time of my life there when I tried to sink a few putts.

All those happy memories of fishing balls out of the water came bouncing back when I received a request for help from Doug Barton in Surrey. He and his pals would like to calculate handicaps for themselves using the United States Golf Association handicap system. This differs from the UK method in several ways, including the fact that it's based on the best ten of the last 20 games. Doug has a faded set of official tables but would like to do the calculations automatically on a spreadsheet.

I happen to have used Excel but the

principles are the same in any spreadsheet. Fig 1 shows the layout. For the purposes of legibility, the screenshot only shows the outgoing nine holes, but it works just the same way when you apply the methodology to the full 18.

Row 5 gives the Par (the maximum number of strokes you're supposed to take to get the ball into the hole) for each hole on this player's usual golf course. Row 6 gives the Stroke Index. These numbers are printed on the scorecards for the course which list the difficulty of the hole.

In this case, the most difficult is on the homecoming 9. The next most difficult is Hole No. 4 (in column F). The easiest is No. 6 (in column H). Three of the player's games are shown. The dates on which the games were played are in column B. His previous handicap was 15 and this is entered in column M.

According to Doug, here's how this particular system works. The score for each hole is adjusted in three parts:

1. If the current

handicap is less than the Stroke Index (SI) for the hole, and the player's score is more than one over par, then one over par is recorded. Otherwise, the player's score is used.

2. If the handicap is more than the SI but less than 28 and the player's score is more than two over par, then two over par is recorded. Otherwise, the player's score is used.

3. If the handicap equals 28 and the player's score is more than 3 over par, then 3 over par is recorded. Otherwise, the player's score is used.

The first thing to do is create some Names. In our example C5 to K5 is Named Par, C6 to K6 is Named SI; and M9 to (arbitrarily) M28 is Named Handicap.

The results of the player's first three games are entered on rows 9, 11 and 13. Now we can do the main job with the IF and AND functions.

The way an IF and AND function works is that IF a=b AND c=d, then e, otherwise f. This is entered as

```
IF(AND(a=b,c=d),e,f).
```

So referring back to Part 1 of the system:

```
=IF(AND(Handicap<SI,C9>Par+1),Par+1,C9)
```

You can also add another AND if you need it, so Part 2 of the system translates to:

```
IF(AND(AND(Handicap>SI,Handicap<28,C9>Par+2)),Par+2,C9)
```

Finally Part 3 is entered as:

```
IF(AND(Handicap=28,C9>Par+3),Par+3,C9)
```

How do you run all three parts together? Simple: just substitute one formula for the previous "otherwise" answer. That is, delete the last C9 in Part 1 and instead paste in Part 2. Then delete the last C9 in Part 2 and paste in Part 3.

That's how we arrive at our first formula. Cell 10 is:

```
=IF(AND(Handicap<SI,C9>Par+1),Par+1,IF(AND(AND(Handicap>SI,Handicap<28,C9>Par+2)),Par+2,IF(AND(Handicap=28,C9>Par+3),Par+3,C9)))
```

You can replicate this across the columns and down the alternate rows.

To produce the player's latest handicap we calculate the differential in column N. The total par for this course is 72: 36 out and 36 homecoming. All column N does is record the difference between the player's total adjusted scores for each game and 36. On 30/9/75 his adjusted score was 10 over par, so his differential is 10.

Where we need another spreadsheet function is to average his 10 best differentials out of his last 20 games. We only

Hole Nos	1	2	3	4	5	6	7	8	9	Out
Par	4	3	4	4	5	3	5	4	4	36
SI	6	16	12	2	10	18	8	4	14	

Dates played	Scores played	Total H'cap	Diff
Actual 10/9/75	6 4 5 5 8 6 5 5 5	49	15
Adjusted	6 4 5 5 7 4 5 5 5	46	10
Actual 1/10/75	6 3 4 5 9 3 5 5 5	45	15
Adjusted	6 3 4 5 7 3 5 5 5	43	7
Actual 5/10/75	4 3 5 5 7 3 6 4 7	44	15
Adjusted	4 3 5 5 7 3 6 4 6	43	7

Handicap	=M4:99 \$M\$28
Par	=C3:95 \$K\$5
SI	=C6:96 \$K\$6

**Fig 1 Working out a new handicap based on the first nine holes of the player's regular course**

### EXCELent shortcuts and longshots

- **CHECK IT** Choose File, Open, Library, audit.xla. Then Formula, Worksheet Auditor, Map Worksheet. This macro makes it easy to spot sequential peculiarities. Every cell is classified as Text, Formula, Number, Logical or Error.
- **CLICK IT** A double-click on a cell containing a formula highlights the cells to which the formula refers. Unless the cell contains a note, in which case you see the note.
- **DISPLAY IT** Want to see two parts of your worksheet at once? Choose Window, New Window, Arrange, Horizontal. To close that window press Ctrl+F4.
- **HELP IT** Because of the way Excel allocates memory, given a choice, design your worksheet going down the rows rather than across the columns. And link several efficient smaller worksheets in a workbook to avoid creating a lumbering monster.
- **HIDE IT** To hide an icon like a microphone on your worksheet (see SAY IT), press Ctrl+6 twice (once turns it into a square).
- **HOP IT** Highlight a block then press Ctrl+. (period) and you can jump around to the four corner cells of the block. This also freezes the highlight temporarily so you can extend it without having to start again.
- **LOSE IT** Tired of that opening graphic and seeing Sheet1? Select the Excel icon and Program Manager, File, Properties. Edit the Command Line to c:\excel\excel.exe /e. (Yes, there is a space before the e switch.)
- **SAVE IT** Want to save your work at automatic intervals just like in Word? Transfer the autosave.xla file into the XLSTART directory.
- **SAY IT** Choose Edit, Insert Object to display a list of objects registered in your system. If you have a sound card, you can add a voice annotation to your worksheet. Excel displays a microphone icon. Click on it to play back the message.
- **TRICK IT** Can't get Excel to respond to instructions for your printer? Make the settings you want in a document in another Windows application like MS Word or MS Works, then switch back to Excel.

have three games to work with in the example but imagine that he's played 20. Highlight the differentials for the 20 games in column N and Name it, say, Scores.

There are a number of formulae you could use here but this one works well:

```
=AVERAGE(SMALL(Scores,1),SMALL(Scores,2),SMALL(Scores,3),SMALL(Scores,4),SMALL(Scores,5),SMALL(Scores,6),SMALL(Scores,7),SMALL(Scores,8),SMALL(Scores,9),SMALL(Scores,10))
```

The SMALL function finds the lowest number in a data set, SMALL(Name,1); or the next to smallest, SMALL(Name,2); and so on. It allows correctly for ties. So we find the lowest 10 numbers and average them. That's the player's handicap.

### Financial analysis

Moving on down the financial analysis template for service companies, we now come to the first Activity Ratios. The panel overleaf gives the listing for the two ratios which are traditionally recorded as Times ratios and the two which are usually quoted in Days. You may recall that a ratio may be quoted as 2 to 1, or 2:1, or 200% (percentage), or 2/1 (fraction), or 2 Times. They all mean the same thing. There just

happen to be conventions for expressing different ratios, sometimes varying according to the industry.

Rows 44, 48 and 52 are blank. Column A gives the definition. Column B gives the formulae. These can be replicated across columns C through F because we're using the Names created in the July edition of this column.

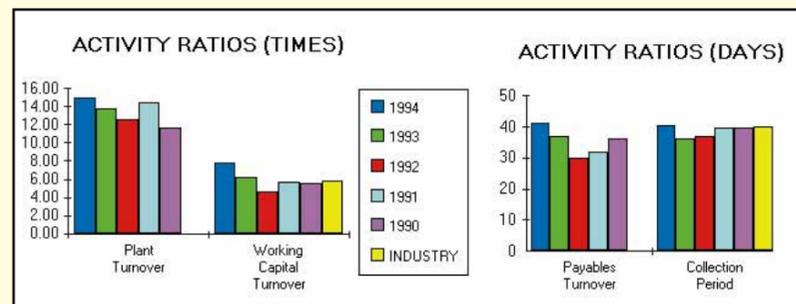
The average results for the company's industry which can be found for comparison are entered in column G.

Fig 2 shows the outcome if you enter the sample financial results given in the July and August issues' columns. Fig 3 shows the resulting charts.

I would reiterate that the ratios produced by this template should be examined for trends and also compared with others in the industry, if available. Reference to a high ratio, here, means that it is higher than the median ratio for the industry, or a trend to a higher ratio over the five years of the company's results. Conversely, a low ratio means lower than the average for the industry, or trending down each year for the company.

As we're using an advertising agency's results for the example, total revenues are

Microsoft Excel						
File Edit Formula Format Data Options Macro Window Help						
F51	=Ave_Accounts_Receivable/Billings*365					
	A	B	C	D	E	F
44						
45	<b>ACTIVITY RATIOS (TIMES)</b>					
46	Plant Turnover	14.98	13.71	12.58	14.43	11.62
47	Working Capital Turnover	7.75	6.19	4.57	5.74	5.52
48						5.80
49	<b>ACTIVITY RATIOS (DAYS)</b>					
50	Payables Turnover	41	37	30	32	36
51	Collection Period	40	36	37	40	40
52						



not referred to as Sales but as Billings because they include all the client's media and production budgets. The gross income of the agency is usually called Commissions and Fees — that's why the Plant Turnover and Working Capital Turnover ratios for service companies are not based on total revenues as they are with companies which carry stock.

If the Plant Turnover ratio is increasing it can indicate that the company is using its investment in plant and equipment with increasing efficiency. But filing cabinets may be filling up and the PCs becoming dated so this category may also be reaching its capacity level. If this ratio has declined over a number of years it suggests that sales have not kept pace with increases in such capital investments.

To summarise: the higher the sales level with existing plant and equipment, the more profitable the company will be. But it is important to recognise the point when this is reaching its capacity level.

A high Working Capital Turnover can indicate that the company is over-trading for its industry. If sales increase dramatically,

**Fig 2 (top)** Example results for the first Activity Ratios on the financial analysis template for service companies

**Fig 3 (above)** Charts of the results shown in Fig 2, with a shared key box

more Working Capital is required. But if the higher turnover rate of Working Capital can be sustained comfortably, then a low Current Ratio may suffice.

The lower the Working Capital Turnover ratio, the less hassle you get from creditors. But a low ratio may indicate that the company is carrying more liquid assets than needed. A low Working Capital Turnover should be compensated by a higher Current Ratio.

To summarise: this ratio shows how many £s of sales the company is making for each £ of Working Capital. Working capital is needed even in service businesses to carry ensuing accounts receivables after work has been carried out for clients and until the money comes in. However, if this ratio is lower than customary for the particular industry, it indicates

an unprofitable use of Working Capital.

Payables Turnover shows the average number of days that the company is taking to pay for its purchases. If the number of days taken to satisfy creditors is trending up over the years, it is likely that the company's Working Capital is declining in relation to sales. If the ratio is low, it confirms that the company is prompt in paying.

To summarise: if a company prefers to deal with the best suppliers, it should pay vendors' bills as promptly as is expected in the particular industry.

Prompt payment may seem to be foregoing a cheap line of credit but in the long run it can pay when a company needs a supplier to come through with the best price or faster service. The Collection Period is the number of days taken to collect receivables. If debtors are increasingly taking advantage of the company from year to year it indicates that an increasing amount of Working Capital is being tied up in uncollected bills.

When compared with credit terms norms for its industry, the quality of the receivables can be determined: the longer a receivable is taking to collect, the less likely it is to be collected, because neglected receivables become bad debts.

The fewer days, the faster the company is collecting what is due from its clients. You have to consider selling terms. A company with a high proportion of cash sales will have a low average ratio. And too low an average collection period compared with the company's industry and company policy suggests that credit is being restricted too much. It could be excluding marginal customers whose purchases could bring in additional revenue.

To summarise: this ratio partly measures the internal collection efficiency of the company, indicates the chance of bad debt write-offs, and offers a comparison of the company's receivables position with others in its industry if the averages are available.

Next month, we'll consider the five Activity Ratios which are measured as percentages.

### Financial analysis template listing

A45 ACTIVITY RATIOS (TIMES)  
 A46 Plant Turnover  
 B46 =Commission\_\_Fees/Net\_Plant\_\_Equipment  
 A47 Working Capital Turnover  
 B47 =Commission\_\_Fees/Working\_Capital  
 A48  
 A49 ACTIVITY RATIOS (DAYS)  
 A50 Payables Turnover  
 B50 =Accounts\_Payable/Billings\*365  
 A51 Collection Period  
 B51 =Ave\_Accounts\_Receivable/Billings\*365

### PCW Contacts

Stephen Wells welcomes comments on spreadsheets and solutions to be shared. Send them to PCW Editorial at the usual address or to [stephen\\_wells@pcw.cmail.com](mailto:stephen_wells@pcw.cmail.com). For the financial analysis Excel templates for service companies and those which carry stock, send a formatted 3.5in disk and a stamped, self-addressed envelope.