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Mixed Referencing and Named Ranges

Let's talk about mixed referencing and named ranges.

One of the points of best practice in financial modelling is to have exactly the same formula all the way across and all the way down the block of data. In order to do that you need to understand where the dollar signs (\$) go.

For example, let's say you are borrowing \$250,000 at a rate of 7.5% in this example here. Let's do this in Excel. You should have a copy of this exercise which you can follow along with me or you can just watch what I am doing here. \$250,000 multiplied by 7.5% - now if you wanted to copy this across and down it wouldn't work because your references will change. What I would need to do is to say that multiplied by that and so on and we would be here all day. Instead of that it is much better practice to say equals, left arrow; in fact, it's even better to not use your mouse at all. It's much better ergonomically if you can try to use your keyboard shortcuts as much as you possibly can rather than going from keyboard to mouse, keyboard to mouse.

I am going to create this without even touching my mouse at all. I'm going to say equals, left arrow, hit F4 three times until I get the dollar sign (\$) in front of the A and then multiplied by up arrow, hit my F4 again until I get the dollar sign (\$) in front of the 1. That is because I want to anchor the A. If you want to anchor the column, you put the dollar sign (\$) in front of the column. If you want to anchor the row, you put the dollar sign (\$) in front of the row. Now what I can do is say up, Ctrl C to copy, hold down the shift key and right arrow across, right arrow down and hit enter. That way I have exactly the same formula all the way across and all the way down. This is a really important point in financial modelling and we are going

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to be doing this right throughout the course. It's really important that you get the hang of this. I recommend that you pause the video for a moment, open the file and have a go yourself. Make sure you that you understand the concept of mixed cell referencing. If you want to copy across and you want the column to be anchored, then you put the dollar sign in front of the column. If you are copying down and you want the row to be anchored, you put the dollar sign in front of the row. This is going to save you a huge amount of time and not to mention it's going to reduce the possibility for errors in your financial models.

Let's put this into an example. Here we've got a capital budget - a schedule. I'm going to multiply this out. Follow along with me, you have a copy of this file so you can work along with me. Then you can copy this down here. I haven't had to worry about any dollar signs (\$). You can see here that this is just relative referencing so that when I copy it down the formulas copy with me. When it comes to this one here, if I spent the item in June then I want it to show up in my schedule in June. If I spent it in February, I want it to show up in my schedule in February. I am going to use an IF statement to say if my end date matches the date in my schedule, then I want to populate it there. I want to show over the course of the calendar year and what the spend is going to be over the next twelve months. I've got fourteen items, so if I highlight it there, I can see the count at the bottom right hand side. I have got fourteen items and I'm going out for twelve months so there is quite a lot of cells that I need to populate. This is where the dollar sign (\$) using mixed referencing is going to make my life a lot easier.

What we will do now is put in an IF statement to say IF this date here, hit F4 a couple of times until we get the dollar sign (\$) in front of the 2, as we want to anchor the row so that when we copy it down it's always looking at the date at the top. If that cell there, is equal to the spend date in column F; we want anchor the column but not the row. If they are equal to each other, the value of true is going to be the total which is in column E, hit F4 again until you anchor column E. Value of true is going to be the total cost and value of false is going to be a zero, close bracket. What I can then do is copy it all the way across and down the block. That way I have consistency of formulas and it makes it a much quicker process to populate all of the data in my schedule. I can go in and put in a SUM. ALT equals is your

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shortcut to put SUM in, copy all the way across and then I can do exactly the same over here, ALT equals and copy it all the way down.

A good financial modeller is always looking for opportunities to put in error checks and here is a situation that you know that total there should be equal to that total there. A very simple error check is to simply say that cell minus that cell so that if there is a number there or a problem it's going to pick up the fact that it is not the same. Here's an example of how using mixed cell referencing can make it much quicker to build a schedule in a financial model.

Let's have a look now at named ranges. Coming over to the next tab. Let's say we have a very simple calculation - A3 multiplied by B2. If I copied that down, of course that wouldn't work so what I need to do is F4 in there to anchor in, but that's not mixed referencing which is both a dollar sign in front of the row and in front of the column so when I copy it down its going to be exactly the same. That cell is called B2 (the name of the cell). I can go into the name box and rename it Price. Make sure you hit the enter key afterwards and now I've named that cell so I can go anywhere throughout my entire financial model and I can put equals Price. I can go back over to my schedule even and say equals Price and it knows what I am talking about. That becomes the defined name within the formula. Because I had already created that formula before I created the named range, it has not picked up. I just need to go in and put it over the top and that will put in Price and I can copy that down.

The advantage of using a named range is I don't need to worry about putting any dollar signs in. It does make your formula a bit easier to read. Rather than seeing B2 you see the word Price. It makes it easier for other modellers to read your formulas.

Here are a couple of points on using named ranges.

It makes your formulas easy to follow. You don't need to worry about putting in any dollar signs because by default a named range is an absolute reference. You can use then in macros if you'd like to and if you are going to link between external files then using a named range is really good practice. You can't use spaces or special characters when you're creating a named range. If you make a mistake or you want to rename it, you can just go

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into the name manager to edit and you can also use some dynamic named ranges as well by going into name manager and putting some formulas in there as well.

Using mixed cell referencing and named ranges is an important technique for building financial models.