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Chapter 9

Escalation Methods

Let's talk about different ways of modelling escalation when it comes to financial models. This is a fairly common sort of calculation and when someone says to you, we are doing our budget, we are doing our forecast for next year, I want you to take last years and increase it by 10%, sounds pretty easy. But when it actually comes to modelling it, there is actually several different ways you can do it. Is it compounding, is it non-compounding, when you are forecasting over time, the way you actually design your model, you really need to think about how you design it before you get stuck in and start building it. Let's take a look at that.

If you can open the file called escalation methods, if you open that one up and we will work through a couple of examples. What we got there is a fairly simple method, we have got a 5% increase, we start with $5015 and we are going to increase that by 5% every year. We just say that, multiplied by – so the most common way of doing this is to say, one plus the growth rate. So multiply it by one plus the growth rate. We start with that amount and multiply it all by 105% basically, that is a really common way of doing it.

We say multiply it by one plus 5%, fix your referencing by F4 close bracket and copy it across. You can see there, that it is increasing each year on year, so that's compounding, which is pretty straight forward. If you want to short cut that by the way you can use this Future Value Function, which would give you exactly the same result but in a short cut. You can get straight from here to here in one single step, which might be what you want, but most of the time we want to see year by year how each of them is changing. I probably wouldn't recommend going straight to the Future Value, but that's just another function you could use if you like to.

Alternatively you can have it non-compounding, if you want to do that you would say that fix the amount to there and multiply it by that. We say 100%, 105, 110, 115 on like that, so that's how you would model it and if you doing the advanced financial modelling course, when we go to do our escalation and our factory rollout model, this is the way that we are

going to be modelling our escalation in that model. We would calculate it like that, let's just get rid of my dollar sign and my extra decimal places in there and copy it across.

Now the problem with those two methods is that you only got a single growth rate, that growth rate isn't going to change, what if one year it is 5% and the next year it is 5.5 and if the year after that it goes down to 5.2, by the way you have designed this model you've really restricted it, you can only have a single growth rate. If you want to change that growth rate, you have to change the growth rate for every single year. The way that you modelled it makes it quite restrictive, so just think about that when you putting together your model. It is actually a better way if you would have had a different growth rate every single year.

To do that you would design it like we have it in this third option, you would have a different growth rate across the top like that, we say like that multiplied by one plus except you have it linking to that cell there and then you can change that. So copy that across like that, so that is a little bit better way of doing it. Alternatively if you wanted to do it in one step you could use the FV SCHEDULE, so that will get you to exactly the same result in one single step, just bear in mind that is not available in the previous version of Excel. It is one of those new fancy formulas that are available in the new version.

Again you could do exactly the same thing with a non-compounding with a varying growth rate. We would do that like this, multiplied by 105%, would be the easiest way of doing it, lots of extra decimal places in there and copy that across. That's all fine when you are doing your compounding calculations you can multiply one plus the previous one, so compounding is just multiplying on itself getting larger and larger over time. However, when you are doing more complex modelling, sometimes you can't actually refer to the previous one, you have to go back to the original amount. That gets a little bit more complicated. To do that you need to be able to do to the power off, for example if you are doing a growth rate of inflation, you would say one plus inflation times inflation, and so to do that you need to do to the power of and that's the little hat symbol which is usually above the 6 on your keyboard and we will do that and then have a look on how that is actually used in practical modelling.

To do that you would say the start amount there multiplied by one plus the growth rate if you had a single growth rate to the power of the period and that could be one, two, three… so what the options are you can type in a one, two, three, four across the top or if you want to be very clever you can say one which would be 2015 minus 2014 and if you fix the original reference like that it will say to the power of 15 minus 14 which is one and then it would go to 16 minus 14 which is 2. It will say to the power of 1, to the power of 2, to the power of 3 or you could just say one, two, three, and four across the top either is fine. Just put in our dollar signs and just copy it across like that.

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That would be used in an example when you got a start date and an end date, if you are doing the intermediate financial modelling course, where we look at a business case and we are looking at staff, we got starting and ending at certain times and that's using this method where you are looking at to the power of a certain amount. That's a practical example of how you would use that sort of escalation method.

Escalation is not a straight forward as you thought it was. There is actually several different ways of doing it. Before you start putting escalation or growth amounts into your model, just have a thing about the design, the layout and which method of escalation modelling you want to use.

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