

Portfolio123 Virtual Strategy Design Class
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Supplement 3 – Cost of Capital; (3) Keeping it Simple

In Cost of Capital Part 1, we defined Cost of Capital, or WACC, and discussed some serious practical problems implementing it. In Part 2, we tackled the traditional approach. We used this formulation of WACC:

$$(WtD*CostD)+(WtP*CostP)+(WtC*CostC) \text{ where,}$$

WtD = Weight (%) of Debt

CostD Cost (%) of Debt

WtP = Weight (%) of Preferred Equity

CostP Cost (%) of Preferred Equity

WtC = Weight (%) of Common Equity

CostC Cost (%) of Common Equity

We used the Capital Asset Pricing Model (CAPM) to calculate Cost of Common Equity. Most important, we added quite a few if-then (EVAL function) rules to address data oddities that can often plague our results.

We got a tolerably usable set of results. But there remained two lingering concerns.

1. The results, although much improved over a basic WACC-CAPM model, did not cure all problems. For example, I set the minimum beta, for CAPM purposes, at 0.70. What about a tremendously risky company that winds up with an official database beta of -1.12? It can and does happen. Extreme volatility does not guarantee a high beta. In fact, such a stock could wind up with a very low beta if its volatility, high as it may be, runs counter to market trends. So use of a 0.70 beta may still produce an uncomfortably low WACC for such a firm. However, the virtue of the approach taken in Part 2 is moderation of extremes. As unrealistic as a WACC based on a 0.70 beta might be, the result is far superior to what we'd have gotten had we gone by the book and used a -1.12 beta! The latter would amount to a WACC that could actually come in below the risk free rate! So the transition from humiliatingly insane to merely irrational is actually a major leap forward. But it would still be nice if we can do better than merely irrational. (The same issues, of course, plague our approach to cost of debt.)
2. The protocol I supplied was l-o-o-o-o-n-g and complex. Sometimes, we just have to grit our teeth and accept that as the cost of developing and using really good strategies that enhance the probabilities of good out-of-sample performance. But there are still occasions when we can keep our eyes open for short cuts that while not as sophisticated as the big-boy approach, can still give us pretty much the same kinds of portfolio performance benefits.

In this Part, we're going to stick with the basic WACC formulation presented above, but we are going to streamline. We won't be setting any conditional boundaries. We won't be using any version of CAPM. We're going to compute the capital weights as we did, but instead of trying to come up with company-specific costs for each type of capital, we're just going to go with across-the-board assumptions for each capital item. We'll peg them to the risk-free rate so we don't trap ourselves in capital-cost assumptions that work for one point in time but prove too high or low for another. But we are going to use a single spread assumption for each capital item.

So the company-to-company variations will depend entirely on differences in capital structure. The approach will take no account of differences in costs for a particular capital item based differences in company risk.

Here's the screen:

- ShowVar(@DbtCost,(close(0,#tnx))*2/10)
 - *Cost of debt is established across the board at twice the risk-free rate*
- ShowVar(@PfdCost,@DbtCost+1)
 - *Cost of preferred is established across the board at one percentage point above cost of debt*
- ShowVar(@CostEq,@DbtCost+3)
 - *Cost of common equity is established across the board at three percentage points above cost of debt*
- ShowVar(@Dbt,ISNA((DbtTot(0,qtr)+DbtTot(1,qtr)+DbtTot(2,qtr)+DbtTot(3,qtr)+DbtTot(4,qtr))/5,0))
- ShowVar(@Capital, DbtTot(0,qtr)+ PfdEquity(0,qtr) + ComEq(0,qtr))
- ShowVar(@DbtWt,DbtTot(0,qtr)/@Capital)
- ShowVar(@PfdWt,PfdEquity(0,qtr)/@Capital)
- ShowVar(@EqWt,ComEq(0,qtr)/@Capital)
 - *This is similar to what you saw in Part 2. We establish the capital items, add them up and divide each by the total in order to calculate the weights*
- ShowVar(@CostCap,(@DbtWt*@DbtCost)+(@PfdWt*@PfdCost)+ (@EqWt*@CostEq))
 - *This is the standard WACC computation*

That's all there is too it.

The big question is whether it's worth using. Believe it or not, you may find it far more usable than you might suspect. The issue is how sensitive your strategies are (i) to cost of capital in general (ii) capital structure differences among companies and (iii) differing levels of business risk among companies.

While I can't speak for every model someone may come up with, my experience so far has been that strategies with which I've worked have not been especially sensitive to company risk, at least as defined for WACC purposes (bear in mind models often have other rules or rank factors that address risk). I have noticed some sensitivities to capital structure differences but a mixed bag. Depending on the type of model used and the sensitivities of other factors and rules, it's not impossible that you may see little sensitivity even to the use of any cost of capital assumption; i.e. situations where you can simply plug in a single heuristic assumption for all WACC uses.

Perhaps I or someone else may in the future come up with a WACC protocol that is a true difference maker. If that happens, I suspect it'll come about as a result of a completely new approach. That's why I'm going to continue into Part 4. The idea there will be not so much to give you something usable for today (although what I present won't detract from results if you were to actually work with it) but to inspire you to flex your creativity and blaze a new trail.

The most important thing accomplished today is that you now have a way to bring a rational cost of capital assumption into your models; at least into screening/buy rules. I haven't tried to adapt it to the ranking interface and I'm not sure that can work. But getting it into screening/buy rules is a lot because it opens the door to strategic ideas that had up till now seemed out of the question for p123. As many of you know, the benefits of opening the door to strategies that require cost of capital can be quite considerable. In my opinion, these benefits far outweigh the disadvantages that flow through my generous use of spit and chewing gum (similar to the adage about it being better to be approximately right than precisely wrong).

Next up will be the completely-out-of-the-box approach I mentioned at the end of Part 2.