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The Effects Of The Cost To Fund And Proceeds To Pay Back Capital On The Capital Structure Of A Real Estate Project.

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Abstract

The ultimate goal of this article is to model the capital structure involved in real estate. We will make several assumptions when modeling interest distributions, including whether it is a half-year rule. This will be based on the jurisdiction you are in. Also, costs won't grow with inflation, as illustrated in this article. Further research could be done to include inflation when building a development schedule.

1. Introduction

Now that we've got the assumptions in place, let's move over to the cash flow model. The first thing that we're going to do before we fill in any of these sections here is to see that we've got several sections to work through. We're going to set up the time periods here, and there are actually three rows that we're going to be working with. The first row is the date itself, where we're actually just going to list the dates in chronological order, which in this case are months. Then above that, we're going to be counting the periods. We want to know what period we're in as we move along. And then finally, at the top, we're actually going to label these periods with things like transaction date, construction starting date, construction ending date, etc. So that it's very easy to follow what's happening in the model. The first thing you can do is link column D to the transaction date, since that's the starting point of this entire model. So here's the transaction date: Then we're going to use the E-DATE formula to move across one month. All we have to do is refer to the previous date and then add a certain number of months, in this case just one month. So there's the E date. We can move this all the way to the end of our model. So scroll out all the way to the last period here in column A and fill it in, right? So we've got all the months in chronological order here. Now let's make a formula to count the time periods. We want to say that if. The current period that we're in is equal to up on the Assumptions tab. The transaction start date Then the value in that cell should be 0. Otherwise if. The date that's in that cell is cell D3. Is greater than After the assumptions tab, the transaction start date Then we take the number in the previous cell, which is the number here. And add one to it. Let's close the bracket, and let's anchor with F4 all the references to the Assumptions tab. So, it's zero this month. Let's fill it in and see what happens. And then it starts counting the months thereafter. Let's take that and fill it all the way to the end. We've got a total of 41 months in this timeline. And now, based on the dates that are here, we need to label the activities that are happening in this development project. If we go back to the dual summary, we see that things like transaction date, sales start, construction start, and construction end There are important dates that we want to flag in the model, so we're going to build a formula to do that. Now we're going to combine the INDEX and MATCH formulas, which we've covered in our Advanced Excel Formulas course, to look up the dates and find the labels. Let's start with the Index. [Let's flip over to the assumption section. We're going to select the entire table here for the schedule, including the row at the top, which is the header. Anchor that with F4. Put a comma, and so what it's asking us to do is indicate which row and which column the information that we want to pull out is contained in. So we index this whole table. We tell it what row and what color. Well, the row Is going to depend on what cell would be looking up in the cash flow model. So we're going to match, for example. In the actual model. In the current period that we're in, which is in cell D3, we're going to look for that value, which in this case is the 1st of April. We're going to look for that within this table here, the anchor that's in place with that four, and put zero for an exact match. Excel is going to wait for April 1st. It's going to find it in the second row. So essentially, you can think of this whole formula here as just adding the number 2 to the second row. Now we need to tell it what column to look at. The column that we want to output is column number one, so we can just put one because all the outputs here are in the first column. Then we can close the bracket and press enter. So there we have the transaction date. Perfect. That's what we'd expect. Let's make this right. A few more columns to see how it works. There we see a construction start date of October 1st. Let's double-check that construction starts on October 1st. Perfect. But we do have these NA error messages that we want to get rid of. So in order to do that, we can wrap this with if error. The error formula just produces a message if there is an error, so we put a comma at the end, and then let's put two quotes so it will look like the cell is empty. You will just essentially put no text into the cell, and we can fill that in, right? And see that it cleans up these other cells that don't have any information about these things. So here's our construction start point. Let's fill this all the way to the end.

1.1 Purpose of the Study

The purpose of the study was to analyze the impact of cash flow on funding debts in a real estate development project.

1.2 Significance of the Study

The significance of the study is to come up with the total equity capital contributed by both general and real estate limited partners and how cashflows generated through home sales could impact the proceeds to pay back borrowed capital.

2.Literature Review

Now that it's done, we can see the key milestones of this project: when the transaction happens, when construction starts, when it ends, when sales start, etc. (Real estate financial modeling, 2020) Financial modeling, modeling, and valuation Analyst studies, Corporate Finance Institute Canada, 11–22. The one thing you'll have to keep in mind is that these dates at the bottom all need to be on the 1st of the month.

Because that's what we're looking for in these options here. We're only looking forward to the 1st of October. If construction were to start on the 2nd of October, it would not be possible to find that in this table. So, you see that it's looking for the first tier, but it starts on the second, so it can't get the answer. So, in this case, we're just taking a very simplified approach by saying that all the key dates start on the 1st of the month. That's just something to watch for, and this is how you set up your dynamic time periods.

Edate formular==EDATE(D3,1)

Where d3=Previous date

Dynamic period formular modelled in excel=

=IF(E3='Deal Summary'! E5,0,IF('Cash Flows - Monthly'! E3>'Deal Summary'! E5, Cash Flows - Monthly'! D2+1))

Where !E5=Transaction date

!E3=Date in the period

3. Methodology

3.1 Townhome revenue Modeling:

Now that we've got the time periods in place up here, we can calculate the absorption which is the rate at which the townhouses are sold and the rate at which they close. So in order to do that, we have to track the sales each month. Then we'll have the running total of cumulative sales. Then we'll track which townhouses are actually closed and the running total of those as well. All of that has to tie back, of course, to our total schedule here, where we have six units that are going to be sold. So let's build the formula here for townhouse sales. It's going to be a fairly complicated formula because a few things are happening. We need to know if it's the date at which sales start. Because if it's that day, we have several units that are sold all at once, and if it's beyond that date, we need to sell them at the specified absorption rate. So let's say that if the current date in the period is equal to, in the assumptions, the date at which sales start, The anchor that four Then the value that goes in that cell is going to be equal to the percent sold at commencement times the number of units. We have 35% that are all going to be sold right when sales start. That's just an assumption. You could change it however you see fit. Yeah. [The dates that were Are greater than The date at which the sales start Then what we need to do is figure out how many units are going to be sold, and we're going to be selling 3 per month. But there is a chance that there could be fewer than three units left to sell. As a result, we must increase the lesser number to a minimum of either 3 or 4. Or the difference between the total number of units. Minus whatever the cumulative amount that's been sold is. Prior to this point, there is going to be one column to the left here, Close brackets; otherwise, there aren't going to be any units to be sold. Let's close the bracket, close the bracket again, and press enter. Below that, we're going to calculate the cumulative sales, which is equal to

=MROUND(IF(D3='Deal Summary'! E6,'Deal Summary'! E10*'Deal Summary'! H10,IF('Cash Flows - Monthly'! D3>'Deal Summary'! E6,MIN('Deal Summary'! E11,'Deal Summary'! H10-'Cash Flows - Monthly'!C9),0)),1).

Where

The cumulative amount in the prior plus the amount sold is great. So with these two formulas in place, we can select them, and let's go all the way across to the point where sales start first of all, and let's just fill that, right? And you can see that we sell 21 units when sales start. That makes sense. And then we continue to sell three every month as we're building up our total here and approaching 60. Which is the grand total. Let's fill this all the way across now and see what happens when we go to the end. Let's kill that, right? And we can see that the cumulative stops at 60, which is perfect. So we sold the last three units this month, we hit a total of 60, and then there were none left to be sold. So we can't go any further than that. One last thing you can do here

with this formula is wrap M around. Around the whole thing to ensure that we're only selling a whole number of units, so we're going to round to the nearest one, meaning the nearest whole number. Press enter. And then we'll fill that all the way across. This just ensures that if we sell the initial percentage at the commencement of sales If 35% was not some whole number, we would be rounding it to the nearest whole number. So now our sales schedule is complete.

Or the number of townhouse closings each month, and then track the cumulative total closings as well. This is going to be almost the exact same formula as the townhouse sales. So we're going to build a formula that says if.The dates that were in Is equal to Give me the assumptions tab. The date that construction ends, the anchor of that four Then. You can multiply the assumption by the percent that closes on completion. Bye. The total number of units Otherwise if. The dates that were in Is greater than The date at which construction ends So we're past that date. Then, just like previously, we're going to have to use the minimum function, where we take the minimum of. The number of units we expect to close per month Or the difference between The total number of units minus The cumulative amount up until that point. And accumulative up until that point is a column prior to that. So then we can close the bracket; otherwise, we're going close to zero in that particular month and then double.] Now let's set up the cumulative running total just like before. The amount plus the amount closed in that month. We can take all this and fill it, right? Let's just go to this point. Build that right. And we see that we get 21 again when construction ends; that's what we wanted. Then we continue to close for a month. As we continue to increase the running total. And now let's fill it all the way to the very end. Go back, right? So we stop at 60 once again. So that's great; you can see that working. And just like last time, we will use the N round. To wrap around this full function, one must make it to the nearest whole number by a multiple of 1. And there we go. Now we've got our sales schedule here by month and our closing schedule here by month.

Figure 1

	Transaction Date						Construction Start					
Period	0	1	2	3	4	5	6	7	8	9	10	11
Date	1-Apr-17	1-May-17	1-Jun-17	1-Jul-17	1-Aug-17	1-Sep-17	1-Oct-17	1-Nov-17	1-Dec-17	1-Jan-18	1-Feb-18	1-Mar-18
Revenue Build Up												
Absorption												
Townhome Sales	-	-	-	-	-	-	-	-	-	-	-	-
Cumulative Sales	-	-	-	-	-	-	-	-	-	-	-	-
Townhome Closings	-	-	-	-	-	-	-	-	-	-	-	-
Cumulative Closings	-	-	-	-	-	-	-	-	-	-	-	-

										Sales Start
7	8	9	10	11	12	13	14	15	16	17
1-Nov-17	1-Dec-17	1-Jan-18	1-Feb-18	1-Mar-18	1-Apr-18	1-May-18	1-Jun-18	1-Jul-18	1-Aug-18	1-Sep-18

-	-	-	-	-	-	-	-	-	-	-	-	-	21									
	-	-	-	-	-	-	-	-	-	-	-	-	-	*21*								
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
	-	-	-	-	-	-	-	-	-	-	-	-	-	-								

18	19	Construction End 20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
1-Oct-18	1-Nov-18	1-Dec-18	1-Jan-19	1-Feb-19	1-Mar-19	1-Apr-19	1-May-19	1-Jun-19	1-Jul-19	1-Aug-19	1-Sep-19	1-Oct-19	1-Nov-19	1-Dec-19	1-Jan-20	1-Feb-20	1-Mar-20	1-Apr-20	1-May-20	1-Jun-20	1-Jul-20	1-Aug-20	1-Sep-20
3	3	3	3	3	3	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-
24	*27*	*30*	*33*	*36*	*39*	*42*	*45*	*48*	*51*	*54*	*57*	*60*	*60*	*60*	*60*	*60*	*60*	*60*	*60*	*60*	*60*	*60*	*60*
-	-	21	4	4	4	4	4	4	4	4	4	3	-	-	-	-	-	-	-	-	-	-	-
-	-	*21*	*25*	*29*	*33*	*37*	*41*	*45*	*49*	*53*	*57*	*60*	*60*	*60*	*60*	*60*	*60*	*60*	*60*	*60*	*60*	*60*	*60*

Now let's build the revenue schedule for this development. We'll start with We'll start with gross sales. We'll subtract the sales commissions that are paid to Realtors and the warranty fee to get the net revenue. Let's bring forward the average selling price per unit in the model. The average selling price per unit is right here: 666,000. We formatted that to be green because it's linking to another worksheet. Now let's bring forward half of the commission. The Commission's assumption is 4 1/2 percent. That's anchored out of those four. And then we can multiply it by the 50% assumption because we're only counting half on sale and half on close. So we've got the idea that the second half is going to be equal to the first half. The warranty per unit can also be found on the Assumptions tab. The warranty per unit is right here. Let's just flip the sign and bring it up as a positive number. Now let's start calculating townhouse revenue. The revenue doesn't actually occur until the sale closes. So we're going to focus on closings, not sales, to calculate our revenue. So our revenue is going to be equal to the number of closings in the month. Multiplied by the average price. So nothing's going to kick in until we start closing some sales, and then we're going to calculate the first 50% commission that happens on a sale. So we're going to actually have to take the sales this month and multiply the number of sales by the average selling price. And then multiply it by this commission's assumption. And we will show all this. As a negative number for an outflow, we cache it, and then we calculate the second commission. The second commission is based on closings. So we can actually take The number of closings Multiplied by the average price. Multiplied by this commission's assumption. And again, we can make it negative by making it a cash outflow. And then finally, the warranty is going to be equal to the number of closing units multiplied by the warranty assumption per unit, and we'll show that as a cash outflow as well. So the total net revenue is the sum of all of these items. Now let's select all of this and fill it to the very right. So let's see what these numbers look like. As we would expect, the revenue stops when the closing stops. So that makes sense. You can see that the revenue ends there, and we can see that the revenue starts here when construction ends and the closings begin. So this is where our revenue starts. And then you can see that there is a portion of negative cash flow that has to be funded up front by the developer, which is those early realtor sales commissions. So now we have our revenue schedule all in place, as demonstrated below.

Revenue Build Up																						
Absorption																						
Townhome Sales		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21	3	3	3
Cumulative Sales		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*21*	*24*	*27*	*30*
Townhome Closings		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21
Cumulative Closings		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*21*
Revenue																						
Townhomes Sales	$666,667	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14,000,000
Less: 50% Commissions	2.25%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*(315,000)*	*(45,000)*	*(45,000)*	*(45,000)*
Less: 50% Commissions	2.25%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(315,000)
Less: Warranty	$1,500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(31,500)
Total Net Revenue		**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**($315,000)**	**($45,000)**	**($45,000)**	**$13,608,500**

Period From when construction ends demonstrated below

Construction End	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
	1-Dec-18	1-Jan-19	1-Feb-19	1-Mar-19	1-Apr-19	1-May-19	1-Jun-19	1-Jul-19	1-Aug-19	1-Sep-19	1-Oct-19	1-Nov-19	1-Dec-19	1-Jan-20	1-Feb-20	1-Mar-20	1-Apr-20	1-May-20	1-Jun-20	1-Jul-20	1-Aug-20	1-Sep-20
	3	3	3	3	3	3	3	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-
	30	*33*	*36*	*39*	*42*	*45*	*48*	*51*	*54*	*57*	*60*	*60*	*60*	*60*	*60*	*60*	*60*	*60*	*60*	*60*	*60*	*60*
	21	4	4	4	4	4	4	4	4	4	3	-	-	-	-	-	-	-	-	-	-	-
	21	*25*	*29*	*33*	*37*	*41*	*45*	*49*	*53*	*57*	*60*	*60*	*60*	*60*	*60*	*60*	*60*	*60*	*60*	*60*	*60*	*60*
	14,000,000	2,666,667	2,666,667	2,666,667	2,666,667	2,666,667	2,666,667	2,666,667	2,666,667	2,666,667	2,000,000	-	-	-	-	-	-	-	-	-	-	-
	(45,000)	*(45,000)*	*(45,000)*	*(45,000)*	*(45,000)*	*(45,000)*	*(45,000)*	*(45,000)*	*(45,000)*	*(45,000)*	*(45,000)*	-	-	-	-	-	-	-	-	-	-	-
	(315,000)	(60,000)	(60,000)	(60,000)	(60,000)	(60,000)	(60,000)	(60,000)	(60,000)	(60,000)	(45,000)	-	-	-	-	-	-	-	-	-	-	-

(31,500)	(6,000)	(6,000)	(6,000)	(6,000)	(6,000)	(6,000)	(6,000)	(6,000)	(6,000)	(4,500)	-	-	-	-	-	-	-	-	-	-	-
$13,608,500	**$2,555,667**	**$2,555,667**	**$2,555,667**	**$2,555,667**	**$2,555,667**	**$2,555,667**	**$2,555,667**	**$2,555,667**	**$2,555,667**	**$1,905,500**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

3.2 Determination of Cost to fund and proceeds to pay back capital

Now we're going to start building our development cost schedule, which consists of both capital costs and operating expenses. Let's begin with the land acquisition formula. We're going to build a formula that says if the time period we're in is in the model. Is the date at which this commences, then we have to have that outflow of capital. Otherwise, there's no other capital, just a one-time expense. So, we're going to say if: The current time is equal to On the Assumptions tab here. Transaction date, then we're going to take the land acquisition costs as an outflow, so we'll have it as a negative number. Otherwise, 0 because there are no other costs in any other data. Next up is preconstruction spending. Let's go over to the assumptions, and you'll see we've actually got a spot here for pre-construction spending. Let's enter a number here: $100,000 a month. Let's assume that we've been given that number either by the client or by someone on our team, and we can use that as a reliable estimate of what the spending is going to be. Until construction starts. So now the formula in this row is going to be equal to if. The time period they were in Is less than On the Summary tab, here is the construction start date. Then we're going to draw $100,000 a month. Otherwise, zero, and then Let's also flip that to be negative. We're showing it as an expense. There's an outflow of cash there. So we've got $100,000 there. So looking at the formula, we want to make sure we're always anchoring in the right spots. Same with this one here. We always want to anchor. The assumptions in the deal summary By pressing F4 to hold those anchors in place. Let's take these two items, select them, and fill them all the way across. So fill that in right? Let's scroll over and see how this is working. So we have the $100,000 per month going all the way up until the month prior to construction starting. So that's perfect. Then we can sum up in this column and column C. The total pre-construction spending So let's select all these cells. We have a total of $600,000 that will be useful in our formula here for the construction spending, and this formula is going to be an if statement once again. And we're going to save it if The time period that we're in Is greater than or equal to The construction start date assumption is here. And we're going to make another condition by making a nested if statement. The date that we're on in the model is the current time. Is the less than or equal to? The construction end date So you can see how we're setting up parameters here to say that we have to be. greater than or equal to the start date but less than or equal to the end date. Then, if both of those things are true, then what we want to do is put them in brackets here. And in the negative sign, the total development costs plus the amount that has already been spent on preconstruction are minus that number. Both of these need to be anchored in place. We're going to take that and divide it by the number of months for construction, so we're getting an average monthly construction spending number. Otherwise, if that's not true, there's no spending, and then we do zero again if the other if statement is not true as well. And press enter. Now let's go into our formula and make sure it centers properly. Everything in the deal summary section should be anchored. So we want to anchor this reference to 8. And all the others are anchored. Let's press enter. Then let's try filling that in until construction starts. We see here that construction spending does kick in right when construction is supposed to start. That's perfect. Now let's fill this all the way over. There we go. And we're going to calculate the total here. By filling that formula down for pre-construction spending. We got 14,415,000. If we add up these two numbers, we got 15,015,000, and if we go back to our summary, 15,015,000 That's the correct number. So we know we've got the right amount of expenses flowing through. Let's sum up the total. We can fill this in. Control R. And then going back over to the end. You can copy and paste this to get the grand total. Copy this formula as well. And you can see that we got $29,015,000 as our grand total. And here on the summary sheet, we get 29,015,000 if you exclude these commissions, which we had already included in our build-up towards net revenue. So this expense of $900,000 is already embedded up here, so we don't need to double count it. So now we can see that all of the costs are getting picked up in the model here, and everything's flowing through.

3.3 Cost to fund and proceeds to pay back illustration

Now we're going to start calculating the costs that we have to fund. And in order to do that, we're going to start by adding up the cumulative development spending. It's just whatever the total was in the prior year plus the spending in the current year. Then the cumulative spend post-financing means we must consider down here the interest that's accrued in the period. So, what we do is take The prior amount plus costs in the period plus the accrued interest, and then we have the number. Now let's set up the formula for the cost of funds. We're going to say that if that opens up a second bracket for cash inflows plus cash outflows are less than 0. Then we're going to produce that value. We're going to take the cash inflows from the outflows and put them in the cell. Otherwise, there are zero-cost funds, so otherwise, zero. So in this case, we've got $14,100,000 to fund. Now let's use the proceeds to pay back capital. This is sort of the opposite formula. In this formula, we're saying if. Let's open the second

bracket. The cash inflows plus the outflows If it is greater than 0, then give us that number. Give us the difference between the inflows and outflows. Otherwise, it is 0. And then you got that number there. Now let's take everything we calculated here and go all the way to the right. So now we have these numbers. I'll scroll across and see what it looks like, so we can see the positive cash flow that we have in some of these periods. Or we are paying, and you can see the negative cash flows that we have in some of these other periods where we have a cost of funds.

Demonstration below: Revenue as an inflow of cash was demonstrated in the figure above. Below is the cost to fund and the proceeds to pay back.

Figure 2

Pro Forma Cash Flows	Period	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	Date	1-Apr-17	1-May-17	1-Jun-17	1-Jul-17	1-Aug-17	1-Sep-17	1-Oct-17	1-Nov-17	1-Dec-17	1-Jan-18	1-Feb-18	1-Mar-18	1-Apr-18	1-May-18	1-Jun-18	1-Jul-18	1-Aug-18	1-Sep-18
Revenue Build Up																			
Development Costs																			
Land Acquisition	($14,000,000)	(14,000,000)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pre-Construction Spending	($600,000)	(100,000)	(100,000)	(100,000)	(100,000)	(100,000)	(100,000)	-	-	-	-	-	-	-	-	-	-	-	-
Construction Spending	($14,415,000)	-	-	-	-	-	-	(961,000)	(961,000)	(961,000)	(961,000)	(961,000)	(961,000)	(961,000)	(961,000)	(961,000)	(961,000)	(961,000)	(961,000)
Total Development Costs	**($29,015,000)**	**($14,100,000)**	**($100,000)**	**($100,000)**	**($100,000)**	**($100,000)**	**($100,000)**	**($961,000)**	**($961,000)**	**($961,000)**	**($961,000)**	**($961,000)**	**($961,000)**	**($961,000)**	**($961,000)**	**($961,000)**	**($961,000)**	**($961,000)**	**($961,000)**
Cumulative Development Spend		*($14,100,000)*	*($14,200,000)*	*($14,300,000)*	*($14,400,000)*	*($14,500,000)*	*($14,600,000)*	*($15,561,000)*	*($16,522,000)*	*($17,483,000)*	*($18,444,000)*	*($19,405,000)*	*($20,366,000)*	*($21,327,000)*	*($22,288,000)*	*($23,249,000)*	*($24,210,000)*	*($25,171,000)*	*($26,132,000)*
Cumulative Development post Financing	*Spend*	*($14,092,708)*	*($14,178,104)*	*($14,263,457)*	*($14,348,767)*	*($14,434,034)*	*($14,519,258)*	*($15,464,038)*	*($16,405,967)*	*($17,345,038)*	*($18,281,242)*	*($19,214,571)*	*($20,145,016)*	*($21,072,570)*	*($21,997,222)*	*($22,918,966)*	*($23,837,792)*	*($24,753,693)*	*($25,666,199)*

Costs to Fund		**($14,100,000)**	**($100,000)**	**($100,000)**	**($100,000)**	**($100,000)**	**($100,000)**	**($961,000)**	**($961,000)**	**($961,000)**	**($961,000)**	**($961,000)**	**($961,000)**	**($961,000)**	**($961,000)**	**($961,000)**	**($961,000)**	**($961,000)**	**($961,000)**	**($961,000)**	**($961,000)**	**($961,000)**	**($961,000)**	**($1,276,000)**
Proceeds to Payback Capital		**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
Sales Start			Construction End																					
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
1-Sep-18	1-Oct-18	1-Nov-18	1-Dec-18	1-Jan-19	1-Feb-19	1-Mar-19	1-Apr-19	1-May-19	1-Jun-19	1-Jul-19	1-Aug-19	1-Sep-19	1-Oct-19	1-Nov-19	1-Dec-19	1-Jan-20	1-Feb-20	1-Mar-20	1-Apr-20	1-May-20	1-Jun-20	1-Jul-20	1-Aug-20	1-Sep-20
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

(961,000)	(961,000)	(961,000)	(961,000)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
($961,000)	**($961,000)**	**($961,000)**	**($961,000)**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
($26,132,000)	*($27,093,000)*	*($28,054,000)*	*($29,015,000)*	*($29,015,000)*	*($29,015,000)*	*($29,015,000)*	*($29,015,000)*	*($29,015,000)*	*($29,015,000)*	*($29,015,000)*	*($29,015,000)*	*($29,015,000)*	*($29,015,000)*	*($29,015,000)*	*($29,015,000)*	*($29,015,000)*	*($29,015,000)*	*($29,015,000)*	*($29,015,000)*	*($29,015,000)*	*($29,015,000)*	*($29,015,000)*	*($29,015,000)*	*($29,015,000)*
($25,666,199)	*($26,575,237)*	*($27,481,188)*	*($28,385,512)*	*($28,365,559)*	*($28,353,002)*	*($28,347,862)*	*($28,347,862)*	*($28,347,862)*	*($28,347,862)*	*($28,347,862)*	*($28,347,862)*	*($28,347,862)*	*($28,347,862)*	*($28,347,862)*	*($28,347,862)*	*($28,347,862)*	*($28,347,862)*	*($28,347,862)*	*($28,347,862)*	*($28,347,862)*	*($28,347,862)*	*($28,347,862)*	*($28,347,862)*	*($28,347,862)*
($1,276,000)	**($1,006,000)**	**($1,006,000)**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
$0	**$0**	**$0**	**$12,647,500**	**$2,555,667**	**$2,555,667**	**$2,555,667**	**$2,555,667**	**$2,555,667**	**$2,555,667**	**$2,555,667**	**$2,555,667**	**$2,555,667**	**$2,555,667**	**$1,905,500**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

4. Data Analysis and Interpretation

4.1 Debt financing and Interest

Now that we've completed the development cost section, where we see what expenses need to be covered, we can fill in the financing section. Let's just discuss conceptually how this is going to work. In the beginning, we're going to initially borrow the land loan amount. That's $5 million right here. And that gets drawn in the first period because it's used to acquire the $14 million property. Then there will only be draws in the future after the land loans are drawn when construction starts because that's when the construction loan kicks in. So the time period between land acquisition and construction starting has to be funded by equity. One second after the instruction starts, the construction loan kicks in. And then the repayments start after there's finally some positive cash flow that can be used to repay the loan. So conceptually, that's what's going to happen. We're going to take the land loan as the first draw to fund the property. When construction kicks in, we're going to draw more to fund all of those construction costs. And when we have positive cash flow in the future when construction ends, then we can start repaying some of that loan, and we're going to be calculating the accrued interest the whole time along the way. So in order to get ready to start building it, let's link in the assumption for the interest rate that's contained here on the Deal Summary tab. 3 1/2 percent fixed rate. Then we bought an opening balance that was going to start at 0. I just hard-coded that in at the beginning of the first period. There's nothing that's happened. This is the start of our model. So it has to start at zero. Then we have the initial drawing of the landline. So let's bring that number forward: $5 million to fund the $14 million land acquisition. And then we'll have a negative number here to illustrate repentance. So to get the repayments, it's going to be a negative number, and we're going to take the lesser of two things. Any positive cash flow that we have available in the period. So in this first case, that's zero, but down the road, we know that that number will be positive. So we'll take the lesser of whatever cash flows are available in the period. Or. Plus the accrued interest. Whatever's left to repay on the loan What that means is that we're never going to repay more than the amount that is due to be repaid. If, for example, there was an enormous amount of cash flow, that's why we take the lesser of those numbers and press enter. Now we have to calculate the interest that's accrued in the period, and this is where we need to make an assumption. There's going to be interest on the opening balance at the start of the period for the entire month, and there may or may not be interest on the draws in that month, depending on when the draws happen. If they happened on the first day of the month, there'd be a full month of interest. If they happened on the last day of the month, there'd be essentially no interest. And if it happened in the middle, of course, it would be half a month. So what we can do is use a mid-month assumption to calculate the accrued interest. So it's going to be equal to Let's open a bracket for the opening balance plus and open a bracket that draws in the period divided by two because we're making that mid-month assumption. And then all of that is multiplied by And let's open a bracket for the interest rate assumption locked with that 4/12 because that's an annual interest rate and we need to turn it into a monthly interest rate. So we divide it by 12. Now we can calculate the ending balance. That's just the sum of everything in this column in the schedule: the opening balance plus the draws minus the repayments plus the accrued interest. In the next period, the opening balance is equal to the prior. close and balanced. Now we have to calculate the draws, which are different from the first period where we were just taking the land loan. Now we're going to calculate the draws for the subsequent periods after the land level. You need a formula that says if the current time period that we're in in the model is greater than or equal to when construction has started. And if we haven't exceeded the limit, the maximum limit on our loan amount Then we're going to draw the amount that we need to fund in the period; otherwise, we're not going to draw any. So the formula is going to be equal to if. The current time period that we're in is greater than or equal to Let's go up to the construction start date. Which we anchor in place on the left fork. And if. Let's go back to the cash flows. The opening balance Is less than On the deal summary. The maximum loan amount Then. Back on the cash flow model, We're going to fund the costs that are required to fund it. But we're going to flip it to have a negative sign because we want it to be adding to the debt pile, not reducing it. Otherwise, we will draw zero, we'll bracket, and if the dates don't match, we'll draw zero as well, which is why we have the second zero and press enter. Now we've gone down in place. So now the formula for repayments, accrued interest, and ending balance Are the same as in the higher We can fill those across, and now we have everything we need to go to the end of the model and fill everything in. Now that we've got the entire schedule, let's walk through it and see what's happening. So you can see that as soon as construction starts right here, we start to have additional draws that fund construction. And as we go along, we see that things flip when cash flows turn positive. We start repaying as much as we can possibly repay. Until the balance gets to zero, we stop repaying. And all along the way, you can see the accrued interest as well, which ultimately gets repaid. So now we have our fully dynamic and fully linked-up debt schedule for this deal. Now that we've got the debt

schedule working, let's run a few sanity checks to see how everything ties together. Let's use the map function to calculate the maximum amount that's drawn, including the accrued interest during the life of the loan. So the peak is 19.4 million, including accrued interest. Let's also calculate the sum of all draws. This is the total principle that's drawn during the life of the loan. That's 18.89. And if we go back to the assumptions here, we see that the maximum loan amount was $20 million. So we are within that, which is great. What if this was reduced to 50%? The maximum loan amount would be $14.9 million. And if we go back here, we see that the total principal drawing is less than 14.9 million, with accrued interest being slightly more, but we see that we are essentially within the ballpark of what we are allowed to use with that covenant as it changes. Let's go back to 70% here. Now we can copy this formula. And paste it. Piece of this formula to preserve formatting. So we see that the total cost of borrowing is $19.5 million. Those are all the repayments. Which is equal to the total draws plus the interest. The sum of these two is $19.526 million. So the sum of all these should be 0, which is perfect. So now we see that this debt schedule is functioning exactly as expected. Additionally, now that we've calculated this total accrued interest expense over the entire life of the project, we can go back to the deal summary tab and see that that number has been pulled in here, so we can now see the total cost, including financing, for this deal. Below is a demonstration in Excel of all the narration regarding draws for land acquisition and repayments of debts and the maximum loan amount.

Figure 3

Pro Forma Cash Flows	Period	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	Date	1-Apr-17	1-May-17	1-Jun-17	1-Jul-17	1-Aug-17	1-Sep-17	1-Oct-17	1-Nov-17	1-Dec-17	1-Jan-18	1-Feb-18	1-Mar-18	1-Apr-18	1-May-18	1-Jun-18	1-Jul-18	1-Aug-18	1-Sep-18
Revenue Build Up																			
Development Costs																			
Financing																			
Interest Rate	3.5%																		
Opening Balance		$0	$5,007,292	$5,021,896	$5,036,543	$5,051,233	$5,065,966	$5,080,742	$6,057,962	$7,038,033	$8,020,962	$9,006,758	$9,995,429	$10,986,984	$11,981,430	$12,978,778	$13,979,034	$14,982,208	$15,988,307
Draws (Repayments)	$18,859,000	5,000,000	-	-	-	-	-	961,000	961,000	961,000	961,000	961,000	961,000	961,000	961,000	961,000	961,000	961,000	1,276,000
	($19,526,138)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Interest Accrued	$667,138	7,292	14,605	14,647	14,690	14,733	14,776	16,220	19,071	21,929	24,796	27,671	30,555	33,447	36,347	39,256	42,174	45,100	48,493

Ending Balance	**(0)**	**$5,007,292**	**$5,021,896**	**$5,036,543**	**$5,051,233**	**$5,065,966**	**$5,080,742**	**$6,057,962**	**$7,038,033**	**$8,020,962**	**$9,006,758**	**$9,995,429**	**$10,986,984**	**$11,981,430**	**$12,978,778**	**$13,979,034**	**$14,982,208**	**$15,988,307**	**$17,312,801**				
Max Loan Amount	*$19,431,812*																						

Sales Start			Construction End																				
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
1-Sep-18	1-Oct-18	1-Nov-18	1-Dec-18	1-Jan-19	1-Feb-19	1-Mar-19	1-Apr-19	1-May-19	1-Jun-19	1-Jul-19	1-Aug-19	1-Sep-19	1-Oct-19	1-Nov-19	1-Dec-19	1-Jan-20	1-Feb-20	1-Mar-20	1-Apr-20	1-May-20	1-Jun-20	1-Jul-20	1-Aug-20	1-Sep-20
$15,988,307	$17,312,801	$18,370,763	$19,431,812	$6,840,988	$4,305,274	$1,762,165	$0	($0)	$0	($0)	$0	($0)	$0	($0)	$0	($0)	($0)	$0	($0)	$0	$0	($0)	$0	($0)
1,271	1,001	1,001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

6,000	6,000	6,000																					
-	-	-	(12,647,500)	(2,555,667)	(2,555,667)	(1,767,304)	(0)	0	(0)	0	(0)	0	(0)	0	-	0	0	-	0	-	-	-	-	-
48,493	51,963	55,048	56,676	19,953	12,557	5,140	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)	(0)	0	(0)	0	0	(0)	0	(0)
$17,312,801	**$18,370,763**	**$19,431,812**	**$6,840,988**	**$4,305,274**	**$1,762,165**	**$0**	**($0)**	**$0**	**($0)**	**$0**	**($0)**	**($0)**	**$0**	**($0)**	**$0**	**($0)**	**($0)**	**$0**	**($0)**	**$0**	**$0**	**($0)**	**$0**	**($0)**

Now, we're ready to move on to the Levered free cash flow section.

5. Recommendation and conclusion

We can conclude by calculating the levered free cash flow as illustrated below so that we can calculate the equity IRR. And then return to the equity investors. This has a significant effect on the contributions by GPs and LPs to capital and ultimately determines what huddle rate these partners put in place to exceed.

We recommend analyzing distributions by investor type, as this will determine how much return each investor, whether a general partner or limited partner, receives after their contributions to a real estate development project.

We recommend that debts be paid down aggressively, as this will enhance equity returns for investors.

What we need to do then is take the cost of the required funds. This link is up here. And then the proceeds that are available to repay capital Then we got the loan draws. And loan repayments. If we add all of these up, we get the leveraged cash flow. And what this is saying is that there are $14 million in costs to fund. And there are five million that are coming in from debt financing. So the net amount is 9.1. If we select all this and fill it across the entire model, let's take a look at what this means here in the top row. We've got the cost, and then we've got the positive cash flows below that once we start selling and closing units. Then you bought the land loan draws, which come in as positive cash flow, and the repayments, which are negative. So you can see that in a period where there are proceeds available to pay back capital when construction ends, all of that gets netted out and goes into repaying the loans because debt gets repaid first. And you can see that they match each other until the point where the loan is totally paid off, and then everything that's left here is this. Excess cash flow goes to the equity investors right here after the debt has been repaid. This is really what the equity investors get right here in this section, and everything before that gets used up. So let's calculate the sum of all leverage-free cash flow across the whole project. We can see that in equity, investors are going to get $8.4 million to share amongst themselves. Let's also calculate the running cumulative equity balance. In the first period, it is just equal to that first-period number, but then it builds over time. And you can see that initially, there was a negative equity position. The peak here is the amount of equity that's going to be required to fund the project, which is 9.6 million; that's how much equity they actually have to put in by the end of the project. We go all the way to the end and fill it right. You see that it caps out at 8.4 to 7, the same as the number here, and this is the net positive amount that the equity investors get at the end. So now let's calculate an internal rate of return using XRR for the equity investors. Here are their free cash flows in this row: 55. And let's line that up with the dates. In row three, here are the dates associated with those cash flows, and we see that there is an equity internal rate of return of 33% on this project. Now if we want to perform a side calculation here to see what the unlevered internal rate of return of the project is, we simply take the cost of funds and the proceeds, which are the positive cash flows, and add them together, but exclude the debt financing piece that gives us the unlevered cash flow. That's still that across, and then we can actually calculate just the project IRR without any leverage or any debt. So we'll set this equal to XI or select these cash flows. [And select the dates.] and press enter, and we see that it's 21%. This makes sense because we have to invest more upfront. We had 14 million flowing out in the first month instead of just 9 million. So, of course, there is a lower percent.

The narratives on leveraged free cash flow with a capital structure built into it and the determination of returns to bond or debt holders are demonstrated below.

Figure 4

Pro Forma Cash Flows	Period Date	0 1-Apr-17	1 1-May-17	2 1-Jun-17	3 1-Jul-17	4 1-Aug-17	5 1-Sep-17	6 1-Oct-17	7 1-Nov-17	8 1-Dec-17	9 1-Jan-18	10 1-Feb-18	11 1-Mar-18	12 1-Apr-18	13 1-May-18	14 1-Jun-18	15 1-Jul-18	16 1-Aug-18	17 1-Sep-18
Revenue Build Up																			
Development Costs																			
Financing																			
Levered Free Cash Flow																			
Costs to Fund		($14,100,000)	($100,000)	($100,000)	($100,000)	($100,000)	($100,000)	($961,000)	($961,000)	($961,000)	($961,000)	($961,000)	($961,000)	($961,000)	($961,000)	($961,000)	($961,000)	($961,000)	($1,276,000)
Proceeds to Payback Capital		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Loan Draws		5,000,000	-	-	-	-	-	961,000	961,000	961,000	961,000	961,000	961,000	961,000	961,000	961,000	961,000	961,000	1,276,000
Loan Repayments		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Levered Free Cash Flow	**$8,427,862**	**($9,100,000)**	**($100,000)**	**($100,000)**	**($100,000)**	**($100,000)**	**($100,000)**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

Equity Balance (Cumulative FCF)	**($9,600,000)**	**($9,100,000)**	**($9,200,000)**	**($9,300,000)**	**($9,400,000)**	**($9,500,000)**	**($9,600,000)**	**($9,600,000)**	**($9,600,000)**	**($9,600,000)**	**($9,600,000)**	**($9,600,000)**	**($9,600,000)**	**($9,600,000)**	**($9,600,000)**	**($9,600,000)**	**($9,600,000)**	**($9,600,000)**	**($9,600,000)**	**($9,600,000)**

Levered IRR	**33.0%**

Sales Start			Construction End																					
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
1-Sep-18	1-Oct-18	1-Nov-18	1-Dec-18	1-Jan-19	1-Feb-19	1-Mar-19	1-Apr-19	1-May-19	1-Jun-19	1-Jul-19	1-Aug-19	1-Sep-19	1-Oct-19	1-Nov-19	1-Dec-19	1-Jan-20	1-Feb-20	1-Mar-20	1-Apr-20	1-May-20	1-Jun-20	1-Jul-20	1-Aug-20	1-Sep-20
($1,276,000)	($1,006,000)	($1,006,000)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

000)	000)	000)																								
-	-	-	12,647,500	2,555,667	2,555,667	2,555,667	2,555,667	2,555,667	2,555,667	2,555,667	2,555,667	2,555,667	2,555,667	1,905,500	-	-	-	-	-	-	-	-	-	-	-
1,276,000	1,006,000	1,006,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	(12,647,500)	(2,555,667)	(2,555,667)	(1,767,304)	(0)	0	(0)	0	(0)	0	(0)	0	-	-	-	-	-	-	-	-	-	-	-	-
$0	**$0**	**$0**	**$0**	**$0**	**$0**	**$788,362**	**$2,555,667**	**$2,555,667**	**$2,555,667**	**$2,555,667**	**$2,555,667**	**$2,555,667**	**$1,905,500**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
($9,600,000)	**($9,600,000)**	**($9,600,000)**	**($9,600,000)**	**($9,600,000)**	**($9,600,000)**	**($8,811,638)**	**($6,255,971)**	**($3,700,304)**	**($1,144,638)**	**$1,411,029**	**$3,966,696**	**$6,522,362**	**$8,427,862**	**$8,427,862**	**$8,427,862**	**$8,427,862**	**$8,427,862**	**$8,427,862**	**$8,427,862**	**$8,427,862**	**$8,427,862**	**$8,427,862**	**$8,427,862**	**$8,427,862**	**$8,427,862**	**$8,427,862**

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