Creating Enormous Wealth thru….

Apartment Complexes – The Formulas

Introduction:
Welcome to our next book in the Creating Enormous Wealth series.

Apartment complexes are a tremendous source of getting great cashflow on properties. When purchased correctly you are able to cashflow well even when you have vacancies. When investing in homes and when you have a vacancy you must pay the entire mortgage payment without any help from tenants. Thus, apartments are usually counted as the next step up after investing with homes.

This ***Special Report*** will go into mathematical details on the analysis of an apartment building. The math here will be given in formula format and anyone with a basic comprehension of algebra should be able to follow along. We will keep the formulas as simple as possible and use terminology instead of those pesky variables you saw in your algebra classes.

When there are any complex details that need to be handled we will break the math down into smaller pieces for an ease of understanding.

This report assumes the reader has some general knowledge in real estate and is familiar with most real estate terminology.

Sit back, enjoy and ***let's get started****….*

About the Author:
Kevin Dunlap has been investing in real estate since 2002. His first apartment complex was an 11-unit building and was purchased in 2003. His background prior to becoming an investor was in the area of physics and mathematics. He taught many years as a math tutor and eventually taught 3 years as a teaching assistant at Florida State University and then 3 more years as a full-fledged teacher in Wilmington, NC teaching college algebra. He will make every attempt to keep the math simple and at a tutor's level (his old way of professing).

What to Initially Get from the Seller:
You will need the following information from the Seller or the Seller's agent. This is part of your initial **due diligence** when you are analyzing a deal. There are many levels of doing due diligence. You do not want to get too involved in your analysis at this point. Thus, you will take the information as to be real until after you have a valid contract and can verify the information. This stage is solely for understanding how the property is performing and to find data to determine if the data can be trusted. You may alter some

numbers to determine the offering price. This is the whole point of running numbers at this stage.

You will need a few things from the Seller to do your analysis. Items I generally attempt to get initially is:

1.) Current rent roll (you will need more in your later due diligence).
2.) An annual Profit & Loss (a.k.a., P&L) statement. This will give you annual expenses. If they don't have one of these then get anything giving the last few months of expenses.
3.) Deferred maintenance report. This is so you can adjust the purchase price by the amount required to fix up a property.
4.) Pictures. Although, this is not absolutely necessary, it is always nice to be able to look at something when you are buying it.

Once you have these forms you can start your new analysis.

When you get to the point of looking at a few deals at a time you will want to create or purchase some form of analysis program. This way you can make small changes and get automatic recalculations.

Basic Concept of Formulas

We will work on the assumption that you are buying a property for a positive cashflow, although this is not always the purpose for every investor.

The first thing you must know is the difference between the words "gross" and "net". Gross is the total before any deductions. Net is used to determine values after deductions are made. This basic concept is seen in most people's salaries. Their Gross Salary is what is seen on their hourly wage. Their Net Salary is what they take home after taxes and other deductions. Exact same concept is used here.

The first important formula, which we are oversimplifying here, you will need is the Annual Cashflow.

Annual Cashflow = Annual Gross Income – Annual Expenses

Basic Income & Expenses Determinations

First you will need to determine the income. This is directly received from the rent roll. Add up the current rental values of all the occupied units. Assume vacant units are about 80% of the current rental values. We suggest you do this in case you need to give rental incentives to get the units occupied.

Multiply this value by 12 to get the Annual Gross Income.

Annual Gross Income = 12 * Monthly Income

Expenses are broken down into different categories. First are your Annual Fixed Expenses. These are generally taxes and insurance. Second are your Monthly Variable Expenses. These are just about all of the rest of the expenses you will come across in the property. These includes utility payments, maintenance, property management, etc. Third is a reserve account to fix any unforeseen events on the property. And last is the debt service, also called the mortgage payments.

To obtain the Annual Gross Expenses simply multiply the monthly expenses by 12 and add in the annual expenses.

Annual Gross Expenses = Annual Expenses + 12 * Monthly Expenses

Now you should have a basic understanding of how a property is operating. Let's dig into the deeper details and get a lot more specific.

Medium Level Formulas

The basic formulas described above was just to get you start thinking of how to analyze a deal. Here we will go deeper into the analysis process. Again we suggest you do this a few times by hand until you realize that it is too much work to do it by hand. Thus, you should create or purchase a program that does this for you automatically. We currently sell a CD analysis program that goes very deep into this process.

One of the most important values in analyzing a deal is something known as the **Net Operating Income**, also called **NOI**. Notice we used the word "net" and not the word "gross". Using the gross values will give us this "net" value. To calculate the NOI we must first discuss a few other terms and equations. The following equations should be calculated in the order as shown.

Gross Scheduled Income (GSI) = The annual gross income from the rents. This is similar to the Annual Gross Income described above.

GSI = 12 * Monthly rents

Other Income = Income from other services on the property. I keep this solely reserved to guaranteed income. Thus, this is coin-operated laundry machines and refreshment machines; rents on specialized features like hall storage closets, garages, etc.; utility reimbursements; etc. The items many sellers will try to include in this and you should never use is late fees; application fees (since this is usually wiped out when pulling credit); forfeiture of security deposits; etc.

Other Income = the amount given on the P&L statement. If they don't break it down to itemized values, then you should only take a percentage of the amount given. I usually only use about 60% in this case.

Vacancy Rate = The average vacancy for this unit for this area. The national standard is between 7% to 10%. Some areas may be higher and other areas may be nearly full. Never use any values less than 5%. There is always turnover and thus a lag time between one tenant moving out and another one moving in.

Vacancy Rate (%) = 100% - Occupancy Rate.

OR

$$= \frac{\text{\# of Vacant Units}}{\text{\# of Total Units.}}$$

Gross Operating Income (GOI) = The total income a property is currently performing at. This is determined by adding the GSI to the Other Income minus the vacancy rate. The vacancy rate is a percentage so you must convert it to a dollar amount by multiplying this percentage with the GSI.

GOI = GSI + Other Income – Vacancy Rate * GSI

Expenses = The aforementioned Annual Gross Expenses. This value is only the sum of annual fixed expenses and the monthly variable expenses. This will not include reserves nor debt service.

Reserves = The amount also mentioned before.

NOI = GOI – Expenses - Reserves

Now that you have the NOI you can begin to get an idea on how the property is performing. We will cover in much greater detail many of the above formulas.

Net Operating Income

The NOI is the basis of everything you do in commercial real estate. Values of the property is completely based on this. Let's assume the NOI is represented as 10% of the value of the property, more on this later. Thus, if the NOI indicates a value of $80,000 translates to a property value of $800,000.

Notice that if you were able to increase rents this would raise your NOI. Let's assume that you can raise the rents to market level (because you bought a property with

distressed rents) and now the NOI is $85,000. This would mean (using the same 10%) the property is now worth $850,000. So, by raising the rents across the board to give you an annual increase of only $5000 (or $417 a month overall) resulted in not only a higher cashflow but also $50,000 of value. This is known as **Forced Appreciation**.

Notice that you can also increase the value by doing nothing with the rents. Let's assume the property is already at market value or you can't raise rents for one reason or another. But, let's now assume you can decrease some of the expenses. For example, let's say you can save on the electric or sewer bills. Or, lower other expenses like maintenance or payroll or whatever. Let's assume on the same property you can lower the monthly expenses by $417 per month or $5,000 per year. Notice the NOI will have the exact same response. By decreasing the expenses you again raised the NOI because you are still using the same idea of Cashflow = Income – Expenses.

Now the sweet thing is, where can you reduce expenses AND increase rents. Doing this you have a doubling effect. This is why apartment renting is such a beautiful thing to get involved with.

Notice that NOI does not include the mortgage payment (called debt service in this industry). Thus, the NOI is the same for someone who has great credit, poor credit, no money down and 50% down payment. The debt service is individual specific. The NOI is completely independent of the buyer.

Capitalization Rate

If NOI is considered an important formula, the Capitalization Rate would be its sister. Capitalization rate is an arbitrary way of determining value of a property for a local area. The other name you will most often hear for this term is the CAP Rate. To determine the CAP Rate you simply divide the NOI by the Purchase Price for the property.

$$\textbf{CAP Rate} = \frac{\text{NOI}}{\text{Purchase Price}}$$

Contrarily,

$$\textbf{Property Value} = \frac{\text{NOI}}{\text{CAP Rate}}$$

Let's assume for a local market we see a standard CAP Rate of 10% (this is rare but we are using this for simplicity). Let's use the same example as above with a NOI of $80,000

Property Value = $80,000 / 10%
= $80,000 / 0.10 (Converting percent to a decimal.)
= $800,000

Let's now assume the local market has a CAP Rate of 9%. The exact same equation gives us:

Property Value = $80,000 / 9%
= $80,000 / 0.09
= $888,889

Thus, the point is that property value and CAP rates are inversely proportional. What this means is that as the CAP Rate goes down, the value goes up. Or, as the Price goes up the CAP rate goes down.

So, how can we use this to our advantage? This is the beauty of Forced Appreciation. Let's again assume the property values of a local market indicate a CAP Rate of 9%. You as a savvy investor only buys at say 9.5% CAP Rate or higher. Thus, you buy at a higher CAP rate and then will flip it (or assume a sale) at a lower CAP Rate. Let's also assume you will keep the property for one year and raise the rents to market level and decrease expenses a small amount. We will use Purchase Value (as the property value to you when you buy) and Selling Value (the local value based on its value to you when you sell a year later).

Purchase Value assumptions:
NOI = $80,000
CAP Rate = 9.5%
Selling Value assumptions:
NOI = $85,000
CAP Rate = 9%

Purchase Value = $80,000 / 9.5%
= $80,000 / 0.095
= $842,105

Selling Value = $85,000 / 9%
= $85,000 / 0.09
= $944,445

WOW!!!! By just changing the CAP by half of a percent and increasing the monthly cashflow by $417 per month (by both increasing rents and decreasing expenses) you just forced the value of the property up by over $100,000. Of course, we ignored monthly cashflow.

Now that you have a basic understanding of the values of a property, you are going to need to know many other formulas in order to tell if a property is currently performing properly.

Monthly Cashflow and Taxes

Knowing CAP rates and NOI is great, but you really need to know what are you going to be making on a property over time.

To determine the cashflow you must understand that there are a couple of different types of cashflow. We will start with the Before Tax Cashflow.

Before tax cashflow is simply the end result of all expenses being removed from the equation, including and especially the debt service.

Debt service is the most variable part of the acquisition and maintaining a commercial purchase. You have to be aware of interest rates, down payments, terms of the loan (number of years, pre-payment penalties, etc.) as this can make drastic changes to the cashflow of a property. The CAP Rate may be at 10%, but the debt service could still kill the deal. You will need a thorough understanding how this works.

A 7% loan is drastically different if you are making interest only payments or principal and interest payments. Example: For a loan amount of $1,000,000 an interest only payment is $5,833.33 and principal & interest payment of $6,653.02. The latter payment is the amount of principal reduction. For one year you paid an extra $9,836.28 in payments but got credited with principal reduction an amount of $10,158 which means you earned an extra $300 (or an increase in value of $3000 at a 10% cap rate).

Also, don't forget that if you are getting seller financing or you are not paying 20% down, that you will most likely have a higher interest rate for a 2nd position loan. You will also need to calculate these payments. Now, you should start seeing the importance of using a computer program for your calculations.

Thus,

Annual Before Tax Cashflow = NOI – 1st Loan – 2nd Loan

Monthly Before Tax Cashflow = $\frac{\text{A.B.T.C}}{12}$

To calculate Annual After Tax Cashflow requires a lot more details. Additional details you will need are:

1.) Land Value. Thus, you get the Structure to Land Value Ratio. Taxes are only based on Structure Value.
2.) Depreciation. Use 27.5 for 4 units or smaller and 39 for 5+ units. You get the structure value and divide by one of those numbers to get your annual depreciation allowance.
3.) Interest paid. This is returned from your annual debt service.

IRS Version of Before Tax Cashflow = NOI – Interest Paid – Depreciation

If this value is negative then you owe no taxes
If this value is positive then you do owe taxes based upon your tax rate.

Tax Savings = the amount saved if the IRS Version is negative.
= Tax Rate * (-1) * IRS Version Before Tax Cashflow

After Tax Cashflow = Before Tax Cashflow + Tax Savings – Taxes Due

Advanced Equations and Formulas

Now that we have covered the basic information let's start to cover the more advance values. These formulas are guides to determine if a property is a good value or not. As with all of the above equations, just changing one detail (namely the purchase price) will drastically change all of these values.

Again, we say that you need to create or purchase a program that does all of this for you. If you change the purchase price from $1,000,000 to $950,000 could make dramatic differences in all of the formulas (for example the debt service).

First let's look at expenses. You need to know if expenses are relatively too high or possibly even too low. Expenses that are too low can be more problematic than being too high. Too low could mean that the Seller is holding back information or is doing a lot of the work himself. If you are buying out of state you won't be the one leasing the units (property management costs needing to be added) nor fixing small problems (now a maintenance fee is needed to be added) or mowing the lawn (landscaping needs to be added). Thus, be more wary of low expenses.

High expenses can be looked at closely to see where you can make cut backs.

$$\textbf{Expense Rate} = \frac{\text{Total Expenses}}{\text{GSI}} \text{ (annual and monthly only)}$$

Ranges for the Expense rate is normally between 30% to 55% with the normal, in our experience, being around 40% to 45%. Values at or below 30% or above 55% needs to be addressed at some point in time.

You should also calculate each expense the same way. This will help you determine where you can make cutbacks. For example, let's assume the utility rate is 15% but you know you could qualify for tax incentive programs and cut this down to 12%. Thus, you know in the future you could save 3% of the Gross Income in funds and thus increase your NOI.

Another valuation formula is Price per Unit. This is the cost for each unit regardless of unit type. This is used to determine what the market supports for a unit price.

$$\textbf{Price per Unit} = \frac{\text{Purchase Price}}{\text{\# Units}}$$

An example representing this may show the market is going for $45,000 / unit. Thus, a 12 unit complex should be at $540,000 or less. If the seller is asking $600,000 then you know this is too much (he is asking $50,000 per unit). On the flip side if you see a 12 unit complex going for $500,000 then you know it may be a good deal.

The next most common value you may see is the ROI (Return on Investment). This is determined in many different ways. One of the main problems we have experienced is that different people calculate this value with different terms. Due to this inaccuracy across the board you should probably ignore this value and calculate it yourself.

On our spreadsheet we calculate ROI four to five different ways.

We do this so we know what the different elements of how you make money on a property actually performs. Thus, let's start with the five ways you make money on an investment.

1.) Cashflow. The direct money you make after each bill is paid every month or year.
2.) Principal Reduction. If you have a P&I loan this is the money you make by paying down your debt service.
3.) Appreciation. This is the phantom money you make by the value of the property increasing. In our formulas we use a standard 3 to 5% appreciation instead of using forced appreciation.
4.) Tax Savings. The money you make from depreciation and other tax advantages.
5.) Equity Position. The money you make from buying below market value.

Thus, let's go over the basic formulas. All of these 5 elements are based on the amount received by the down payment. These are all percentage results. These values indicate how quickly it will take you to get your down payment back. Thus, a 33% ROI means it will take 3 years (3 * 33% = 99% or 100%) to get your down payment back. The lower the ROI means the longer it will take to get your down payment returned.

ROI (Cashflow) = Annual Cashflow / Down Payment
ROI (Principal Reduction) = Annual principal reduction / Down Payment
ROI (Appreciation) = Appreciation earned / Down Payment
ROI (Tax Savings) = Tax Savings / Down Payment

Total ROI = sum of the four above.

Some people use the Cash-On-Cash Return. This is simply the ROI (Cashflow) value. This is the amount of cash you receive for the amount of cash you are putting down.

Cash-On-Cash Return = ROI (Cashflow)

OR (sometimes)

= ROI (Cashflow) + ROI (Principal Reduction)

One of the most important formulas that you can calculate that almost no one ever uses is what lenders call the DSCR or Debt Service Coverage Ratio, sometimes the "service" word is dropped. This is a ratio that lenders use to determine how safe a loan is. The range for this is between 1.2 and 1.3. Thus, only a very small range is calculated. The higher you have your DSCR the higher the likelihood of getting the loan. Why would you spend thousands of dollars for inspections, appraisals and time for due diligence if you could know right from the start if the loan is even doable.

This value is based on the "positive" cashflow of a deal. It is also based on the NOI. The other values used are the amount of your annual debt service. If you are buying a property where the NOI is greater than your debt service (i.e., positive cashflow) then you are doing well.

Here are the three results you can get.

1.) Less than 1.0. This means your remaining money from the NOI will not cover your loan payments.
2.) Exactly 1.0. This means your NOI and debt service will be a wash. Means you make nothing in cashflow nor do you lose anything either.
3.) Above 1.0. Means your debt service is less than your NOI. This is a positive cashflow.

The banks require a 1.2 for loans so that there is money left over for you. This .2 difference is your cashflow or the cushion the bank requires. When you get close to 1.3 this shows the bank that this loan is a no-brainer. If you find one with a DSCR above 1.3 then this may indicate a incredible opportunity.

$$\textbf{DSCR} = \frac{\text{NOI}}{\text{Annual } 1^{st} \text{ Loan Payment} + \text{Annual } 2^{nd} \text{ Loan Payment}}$$

Now you have another formula in your arsenal. This ratio becomes very important if you are seeking secondary financing. Notice the second is also in the denominator. If you put 20% down then this should be no problem. If you are doing this with no money down then you are forced to make a better deal.

There are other formulas that you may like to know. One would be what vacancy rate can you have before your property goes to breakeven or negative cashflow. Others would be income per unit or square foot. And expense per unit or square foot.

Another formula I personally like is one I created and called *Income per Unit per Year*. I have a personal requirement of $600 per unit per year. This means I want each apartment unit to make me $600 annually (or $50 per month). Therefore, a 20 unit building is $12,000 positive annual cashflow or $1,000 per month. This one formula is how I set my goals. If your desire is to make $3,000 per month positive cashflow in apartments and you are okay with $50 per unit means you will need 60 units total as a minimum in

apartments ($50 * 60 = $3,000). Thus, you can buy 1 60-plex, 5 12-plexes, or some other combination of units.

$$\textbf{Income per Unit per Year} = \frac{\text{Annual Before Tax Cashflow}}{\text{\# Units}}$$

$$\textbf{Income per Unit per Month} = \frac{\text{Income per Unit per Year}}{12}$$

Closing Statement

You now have the ability to analyze a deal and make some great offers. Be aware that small changes in price, income, and expenses will have dramatic affects on not only the NOI but every other formula.

By having these basic formulas in your arsenal you can determine just how good the deal is for you and the best way to negotiate it to make it a great deal for you.

Happy Investing Everyone

Kevin A. Dunlap