

AN INTRODUCTION TO REAL ESTATE INVESTMENT ANALYSIS: A TOOL KIT REFERENCE FOR PRIVATE INVESTORS

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Rules of thumb and financial analysis tools are critical for real estate professionals. They provide the basic building blocks needed to understand appraisals and valuations, to compare investment opportunities, to monitor and manage investment results, to set asking prices, and to negotiate various real estate based transactions (including purchase and sale agreements, mortgages and leases).

These tools can be as simple or as sophisticated as you want them to be. The purpose of this article is to provide a basic introduction to real estate investment analysis tools for private investors so you can consider how they might apply to your investment activities, can appreciate their meaning and significance if they come up in your business dealings, and can have “glossary” to refer to as needed.

Please note that the tools discussed in this article apply mostly to income properties, but can apply to vacant land as well. Also, while this article focuses on the purchase and sale of real properties, many of these tools and concepts can apply to leasing situations and negotiations between landlord and tenant.

No Single Right Answer

By way of background, there are several things you should keep in mind in considering or using these tools:

- ***There is no such thing as a typical investor.*** Every investor is unique. Take time to understand your unique requirements, and update them from time to time.
- ***There is no such thing as a typical property.*** The great thing about real estate is that every property and every market truly is unique. Again, take time to understand the unique attributes of the properties you are considering, and revisit them from time to time.
- ***“Investment value” and “market value” are not the same thing.*** “Investment value” is unique to you. “Market value” is based on the “typical” investor, which we know does not really exist. You need to consider the investment value perspective of all the other players at your table, including your lender, buyer, seller, landlord, tenant, or competitors. The “investment value” to one is not necessarily the same “investment value” to another.

- **There is no single, right rate of return.** Acceptable rates of return usually fall within a range, depending on each investor's perspective of the risks associated with an investment as compared to alternate or competitive investments, the investor's perceived ability to manage the risk, and the needs of their portfolio.
- **There is no single, right price or point of value.** Again, there is really only a range of values depending on investor perspective.

A good understanding of the basic financial analysis tools, the market you are participating in, and the investor perspective of the other parties at the table, combined with a reasonable degree of flexibility, are essential skills for you to develop if you are going to be successful real estate investor.

At the end of the day, these skills should enable you to advocate different risk perspectives for different deals, and reflect those perspectives in rates of return and value propositions that support your investment objectives.

No Single Perfect Tool

Just as there is no single, right answer to an investment analysis problem, there is no single perfect tool to use in analyzing real estate opportunities.

- **There are many tools to assess value and performance.** Do not get overwhelmed by them. Learn the simplest ones, and try more sophisticated ones as you get more comfortable and find what works for you.
- **A tool's greatest value is simply in using it.** Using these tools will help smoke out risks and key factors, will help define your comfort zones, and will develop your market knowledge and expertise. As is often the case in business, the process of doing the work can contribute more to a successful outcome than the actual work product itself.
- **A tool's next highest value is in comparison to other tools.** You can use tools to test their results against each other. Understanding why results differ with differ tools will improve your sophistication in financial analysis generally, and your understanding of the particular investment being considered.
- **Financial analysis tools vary across a number of key factors.** The major ones include:
 - Simplicity vs. complexity.
 - Fast vs. time consuming.
 - Fixed point in time vs. period of time.
 - Static vs. dynamic.
 - Minimal assumptions vs. many assumptions.
 - Investor perspective vs. market perspective.
 - Pre-tax vs. after-tax.
 - Profit vs. cash flow.

Make sure you keep aware of exactly what you are measuring and what the limitations are in each case.

A Word on Investment Calculators

The digital age has brought investment financial analysis tools to everyone's fingertips. There are many financial calculators that will instantly produce the most sophisticated results based on inputs you make. Buying one and learning how to use it will make these tools far more accessible, and could even be a competitive advantage when engaged in a heated, "parking lot" negotiation.

A Word on Investment Worksheets

The same comment applies to investment worksheets. Microsoft Excel and other programs give you the power to develop your own templates and worksheets to quickly and accurately perform sophisticated analysis and calculations based on many changeable variables. These sorts of tools not only enhance your sophistication as an investor, but also enable you to move quickly and decisively in negotiations. Notebook computers make these tools portable and accessible almost any time and anywhere.

Some common worksheets which you can develop for yourself, or access as templates from the Internet and other sources, include:

Property Analysis Worksheet: A single year income and expense statement for a property, which can show owner-actual, investor-projected and typical-market income and expense figures. They typically include: potential rental income, operating expenses including vacancy rates, net operating income, debt service assumptions and cash flow before taxes. They are often used with the Rules of Thumb and Direct Capitalization Tools discussed below, where net operating income is the key to your negotiation or analysis.

Operations Cash Flow Worksheet: These are usually multi-year before tax and after tax cash flow analysis covering a selected hold period. They are often used with Discounted Cash Flow Tools, and have the benefit of being after tax based. After all, it is not what you make but what you keep that really matters in any investment portfolio, and we know that real estate opportunities have some tax planning opportunities that other investments do not.

Sale Proceeds Cash Flow Worksheet: This is a before tax and after tax sale proceeds analysis based on an anticipated disposition of your investment. It takes sale expenses, recaptured capital cost allowance, capital gains tax, mortgage payouts, and post-closing after tax cash flow to seller, into account. It is often used with the Operations Cash Flow Worksheet, as part of the most sophisticated Discounted Cash Flow Tools.

Lease Cash Flow Worksheet: An operations cash flow worksheet from a landlord and tenant perspectives. Can be set up to take moving costs, landlord incentives, and similar one-time expenditures into account. Again, it can be a before-tax or after-tax statement, allowing for return on investment calculations and negotiations.

Introducing The Tools: Three Broad Categories

There are three broad categories of investment analysis tools in the real estate context, all of which are explained in an introductory way below:

Rules of Thumb: Their main advantages are that they are simple, fast and usually market based or market verifiable. Their main disadvantages are that they are static, usually one-time or single year based, and pre-tax. However, some of them will take equity growth into account.

Direct Capitalization: These tools capitalize net income. They are more sophisticated than most Rules of Thumb, are dynamic in that they can handle a number of variables, and can be multi-year. However, they are usually profit not cash flow based, are usually pre-tax, and often do not fully account for equity growth.

Discounted Cash Flows: These tools discount and compound cash flows, resulting in the present value of future cash flow streams. They are the most sophisticated tools commonly found in the private real estate market, making them harder to use but more enlightening. They also require the most assumptions, and are projected over a number of years, leading to serious questions about their certainty. Nevertheless, they remain the tools of choice among many institutional investors.

Tool Kit #1 - Rules of Thumb

Rules of Thumb are simple and fast to use, with comparatively few assumptions. On the other hand, they are usually pre-tax, static snapshots at a point in time. The most common Rules of Thumb are as follows:

Gross Income Multipliers = $\text{Sale Price} \div \text{Gross Operating Income}$; another common one is $\text{Sale Price} \div \text{Number of Units}$

- Can be monthly or annual – most often annual.
- A typical example from the residential marketplace is: $\text{Highest Price} = 100 \times \text{Gross Monthly Rents}$ e.g. \$6,000.00 per month in gross rents results in a value of no more than \$600,000.00.
- A typical example from the hotel marketplace is: $\text{Purchase Price} = 2.5 \text{ to } 3.0 \text{ times room revenue}$.

- Assumes high comparability of properties, especially in terms of quality (e.g. age, state of repair, surplus land, location); assumes similar approaches in calculating income; does not take expenses into consideration; is pre-tax; does not take debt service into account.

Return on Cash = *Cash Flow Before Taxes ÷ Equity (Cash) Investment*

- Measures profitability – the relationship between single year’s cash flow and equity invested. Takes debt service into account.
- Negatives include: Single year analysis; pre-tax; limited recognition of income and expense risk factors; limited recognition of different qualitative elements of various properties (e.g. age, state of repair, surplus land, location); does not take time value of money into account; does not take debt reduction into account in building up equity.

Modified Cash on Cash (also known as Brokers Rate of Return) = *(Cash Flow After Tax + Equity Build-up) ÷ Initial Investment*

- Takes expenses, taxes and equity build-up into account.
- Still does not readily account for qualitative differences between properties (e.g. age, state of repair, surplus land, location).

Payback Period = *Equity Investment ÷ Annual Cash Flow Before Taxes*

- Determines the number of years required to accumulate cash flow before taxes to equal your initial investment i.e. the time needed to recoup your investment.
- Negatives: No after tax considerations; does not take into account capital appreciation (debt service, inflationary, market driven); does not recognize major income and expense factors; does not take different qualitative property aspects into account (e.g. age, state of repair, surplus land, location); does not allow for fluctuating cash flows including years of negative cash flow and where those funds must come from.
- However, it does introduce the concept of risk assessment – the higher the risk the faster the payback should be.

Break-Even Ratio = *(Operating Expenses + Debt Service) ÷ Gross Operating Income (expressed as a percentage)*

- A break-even of less than 100% shows the investment has a cash cushion against changes in income or expenses. The lower the percentage the better.
- A break-even greater than 100% means the owner must supplement cash flow with other funds to carry the property.

Operating Ratio = *Total Operating Expenses ÷ Gross Operating Income (expressed as a percentage)*

- This tool is an indication of management efficiency. The lower the ratio the more money the owner should have available for taxes, debt service and return on investment.

Introducing Capitalization and Tool Kits #2 and #3

Real estate is valued for its cash flow, both its operating cash flow during the time that you own the property and its likely net sale proceeds when you go to sell the property at some time in the future.

Since real estate is purchased today based on its ability to produce cash flow in the future, tools are needed which help calculate the present value of future cash flows. These tools are readily available, are discussed in Tool Kits #2 and #3, and involve the concept of “capitalization”.

All capitalization tools convert future income or cash flow into a present value, and then provide insight into the variables that contributed to the calculation.

If you know the present value of a future cash flow, you can determine what a good purchase price should be for that investment. You would not want to pay more than its present value, and would like to pay less than its present value.

If you know the key variables, you can use them in a meaningful risk assessment and in negotiations with other parties (buyers, sellers, lenders, investors, landlords, tenants).

However, this is where uncertainty enters the picture. Reasonable people will disagree on the projected income from an asset, the projected expenses required to earn that income, and what rate of return should be used as the basis for the present value calculation.

In debating these numbers, parties have to look at the actual historical numbers for the property, the quality of management and the impact of a management or ownership change on those numbers, and what is going on in the marketplace. This applies not only to income and expenses from operation, but in ultimate disposition values as well.

Real estate can be particularly challenging, as tax, utility and repair costs can be hard to predict and beyond ownership control, and there are a number of factors from the marketplace with affect vacancy rates or tenant based risks. Added on top of this is the problem of trying to foresee changes to property value resulting from inflation or market trends. Finally, you need to compare your real estate investment opportunity to what is going on in other markets geographically (e.g. in town versus out of town markets) or financially (bond market, stock market, nationally and internationally).

However, knowing what you are good at without getting into a rut, and being able to assess and debate these factors at various levels of sophistication, are important things to consider. You

will be competing for real estate assets. If your competition is better equipped than you are, they will be able to out manoeuvre you at critical times in your transactions.

Tool Kit #2 – Direct Capitalization

I have already pointed out that there are two basic sets of capitalization tools: (1) direct capitalization and (2) yield analysis.

Tool Kit #2 Direct Capitalization focuses on the income stream from a property, without taking into account appreciation in value, paying down of mortgages, or ultimate value on disposition.

In this regard it differs from yield analysis (Tool Kit #3 Discounted Cash Flows), as most yield calculations take into account the cash flow during the hold period plus the cash flow from the ultimate disposition of the property (see below).

Direct capitalization usually focuses on a single year's net income. It is simple and fast, and fairly reliable when combined with market research. It is widely accepted and understood in the real estate marketplace.

Direct Capitalization tools use capitalization rates that can often be easily extracted from market data. They are usually pre-tax and easy to compare to other non-real estate investments (GICs, bonds, equities).

Direct Capitalization analysis leads to a useful consideration and discussion of risk and risk factors in any particular real estate investment, and the impact of those risk assessments on purchase price and valuation.

However, Direct Capitalization has its negatives, just like any other tool:

- Usually only used in the context of a single year's operating income.
- Is very dependant on capitalization rate selection.
- Is not a precise method for dealing with leverage, risk, taxes and capital appreciation/depreciation.
- Assumes stability and consistency in income and expenses.
- Is almost always pre-tax.
- Primarily measures profitability performance, which is not the same as cash flow.

Formulas Direct Capitalization uses three factors to produce its principal calculations: *Operating Income*, *Capitalization Rate* and *Value*. If you know any two of them you can figure out the third one. Or if you know what you would like to see one of them become, you can see how it impacts the others. The three principal formulas are:

$$\text{Value} = \text{Net Operating Income} \div \text{Cap Rate}$$

E.g. \$100,000.00 per year divided by 12% per year produces a value of \$8333,333.33 – buy it for less than that and you are getting a better return than 12%; pay more than that and you are getting a lower return than 12% per year.

$$\text{Net Operating Income} = \text{Value} \times \text{Cap Rate}$$

E.g. A Value of \$1,150,000.00 purchased based on a capitalization rate of 9% needs an Operating Income of \$103,500.00 per year to achieve that 9% pre-tax return – anything over that and you are doing better than you wanted, anything under that and you are doing worse than you wanted.

$$\text{Cap Rate} = \text{Net Operating Income} \div \text{Value (expressed as a percentage)}$$

E.g. \$111,437.00 in Net Operating income divided by an asking price of \$1,395,000.00 produces a capitalization rate of 7.99%, which may or may not be a good return on investment for a particular buyer based on their assessment of property potential and associated risks.

Other terms you may hear about which are important to Direct Capitalization include:

Overall Capitalization Rate The annual rate of return on an investment. It illustrates the relationship between the amount invested and the net operating income earned from that investment, expressed as a percentage. Overall Capitalization Rate contains return *of* investment and return *on* investment. Overall cap rates can be market extracted and compared to other investment opportunities, and can be constructed simply or by using more sophisticated techniques. Overall cap rates reflect risk factors associated with an investment compared to other investment possibilities, and include a rate for recapture of depreciating improvements.

Equity Capitalization Rate Equity Capitalization Rate uses Cash Flow Before Taxes instead of Operating Income. This change explores the relationship between cash flow before taxes and initial investment, and produces a before tax return based on cash flow instead of profitability and based on equity invested rather than overall property value (which is a combination of equity + mortgages).

Mortgage Capitalization Rate This calculation uses the Annual Debt Service cash flow instead of Operating Income, and the Original Mortgage Principal instead of overall property Value. This calculation explores the relationship between annual debt service payments and the principal amount borrowed.

Leverage Leverage is the impact on the Equity Capitalization Rate which results from using borrowed money at rates lower than investor targeted rate of return in order to increase the rate of return on the investor's own capital.

The interaction between the Overall Capitalization Rate, Equity Capitalization Rate and the Mortgage Capitalization Rate can be very useful in illustrating leverage.

Think of the Overall Capitalization Rate as a blend of the Mortgage Capitalization Rate and the Equity Capitalization Rate.

For example, if we know the Overall Cap Rate on the investment at the time of purchase was 10%, the Purchase Price was \$1,000,000.00, the Mortgage Principal was 75% of the Purchase Price (\$750,000.00), and the Mortgage Capitalization Rate (i.e. mortgage rate) was 8%, we can prove that the Equity Capitalization Rate to the investor on his or her cash into the deal is 16%, which is significantly higher than the Overall Cap Rate of 10%:

Step 1 - Overall Cap Rate of 10% and a \$1,000,000.00 Purchase Price.

Step 2 - The Mortgage Cap Rate component of the Overall Cap Rate is 75% (mortgage funds as a percentage of Purchase Price) x 8% (mortgage rate) that equals 6%.

Step 3 – The Equity Capitalization Rate share of the blended Overall Capitalization Rate is 10% (Overall Capitalization Rate) – 6% (Mortgage Capitalization Rate component) = 4% of the Overall Cap Rate to provide return on the equity invested.

Step 4 – We know that the Overall Capitalization Rate of 10% and the Purchase Price of \$1,000,000.00 means at least \$100,000.00 of Operating Income.

Step5 – Of that \$100,000.00 in Operating Income, 4/10ths (4% of the blended 10%) is attributable to the Equity Capitalization Rate, which translates into \$40,000.00 per year.

Step 6 - We know that the equity invested was \$250,000.00 (Purchase Price – Mortgage Principal), and therefore that the Equity Capitalization Rate is \$40,000.00 divided by \$250,000.00 expressed as a percentage = 16%.

Going-in Capitalization Rate The overall capitalization rate assumed or used at time of acquisition of an investment property.

Terminal Capitalization Rate (Reversion Capitalization Rate) The relationship between forecasted net operating income at point of disposition and the anticipated sale price for the property. This is usually pegged higher than the Going-in Capitalization Rate due to the increased risk of forecasting over time, the assumed reduction in economic life in the investment asset, and overall obsolescence and depreciation.

Split-Rate Capitalization This technique allocates different risks to different categories of income resulting in different capitalization rates for each and a blended overall capitalization

rate. For example, if you are looking at a property which has mixed uses – residential and commercial or restaurant and hotel – you can do separate Operating Income and Capitalization Rate analysis for each component, then blend them to find an overall capitalization rate and overall price or valuation for discussion purposes.

Toolkit #3 – Discounted Cash Flows

I have already pointed out that there are two basic sets of capitalization tools: (1) direct capitalization and (2) yield analysis.

Tool Kit #3 Discounted Cash Flows is a form of yield calculation, and as such is based on cash flow not profitability.

It usually looks at cash flow during the hold period of the investment plus the cash flow resulting from the ultimate disposition of the investment property.

In these respects it is different from and more sophisticated than Tool Kit #2 Direct Capitalization, which usually limits its focus to annual net incomes without taking into account cash flow, appreciation in value, paying down of mortgages, or ultimate cash flow on disposition.

Discounted Cash Flows are the most sophisticated and complicated tools usually encountered when analysing real estate investments, although they are easily calculated with modern financial calculators and spreadsheet software.

It is very important to note that these models are very dependent on the accuracy of the forecasts you use. While they do permit endless analysis of various assumptions and scenarios, this is both the strength and a weakness in Discounted Cash Flow analysis.

The basic terminology and concepts you will encounter with Discounted Cash Flow analysis are as follows:

Discount Rates vs. Cap Rates It important to note that *discount rates* and *cap rates* are not the same thing. Cap rates relate to income. Discount rates relate to cash flows. Discount rates typically contain a “safe rate” (e.g. low risk, GIC equivalent), and a “risk premium” (a component in excess of the “safe rate” which reflects the risk perceptions of the investment as seen by the investor or the lender setting the rate). As always, the greater the perceived risk, the greater the demanded overall rate of return, and the lower the purchase price or valuation. The distinction between “discount rates” and “cap rates” makes little difference to most ordinary investors, but is very meaningful to institutional or very sophisticated investors.

Present Value Present Value (PV) is the total of all present values (benefits) accruing to an investor from an investment over a projected period of time discounted by an appropriate rate, expressed in dollars.

E.g. the Present Value of a cash flow of \$10,000.00 per month for five years based on a required discount rate of 11% per year is \$459,930.34 – if you can purchase that cash flow for less than that Present Value, you will be increasing your yield; if you purchase that cash flow for more than that Present Value, you are coming in short of your required yield.

Present Value: Discounted Cash Flow Before Taxes This is the same basic calculation, but it uses cash flow before taxes but after debt service instead of operating income, and is a very popular format in the marketplace. Debt service is deducted from net operating income, resulting in a cash flow before tax from operations. This is discounted using the appropriate discount rate, the result is then added to the present value of the mortgage on the property to arrive at current market value:

$$\text{Market Value} = \text{Discounted CFBT} [(\text{Net Operating Income} - \text{Debt Service}) \div \text{Discount Rate}] + \text{PV of Mortgage}$$

A more sophisticated format takes the net cash flow from the sale of the property into account. Debt service is deducted from net operating income and sale proceeds are reduced by costs of sale and mortgage balances, resulting in a cash flow before tax from operations and sale proceeds. This is discounted using the appropriate discount rate, the result is then added to the present value of the mortgage on the property to arrive at current market value:

$$\text{Market Value} = \text{Discounted CFBT} [((\text{Net Operating Income} - \text{Debt Service}) + (\text{Net Sale Proceeds} - \text{Mortgage Balance on Disposition})) \div \text{Discount Rate}] + \text{PV of Mortgage}$$

Net Present Value Net Present Value (NPV) is the total of all present values of a series of cash flows, taking into account the initial cost of the investment, expressed in dollars.

E.g. you buy a property for \$200,000.00, it pays you \$18,000 per year in positive cash flow, you sell it after five years for \$225,000.00, and your targeted discount rate is 8.5% - the NPV of that investment is \$20,566.78.

Positive NPV means the investor is getting more cash flow than is necessary to achieve the desired rate of return on the planned initial investment, and could increase the initial investment by that amount and still get their targeted rate of return. In our example, our investor could increase the purchase price to \$20,566.78 and still get his or her 8.5% return.

Negative NPV means the investor is not getting sufficient cash to achieve the desired rate of return on the planned initial investment, and must decrease the initial investment by that amount to get their targeted rate of return.

E.g. Use the same scenario set out above, but change the targeted discount rate to 12%. NPV now becomes -\$7,442.99. The investor is paying at least \$7,442.99 too much to purchase this cash flow and achieve the targeted 12% discount rate. The Purchase Price needs to be reduced or the positive cash flow during or at the end of the investment needs to increase if the investor is going to achieve his or her 12% targeted discount rate on that property.

Zero NPV means cash flows are sufficient to exactly meet the desired benchmark discount rate based on the planned initial investment.

There are some issues with Net Present Value that you need to be aware of, especially when using NPV to compare different investments:

- NPV does not take qualitative differences in the properties into account.
- NPV does not adjust for different hold periods.
- NPV does not account for the reinvestment of positive cash flows during the hold period.
- NPV may not account for differences in initial investment amounts.
- NPV may not account for cash flow shortages at times during the hold period.

Internal Rate of Return Internal Rate of Return (IRR) is the discount rate at which the Present Value of future cash flows equals the initial capital invested (i.e. the discount rate at which the Net Present Value of a series of cash flows equals 0) expressed as a percentage.

An IRR less than your targeted rate of return suggests you are paying too much for the property to get your targeted rate of return

An IRR greater than your target rate of return suggests you could pay more for the property and still get your targeted rate of return

E.g. Going back to my previous example - you buy a property for \$200,000.00, it pays you \$18,000 per year in positive cash flow, you sell it after five years for \$225,000.00, and your targeted discount rate is 8.5% - the IRR on that investment is 11.01%.

If your targeted return on investment was less than 11.01%, then this investment looks good to you. If your targeted return on investment was more than 11.01%, then you need to reduce your purchase price, increase the cash flow during the hold period, or increase your cash flow on termination, to end up with an increased IRR to the point where it hits or exceeds your targeted discount rate.

There are problems with Internal Rate of Return:

- IRR calculations do not handle multiple sign changes well during the hold period i.e. investments which will have multiple years of positive and negative cash flows during the holder period.
- IRR works well with positive productivity, but you need to look very carefully at negative IRR.
- IRR can produce exaggerated results with little or no initial equity.
- IRR does not take productivity of unused equity amounts into account.
- IRR does not allow for cost of money required to cover periods of negative cash flow.
- IRR does not take different hold periods into account when comparing investments.
- Arguably IRR is “internal” only, does not take external factors into account, and therefore is not as useful for comparing investment opportunities.

Modified Internal Rate of Return Modified Internal Rate of Return (MIRR) is a technique used if more than one negative to positive cash flow change occurs. This technique is beyond the scope of this article. Its primary benefit is that it eliminates multiple negative and positive cash flows during the hold period, adjusts for reinvestment during periods of positive cash flow and the cost of borrowing to cover periods of negative cash flow. However, it still suffers from some of the deficiencies associated with Internal Rate of Return.

Financial Management Rate of Return Financial Management Rate of Return (FMRR) is a further sophistication of on Discounted Cash Flow techniques, and is also beyond the scope of this article. It treats negative cash flows during the hold period differently than Modified Internal Rate of Return, and as a result allows adjustments to be made for different hold periods when comparing two investments, or different initial investment amounts.

A Closing Thought

To the beginner or intermediate investor, this can all seem overwhelming. It is not hard to get in a position where you cannot see the forest for the trees. What matters is that you take a reasoned approach to your real estate investments, challenge your assumptions, learn what factors most influence outcome, and develop tools to help you understand where money is made and lost in the real estate business. As in anything else, no two deals are the same, the learning never stops, and the more you do it the better you get at it.