

IREM[®] Financial Analysis Spreadsheet

User Guide

ACKNOWLEDGEMENTS We would like to thank Dave Domres, CPM[®] for taking time from his personal and professional schedules to serve as the architect of this complex and invaluable financial analysis tool. We would also like to thank Yvonne Jones, CPM[®] and Tom Elmer, CPM[®] for contributing the 12 Month Operating Budget and Effective Rent worksheets, respectively. The collective dedication and support of IREM[®] education from this team and our entire finance and asset analysis course faculty is greatly appreciated!



IREM Institute of Real Estate Management

IREM Headquarters
430 North Michigan Avenue
Chicago, IL 60611-4090
www.irem.org

Phone	(800) 837-0706 (312) 329-6000
Fax	(800) 338-4736
E-mail	custserv@irem.org

9087/20120227

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OVERVIEW


The IREM® Financial Analysis Spreadsheet is a comprehensive tool that allows the user to perform several key analyses to gauge the performance of real estate investments. The spreadsheet includes before- and after-tax cash flow analyses for measuring financial performance over time, comparison grid analyses for setting average adjusted effective rents, an HP10BII financial calculator emulator, and tools for calculating effective rent, assessing leverage position, forecasting budgets, and conducting a discounted cash flow analysis.

Technical Requirements

- To ensure proper functionality of the IREM® Financial Analysis Spreadsheet, your computer must have Microsoft® Office Excel 2003, Microsoft® Office Excel 2007, or Microsoft® Office Excel 2010.
- For Mac users, please ensure that you have the full version of Microsoft® Office Excel, not a free or trial version, as they potentially will not support the full functionality of the tool. In addition, Mac OS 8 does not support visual basic macros—thus, the clear buttons and financial calculator tab will not function in the Mac environment.
- Full functionality may be effected by: current version of the operating system, configurations placed on the computer by the system administrator, conflicts with antivirus or system monitoring applications, and physical memory size of the computer

Saving a Working Version

Always begin using the spreadsheet by saving a working version from the master file so that original formulas are not lost. Return to the master version of the spreadsheet each time you use the tool. To save a working version of the file, follow the steps below.


Microsoft® Office Excel 2003	Microsoft® Office Excel 2007	Microsoft® Office Excel 2010
<ul style="list-style-type: none"> ■ On the toolbar, Select File > Save As ■ In the File name: field, assign the working file a new name ■ In the Save as type: field, use the default file type ■ Choose a location to store the working file and click Save 	<ul style="list-style-type: none"> ■ Click the Microsoft Office Button  ■ Select Save As > Excel Macro-Enabled Workbook ■ In the File name: field, assign the working file a new name ■ Choose a location to store the working file and click Save 	<ul style="list-style-type: none"> ■ Click the File tab ■ Select Save As ■ In the File name: field, assign the working file a new name ■ In the Save as type: field, select Excel Macro-Enabled Workbook ■ Choose a location to store the working file and click Save

Enabling Macros

Certain functionality within the tool, such as the ability to clear an entire sheet using a button like the one shown here, is driven by Excel macros, or a series of commands.

Clear Owner Goals

If macros are disabled in your software, follow the steps below to enable them. Note that Microsoft recommends returning to a safer macro setting when not using macros.

Microsoft® Office Excel 2003	Microsoft® Office Excel 2007	Microsoft® Office Excel 2010
<ul style="list-style-type: none"> On the toolbar, select Tools > Macro > Security Select “Low” and click OK Close and re-open the file to ensure macros are enabled 	<ul style="list-style-type: none"> Click the Microsoft Office Button  Click Excel Options Click Trust Center, then Trust Center Settings Click Macro Settings Select Enable all macros and click OK Close and re-open the file to ensure macros are enabled 	<ul style="list-style-type: none"> When you open the file, a yellow Security Warning Message Bar will appear On the Message Bar, click Enable Content Close and re-open the file to ensure macros are enabled

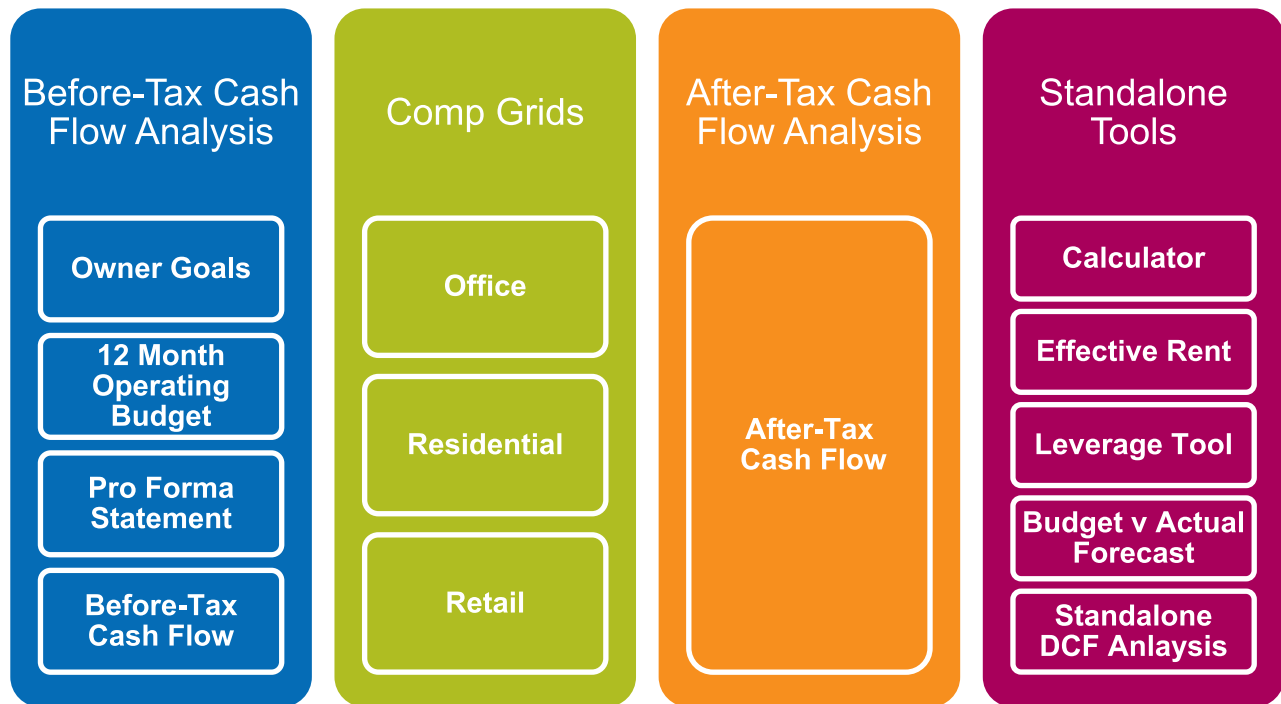
Error Messages

Error messages and related explanations will appear when common or critical errors are made. These are typically displayed within the face of the spreadsheet but may also appear in the bottom taskbar.

Spreadsheet Worksheets

The spreadsheet is divided into several color-coded worksheets. Each set of worksheets is comprised of tools that work independently or interdependently to execute a specific analysis per the table below.

Note that within each worksheet, all data should be entered in the yellow highlighted cells only.



Unprotecting a Worksheet

Remember to enter data in the yellow highlighted cells only. The other cells are formula-driven and are protected so that the formulas are not inadvertently written over. To unprotect a worksheet, follow the steps below.

Microsoft® Office Excel 2003	Microsoft® Office Excel 2007	Microsoft® Office Excel 2010
<ul style="list-style-type: none"> On the toolbar, select Tools > Protection Select Unprotect Sheet... Enter the password: iremfirst Click OK 	<ul style="list-style-type: none"> Click on the Review tab Select Unprotect Sheet Enter the password: iremfirst Click OK 	<ul style="list-style-type: none"> Click on the Review tab Select Unprotect Sheet Enter the password: iremfirst Click OK

Using this Guide

This guide is divided into sections by spreadsheet functions. Throughout the guide, you will find detailed steps for completing each of these various functions.

In addition, there are “Tips” boxes which provide additional details or best practices.

TIP

Enter the Analysis Begin Month as follows: for Year 1, enter 1; for Year 2, enter 13; for Year 3, enter 25, etc. For an interest-only loan, enter 0.

Lastly, there are “Data Output” boxes with a laptop icon that display data that is automatically populated based on your data entry.



Initial Equity will be displayed.

BEFORE-TAX CASH FLOW ANALYSIS

These worksheets appear in **blue** and are **interdependent**. They complete a before-tax cash flow analysis to measure the performance of a real estate asset.

Owner Goals

This worksheet is the primary data entry sheet for the before-tax cash flow analysis.

- Begin by entering information in the Site, For, and By fields.

TIP

The Date field will automatically populate with today's date. The information entered here will be copied to the rest of the Before-Tax Cash Flow Analysis worksheets.

In the **Analysis Variables** box, enter the following as applicable:

- Loan Amount
- Loan Interest Rate
- Loan Amortization Period

TIP

If there is a second loan on the property, enter the amount, rate, and amortization period for Loan 2 as well. The Analysis Begin Month | Loan 2 Begin field must be populated with a number greater than 1 for the loan to appear in the Midstream Analysis box.

- Loan Pre-paid Points, Balloon Term, or Penalty Fee
- Analysis Begin Month

TIP

Enter the Analysis Begin Month as follows: for Year 1, enter 1; for Year 2, enter 13; for Year 3, enter 25, etc. For an interest-only loan, enter 0.

- Owner's Required Return
- Going-In Capitalization Rate
- Cost of Sale

In the **Initial Analysis** box, enter the following as applicable:

- Purchase Price
- Acquisition Expenses
- Points, Fees



Initial Equity will be displayed.

If conducting a midstream analysis, enter the following in the **Midstream Analysis** box:

- Current Market Value



Current Market Value will be displayed. This figure is automatically calculated by dividing the current NOI from the Pro Forma Statement worksheet by the Going-In Cap Rate. This field can also be overwritten. To restore the formula, click the “Clear Owner Goals” button.

- Capital Improvements
- New Points, Fees



Cost of Sale, Current Loan Balance, Cash-Out Potential and Current Equity will be displayed.

- In the **Going-Out Capitalization Rate** box, enter rates for Years 2-10



Several loan ratios will be displayed in this worksheet. Important data such as Annual Debt Service (ADS), Loan to Value Ratio (LTV), Effective Interest Rate, Loan Constant (k%), and leverage are shown.

12 Month Operating Budget

This worksheet allows you to build an annual operating budget by entering monthly income and expense figures.

To calculate net operating income (NOI), follow the steps below.

- Enter monthly gross potential income (GPI), loss to lease, vacancy and collection loss, miscellaneous income, and any expense reimbursements
- Enter monthly operating expenses



Operating expense category totals will be displayed based on data entered for the line items in that category. In addition, total operating expenses will be displayed.

TIP

Several blank lines are available for you to customize the expenses listed.



GPI, Net Rent Revenue, EGI, total operating expenses, and NOI will be displayed for a 10-year holding period.

TIP

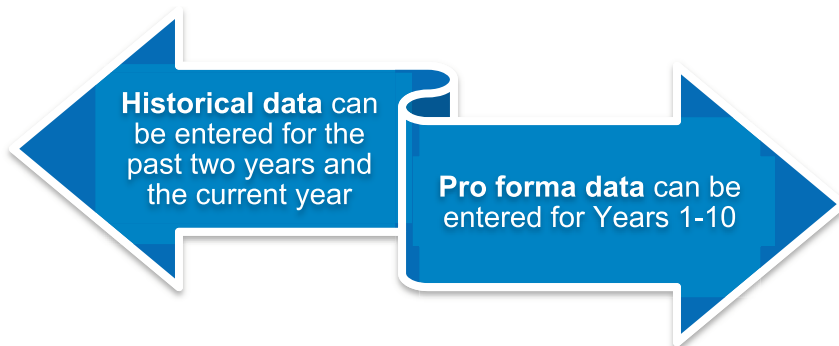
Capital expenditures may be entered below the NOI line by using the Capital Expenditures box.

TIP

Click the “Clear 12 Month Operating Budget” button to clear all data.

Pro Forma Statement

This worksheet has two components: historical data and pro forma data.



Historical Data

To calculate net operating income (NOI) from historical data, follow the steps below.

- Enter gross potential income (GPI), loss to lease, vacancy and collection loss, miscellaneous income, and any expense reimbursements for 2 years ago, 1 year ago, and last year
- Enter operating expenses for 2 years ago, 1 year ago, and last year



GPI, Net Rent Revenue, EGI, total operating expenses, and NOI will be displayed.

Pro Forma Data

To calculate and project net operating income (NOI) for pro forma data, follow the steps below.

- Enter Year 1 gross potential income (GPI), loss to lease, vacancy and collection loss, miscellaneous income, and any expense reimbursements



Year 1 income and expense figures will be displayed based on data entered in the 12 Month Operating Budget worksheet. These cells can be overwritten.

- Enter Year 1 operating expenses

TIP

If only total income is known, enter total income in the GPI line. If only total expenses are known, enter total expenses in any one of the expense lines. There are several blank lines available in the expenses column.

- In the Annual Increase column, enter the projected annual percent increase in income and expenses

TIP

If actual annual figures are known and are not based on the annual percentage increases, enter the figures directly in the appropriate cell, overwriting the existing formula.



GPI, Net Rent Revenue, EGI, total operating expenses, and NOI will be displayed for a 10-year holding period.

TIP

Capital expenditures may be entered below the NOI line by using the Capital Expenditures box. Entering data here will adjust the before-tax cash flows on the Before-Tax Cash Flow worksheet.

TIP

Click the “Clear Pro Forma Statement” button to clear all data.

Before-Tax Cash Flow

This worksheet is output-only and displays results based on data entered in the other Before-Tax Cash Flow worksheets.



The **Analysis Variables and Initial Analysis** box restates information entered in the Owner Goals worksheet.



The **Before-Tax Cash Flow (BTCF)** box displays before-tax cash flows projected for ten years based on NOI, loan principal, loan interest, and any capital improvements for each year.



The **Proceeds of Sale Analysis** box displays net sales proceeds by subtracting the cost of sale and current loan balance from the sale price.



The **5 Year T-Bar** is displayed for easy viewing of a five-year holding period. The T-bars visually display equity, before-tax cash flows for each year, and the sales proceeds.



The **Tests of Investment Return** box displays results of several tests of investment return from Years 2-10: cash-on-cash rate of return (\$/\$%), value enhancement, net present value (NPV), internal rate of return (IRR), and modified internal rate of return (MIRR). The Year 5 data is highlighted.

TIP

At the end of the IREM® Financial Analysis Spreadsheet, three additional before-tax display-only worksheets can be found. The BTCF T Bars worksheet displays equity, cash flows, and net sales proceeds (NSP) for Years 2-10 of the analysis. The Loan 1 and Loan 2 Amortization worksheets display the loan amortization schedules based on data entered in the Before-Tax Cash Flow worksheet.

COMPARISON GRIDS

These worksheets appear in **green** and function **independently**. They calculate average adjusted effective rent for an office, residential, or retail property based on data entered regarding comparable properties.

Office Comparison Grid

To calculate average adjusted effective rent per square foot, follow the steps below.

- Enter property names for the subject and comparable properties.
- Enter the base rental rate and any concessions, expense pass-throughs, and tenant-paid improvements for each comparable property.

TIP

All figures are per annual rentable square foot.

- Evaluate the comparables against the subject property and assign each category a rating such as: poor, fair, good, very good, or excellent.

TIP

There are open blank lines at the bottom of the Categories column to enter any additional categories as needed.

- Enter adjustments for each category. If the comparable is rated **superior** to the subject property, assign a **negative** number to adjust the comparable downward. If the comparable is rated **inferior** to the subject property, assign a **positive** number to adjust the comparable upward.



Total rent adjustments and adjusted effective rent for the comparable properties will be displayed. Average adjusted effective for the subject property will be displayed.

TIP

Click the “Clear Office Comparison Grid” button to clear all data.

Residential Comparison Grid

To calculate average adjusted effective rent, follow the steps below.

- Enter property names for the subject and comparable properties.
- Enter the base rental rate and any concessions or other income for each comparable property.
- Enter the square feet per unit for the subject and comparable properties.
- Evaluate the comparables against the subject property and assign each category a rating such as: poor, fair, good, very good, or excellent.

TIP

There are open blank lines at the bottom of the Categories column to enter any additional categories as needed.

- Enter adjustments for each category. If the comparable is rated **superior** to the subject property, assign a **negative** number to adjust the comparable downward. If the comparable is rated **inferior** to the subject property, assign a **positive** number to adjust the comparable upward.



Total rent adjustments and adjusted effective rent per unit for the comparable properties will be displayed. Average adjusted effective rent for the subject property will be displayed.

TIP

Average adjusted effective rent is provided both per unit and per square foot.

TIP

Click the “Clear Residential Comparison Grid” button to clear all data.

Retail Comparison Grid

To calculate average adjusted effective rent, follow the steps below.

- Enter property names for the subject and comparable properties.
- Enter the base rental rate and any concessions, expense pass-throughs, and tenant-paid improvements for each comparable property.

TIP

All figures are per annual rentable square foot.

- Evaluate the comparables against the subject property and assign each category a rating such as: poor, fair, good, very good, or excellent.

TIP

There are open blank lines at the bottom of the Categories column to enter any additional categories as needed.

- Enter adjustments for each category. If the comparable is rated **superior** to the subject property, assign a **negative** number to adjust the comparable downward. If the comparable is rated **inferior** to the subject property, assign a **positive** number to adjust the comparable upward.



Total rent adjustments and adjusted effective rent for the comparable properties will be displayed. Average adjusted effective rent for the subject property will be displayed.

TIP

Click the “Clear Retail Comparison Grid” button to clear all data.

AFTER-TAX CASH FLOW ANALYSIS

This worksheet appears in **orange** and functions **independently**. It completes an after-tax cash flow analysis to measure the performance of a real estate asset taking into account variables such as cost recovery, income tax, and capital gains tax.

After-Tax Cash Flow

To perform an after-tax cash flow analysis, follow the steps below.

In the **Analysis Variables** box, enter the following as applicable:

- Loan Amount (Loans 1, 2)
- Loan Interest Rate (Loans 1, 2)
- Loan Amortization Period (Loans 1, 2)
- Analysis Begin Month (Loans 1, 2)
- Owner's Required Return
- Going-Out Capitalization Rate
- Cost of Sale
- Income Tax Rate
- Recapture Rate
- Capital Gains Rate

In the **Initial Analysis** box, enter the following as applicable:

- Purchase Price
- Acquisition Expenses
- Points, Fees



Initial Equity will be displayed.

If conducting a midstream analysis, enter the following in the **Midstream Analysis** box:

- Current Market Value
- Capital Improvements
- New Loans
- New Points, Fees



Cost of Sale, Current Loan Balance, Cash-Out Potential and Current Equity will be displayed.

In the **Cost Recovery** box, enter the following:

- Land Allocation
- Recovery Period

In the **Cash Flow and Taxable Income** box, enter the following:

- Year 1 NOI

TIP

Enter Year 1 NOI from the Pro Forma Statement worksheet if desired. If NOI increases the same percent each year, enter the percentage increase in the NOI % Increase box. Otherwise, manually enter the NOI for each year.

- Previous Suspended Losses
- Passive Losses Used



After all data is entered, the **Cash Flow and Taxable Income** box displays figures such as: loan principal and interest, before-tax cash flow (BTCF), cost recovery, tax deductions, taxable income, and after-tax cash flow (ATCF) for the holding period.



The **Proceeds of Sale Analysis** box displays figures such as: cost recovery, basis, total tax on sale, before-tax sales proceeds and after-tax net sales proceeds.



The final box displays results of the tests of investment return based on the after-tax cash flows for the entire holding period, including cash-on-cash rate of return (\$/\$%), value enhancement, net present value (NPV), internal rate of return (IRR), and modified internal rate of return (MIRR).

TIP

At the end of the IREM® Financial Analysis Spreadsheet, three additional after-tax display-only worksheets can be found. The ATCF T Bars worksheet displays equity, cash flows, and net sales proceeds (NSP) for Years 2-10 of the analysis. The Loan 1 and Loan 2 Amortization worksheets display the loan amortization schedules based on data entered in the After-Tax Cash Flow worksheet.

STANDALONE TOOLS

These worksheets appear in **purple** and function **independently**. They complete a number of functions, including:

- Emulating a financial calculator
- Calculating effective rent
- Assessing leverage position
- Forecasting budgets
- Conducting a discounted cash flow analysis

Calculator

The Calculator worksheet performs both basic math functions such as adding, subtracting, multiplying, and dividing as well as more complex time value of money (TVM) calculations.

To perform a TVM calculation, follow the steps below.

- Enter the known variables into the appropriate field:
 - Number of Payments (N)
 - Interest Rate (I/YR)
 - Present Value (PV)
 - Payment (PMT)
 - Future Value (FV)
- Select the number of payments per year (P/YR), typically 1 or 12
- Select Beginning or End mode

TIP

The spreadsheet defaults to End mode as most calculations are done using this mode.

- Click the function button to solve for the missing variable.



The missing TVM variable will be displayed.

TIP

Click the “Clear All” button to clear all data.

Effective Rent

The effective rent tool calculates both the net present value and effective net rent of lease deals. Effective net rent is expressed in dollars per square foot per year.

TIP

When analyzing rental streams from a landlord perspective, all number values should be input as positive numbers, regardless of whether they are inflows or outflows.

To calculate effective rent with no concessions, follow the steps below.

- Enter the Rentable Square Feet and Lease Terms (Begin and End dates)

TIP

The tool will accommodate an analysis up to 15 years (180 months). The ending date entered must be later than the beginning date. The lease term will be calculated and rounded to the nearest number of months.

- Complete the Base Rent Schedule with End Month and \$/Rentable Sq. Ft./Yr. for all months in the Lease Term. Enter periods of free rent with \$0 (not blank).



The Start Month will be displayed based on the End Month entered. When the entire term has been entered, the next row will not impact the calculation, as long as neither an ending month nor rent > \$0 is input.

- Enter the Annual Discount Rate for Analysis as an annual figure.



Net present value and effective net rent of the lease terms will be displayed.

To calculate effective rent *with* concessions:

- Follow the steps above.
- Enter landlord concessions in whole dollars (not dollars per square foot).
- Input the timing of the payment of each concession (the month each will be paid).
- If the lease requires the tenant to repay the cost of a particular concession:
 - Enter "1" in Column E; otherwise leave as default value of "0".
 - If repayment will be in a lump sum, enter "1" in Column F; otherwise enter the number of months over which the repayment will be made in Column F.
 - If the concession repayment includes interest, input the Annual Amortization Rate for Concessions as an annual figure in the box provided.



Amortization per Month will be displayed. This is the monthly payment required to pay back the concession amount over the amortization period, including interest. The concession amortization period will start the month following when the concession is paid. The amortization period must be shorter than the Lease Term.

TIP

If the tenant will pay back part of the cost of particular concession, split the recoverable and non-recoverable portions on separate lines. If the landlord is taking over payments on a tenant's existing lease and will be making the payments over the remaining existing lease term, calculate the present value of the expected payments over the term using the same discount rate as this analysis, then enter the PV in Column C and "1" in Column D.



Net present value and effective net rent of the lease terms will be displayed.

To calculate effective rent when the landlord has a financial exposure to expenses through the base year or to expense stop lease structures:

- Follow the steps above.
- Enter a Beginning Opex and/or Beginning Tax value in dollars per rentable square foot per year. This figure should reflect estimated expenses and/or taxes during the first year of the analysis.
- Enter a percentage value in Est. Opex Growth Rate and/or Est. Tax Growth Rate. This will inflate the respective estimated expense each year of the analysis.
- Enter a Landlord Opex Stop and/or Landlord Tax Stop figure. This represents the level of expenses and/or taxes per square foot up to which the landlord is responsible for paying. The tool will offset expenses above this level with tenant contributions.

TIP

For full service leases, enter an amount that is greater than the inflated estimated expenses at the end of the lease term (e.g., \$99.99).



Net present value and effective net rent of the lease terms will be displayed.

TIP

Click the "Reset all input fields" button to clear all data. Click the "Reset rental stream" button to clear the Base Rent Schedule only. If only a few variables are changing, consider over-writing them instead of clearing all values.

Leverage Tool

The leverage tool computes several lender ratios based on loan terms entered in the worksheet.

To calculate lender ratios including loan-to-value ratio (LTV), debt coverage ratio (DCR), loan constant (k%), and free-and-clear rate of return, enter the following loan terms as applicable:

- Amount
- Interest rate
- Amortization period
- Pre-paid points
- Balloon term
- Pre-payment penalty
- Purchase price or value
- NOI



Lender ratios will be displayed. Note that some data outputs (LTV, DCR) are dependent on the loan amount entered and some (k%, Free-and-Clear Rate of Return) are not.

Budget v Actual Forecast Tool

The budget forecasting tool provides an operating budget template in which income and expense line items can be entered and forecasted.

TIP

This tool utilizes straight averages to forecast figures.

To forecast income, expenses, and NOI, follow the steps below.

- Enter the number of months in the Actual Y-T-D column
- Enter budget and actual figures for gross potential income (GPI), loss to lease, vacancy and collection loss, miscellaneous income, and expense reimbursements
- Enter budget and actual figures for all operating expenses



Forecasted figures will be displayed.

TIP

Click the “Clear Forecast Tool” button to clear all data.

Standalone DCF Analysis

The standalone discounted cash flow (DCF) analysis tool calculates net present value (NPV) and internal rate of return (IRR) for a property given income stream and required return rate.

TIP

Holding period can range from three to ten years.

To calculate NPV and IRR, follow the steps below.

- Enter the owner's required rate of return
- Enter the current equity in Year 0
- Enter cash flows for up to ten years
- Enter net sales proceeds (NSP) in the last year of the holding period



NPV, IRR, and the price to pay in order to achieve the owner's desired discount rate will be displayed.

TIP

There is one "Clear DCF Analysis" button for each T-bar.