📓 User Manual: Investment Metrics Explained

Net Present Value (NPV)

Think of NPV as: “How much is this stream of future profits worth today?”

- NPV > 0 → the investment is profitable
- NPV = 0 → the IRR is the return rate
- NPV < 0 → you’re losing money

🧮 Formula:

$NPV = \sum CF_t / (1 + r)^t$ - Initial Investment

Internal Rate of Return (IRR)

Definition: Annualized return rate where NPV = 0

Formula: Use numpy or a financial calculator:

np.irr([-Initial Investment, CF1, CF2, ...])

Return on Investment (ROI)

Definition: Total return relative to initial capital.

🧮 Formula:

ROI = (Total Return / Initial Investment) × 100

ROI includes:

- Appreciation
- Mortgage principal paydown • Net profit at sale

Cash-on-Cash Return (CoC)

Definition: Measures the annual pre-tax cash flow relative to the initial cash invested.

🧮 Formula:

CoC = (Annual Pre-Tax Cash Flow / Initial Cash Invested) × 100

💡Example:

You put $40,000 down on a rental property and receive $3,600 in annual cash flow:

CoC Return = ($3,600 / $40,000) × 100 = 9%📄 **Monthly Expenses**

This includes recurring costs like:

- Property Taxes
- Home Insurance
- Maintenance & Repairs
- HOA Fees
- Miscellaneous Operating Costs

Tip: If unsure of monthly expenses, estimate as 25% of rent. Typical operating costs include:

- Property taxes
- Insurance
- Repairs & maintenance
- Vacancy buffer
- HOA fees or other recurring expenses

Example: If your rent is $2,000/month, typical expenses might be 25% or ~$500/month.

Multi-Year Cash Flow & ROI

Cash Flow = Annual Rent – (Operating Expenses + Mortgage Payments)

ROI = (Total Return / Initial Investment) × 100

What Counts as Cash Flow for CoC and ROI?

Cash-on-Cash Return uses Net Pre-Tax Cash Flow — not total rent.

Formula:

Cash Flow = Annual Rent – (Operating Expenses + Mortgage Payments)

When CoC = ROI (Year 1):

If there is no appreciation, mortgage paydown, or sale value yet, ROI = CoC.
But ROI becomes more powerful long-term, factoring in gains like:
• Equity from price appreciation
• Mortgage principal reduction
• Sale value of property

📊 Long-Term Metrics

■ IRR (%) – Internal Rate of Return
Definition Recap: IRR is the annualized rate where NPV of all cash flows becomes zero.Example:
You buy a rental with a $40,000 down payment.
Each year you receive $3,600 in cash flow.
After 5 years, you sell and receive $60,000 net profit.
💰Equity Multiple
Formula:
Definition: How many times your original investment has grown.
Equity Multiple = Total Cash Inflows / Total Cash Invested
Example:
You invest $40,000 and receive $78,000 total (rent + final sale).
Equity Multiple = 78,000 / 40,000 = 1.95×
🏗️ Capital Improvement Tracker
Purpose:
Capital improvements are major upgrades that increase a property's long-term value or rental income.
Examples include kitchen remodels, roof replacement, solar installation, or HVAC upgrades.
Why It Matters:
These improvements can boost both cash flow and property appreciation — two critical drivers in
ROI and IRR performance.
By tracking them, investors can quantify how each upgrade improves returns over time.
Example:
A $15,000 kitchen renovation increases monthly rent by $150.
That's an additional **$1,800 per year**, which yields an **ROI of 12%** on that improvement alone.
Takeaway:
Consistently logging improvements helps refine your investment model, reveal which upgrades deliver the best payback, and better predict future property valuation trends.
IRR (Operational) vs IRR (Total incl. Sale)Understanding both forms of IRR helps investors distinguish between ongoing rental efficiency
and total return over the full investment horizon.
We publish both IRR views so you can evaluate day to day rental efficiency and full life cycle return.
Both now appear in the app's **Long-Term Metrics**.

Why both matter?

IRR (Operational) Return from yearly operations only (rent − expenses − mortgage).
Excludes any sale/appreciation.
IRR (Total incl. Sale) Includes terminal sale proceeds or modeled appreciation at exit; reflects total holding period return.

Typical Example (numbers are illustrative)

Down Payment $40,000
Annual Net Cash Flow $3,600

Exit (Year 5) Net
Proceeds $60,000

Metric Cash Flows Considered Approx.

Result

IRR (Operational) [-40,000, 3,600, 3,600, 3,600, 3,600, 3,600] ≈ 8.7%
IRR (Total incl. Sale) [-40,000, 3,600, 3,600, 3,600, 3,600, 3,600 + 60,000] ≈ 17.7%

Who Uses Which IRR?

Investors — compare operational performance vs. total return across deals.
Lenders — evaluate steady cash flow and loan risk (Operational IRR).
🧠 Analysts — model sensitivity to rent growth and exit value (Total IRR).
Tip: In the app, you'll now see both values under **Long Term Metrics**: **IRR (Operational)** and **IRR (Total incl. Sale)**.

📘 RealEstate Insight Intelligence — Cash Flow vs. Appreciation (Investor Guide)

🧩 Understanding What the Annual Income Allocation Pie Chart Represents

The **Annual Income Allocation Pie Chart** is intentionally designed to reflect **cash flow mechanics — not total return**.

🧠 This section explains Cash Flow concept under the Insight tab:

📌 1. Appreciation Is Not Cash Flow

- Appreciation is **equity growth**, not income.
- It **never enters your pocket during the year** unless you sell or refinance.
- Therefore, it **cannot** appear in a cash-flow allocation chart.

Cash Flow = Rent – (Operating Expenses + Mortgage Payments)

This is what funds break-even, debt coverage, and yearly investor income.

📌 2. Why the Pie Chart Responds Only to Rent Growth (Not Appreciation)

✓ Because the chart reflects income allocation, not total return.

Income changes only when:

- Rent changes (↑ or ↓)
- Expenses change
- Mortgage payments change

Appreciation does NOT change income, so its wedge stays out of the pie by design.

This is why the sliders:

- **Annual Rent Growth Rate (%) → affects wedges**
- **Annual Appreciation Rate (%) → does not affect wedges**

The chart is 100% consistent with industry-standard cash-flow modeling.

📌 3. "Why doesn't appreciation affect break-even?"

🧠 **"Break-even means the deal pays for itself from cash flow.**
Appreciation builds equity, but it doesn't pay the mortgage or expenses."

Break-even is a *bank account question*, not a *property value question*.

📌 4. The Three-Part Total Return Framework

Real investors evaluate deals using **three separate return engines**:

1️⃣ Cash Flow (Annual Income)

Rent – Expenses – Mortgage = Real money in pocket

➞ *This is what the pie chart shows.*

2️⃣ Appreciation (Equity Growth)

Property value increases over time

➞ *Not part of cash flow, part of total ROI and IRR.*

3️⃣ Mortgage Principal Paydown (Forced Savings)

Each payment builds equity

➞ *Appears in IRR and Equity Multiple, not in income charts.*