

Cash Flows Calculations

The HP-12C calculator provides functions for the two most widely-used methods of discounted cash flow analysis: **f** **NPV** (net present value) and **f** **IRR** (internal rate of return). These functions enable you to analyze financial problems involving cash flows (Cash-In or Cash-Out) occurring at regular intervals, but of different values.

The RLM-12 Finance Center implementation has the capacity to store up to 99 different cash flow amounts (CF_j) plus the initial investment (CF₀). Also, equal consecutive cash flows can be grouped entering the cash flow amount and the number of times (up to 99) that it repeats (N_j).

The keys involved in the Discounted Cash Flow Analysis are:

n	Store the index “j” of the current cash flow entry for editing; or the index of the last cash flow to be consider in the NPV and IRR calculation.
i	Stores the Interest rate to use by the NPV calculation or keeps the result of the IRR calculation.
g CF₀	Amount of the initial investment stored in storage register 0. This function stores the number in the display in the storage register 0 and reset n to 0.
g CF_j	Cash flow “j” amount. This function increment n by 1 and stores the number in the display in the Storage Register “n”.
g N_j	Number of times the cash flow “j” occurs consecutively. By default “N _j ” is 1. If a value is entered, it must be a positive integer from 1 up to 99.
f NPV	Calculates the Net Present Value using the value of i as interest rate per period of the cash flow entries from 0 to the value of n .
f IRR	Calculates the Internal Rate of Return of the cash flow entries from 0 to the value of n and stores the result in register i .

As a special feature, the RLM-12 Finance Center has an additional tool to edit or calculate cash flows of regular and variable periods length. To show it, expand the calculator pressing the **OPT key and in the "Options Selection Menu", select the “[Cash Flows](#)” option.**

Example : Cash Flow NPV & IRR Calculations

A property for rent is for sale at \$79,000. It has rent and purchase contract that gives the following cash flows to the investor:

Year	Cash Flow Amount	Year	Cash Flow Amount
1	\$14,000.00	6	\$9,100.00
2	\$11,000.00	7	\$9,000.00
3	\$10,000.00	8	\$9,000.00
4	\$10,000.00	9	\$4,500.00
5	\$10,000.00	10	\$100,000.00

What is the Present Value of the investment at 13.5% rate of return, What is the Internal Rate of Return of the investment?

Keystrokes	Description
f clear REG	Clears the Storage Registers.
Type "79000" CHS g CFo	Stores the initial investment (Cash-Out).
Type "14000" g CFj	Stores the 1 st cash flow value "CF ₁ " (Cash-In).
Type "11000" g CFj	Stores the 2 nd cash flow value "CF ₂ " (Cash-In).
Type "10000" g CFj	Stores the 3 rd cash flow value "CF ₃ " (Cash-In).
Type "3" g Nj	Stores the number of repetitions of cash flow "CF ₃ " in "N ₃ ".
Type "9100" g CFj	Stores the 4 th cash flow value "CF ₄ " (Cash-In).
Type "9000" g CFj	Stores the 5 th cash flow value "CF ₅ " (Cash-In).
Type "2" g Nj	Stores the number of repetitions of cash flow "CF ₅ " in "N ₅ ".
Type "4500" g CFj	Stores the 6 th cash flow value "CF ₆ " (Cash-In).
Type "100000" g CFj	Stores the last cash flow value "CF ₇ " (Cash-In).
Type "13.5" i	Key in the rate of return a press "i" to enter it.
f NPV	Calculates the Net Present Value. Result = 907.77
f IRR	Calculates the Internal Rate of Return. Result = 13.72%

Cash Flow Review & Edit

The cash flow amounts are stored in the Storage Registers, from CF₀ in register 0 to CF_j in register “ j ”, thus they can be viewed or changed using **STO** or **RCL**. Nevertheless, this method allows to work with the first 20 entries only (**STO** & **RCL** can access up to 20 registers, from 0 to 19).

The general method to access all cash flow entries is to use the number stored in register **n** as index “ j ”. In this way to view or change an entry use the following procedures:

To Review cash flow entries (CF_j):

Type the index of the cash flow you want to view (“ j ”) and press **n**. then press **RCL** **g** **CFj** and the amount of “CF_j” will be shown in the display. Be aware that this function decrease by 1 the content of **n** after the recall.

To Review cash flow repetition (N_j):

Type the index of the cash flow you want to view (“ j ”) and press **n**. then press **RCL** **g** **Nj** and the number of ‘CF_j’ repeats consecutively will be shown in the display.

To Change a cash flow entry (CF_j):

Type the index of the cash flow you want to change (“ j ”) minus 1 and press **n**. then type the the new cash flow amount and press **g** **CFj**. Be aware that this function increase **n** by 1 before storing CF_j.

To Change a cash flow repetition (N_j):

Type the index of the cash flow you want to view (“ j ”) and press **n**. then press **g** **Nj**.

To view or change the initial investment use **RCL** **g** **CFo** to view the amount or **g** **CFo** to store a new one.

After any of these operations, be sure to restore the value of **n** to its original value, that is the total number of cash flow entries, not counting the initial investment.

Summary:

Type "j" n	Store the index "j" of the cash flow in the financial register "n".
RCL g CFj	Recalls and displays the amount of the cash flow "n" (CFj) and decrement the index in "n" by 1.
RCL g Nj	Recalls and displays the number of times that the cash flow "n" (Nj) repeats consecutively.
g CFj	Increments the index in "n" by 1 and stores the number in the display in the cash flow "n" (CFj).
g Nj	Stores the displayed value as the number of times that the cash flow "n" (Nj) repeats consecutively (integer from 1 to 99).
RCL g CFo	Recalls and displays the amount of the initial cash flow.
g CFo	Stores the displayed value as the initial cash flow (CFo) and reset the index in "n" to 0.