



Discounted Cash Flow

Portfolio Return Measurement



Discounted Cash Flow

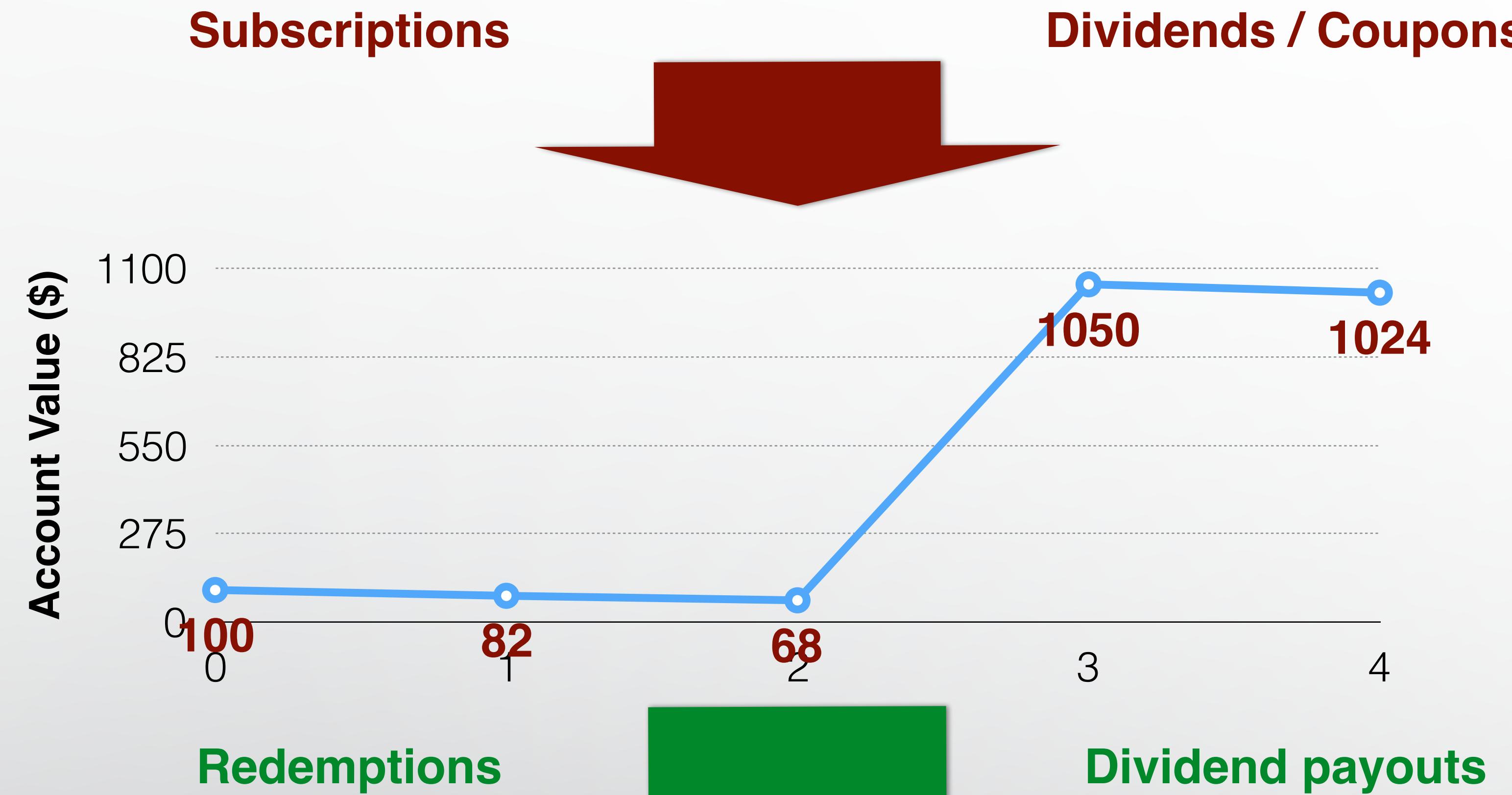
Portfolio Return Measurement

1. Money Weighted Rate of Return
2. Holding Period Return
3. Time Weighted Rate of Return

Portfolio Return Measurement

1. Money Weighted Rate of Return
2. Holding Period Return
3. Time Weighted Rate of Return

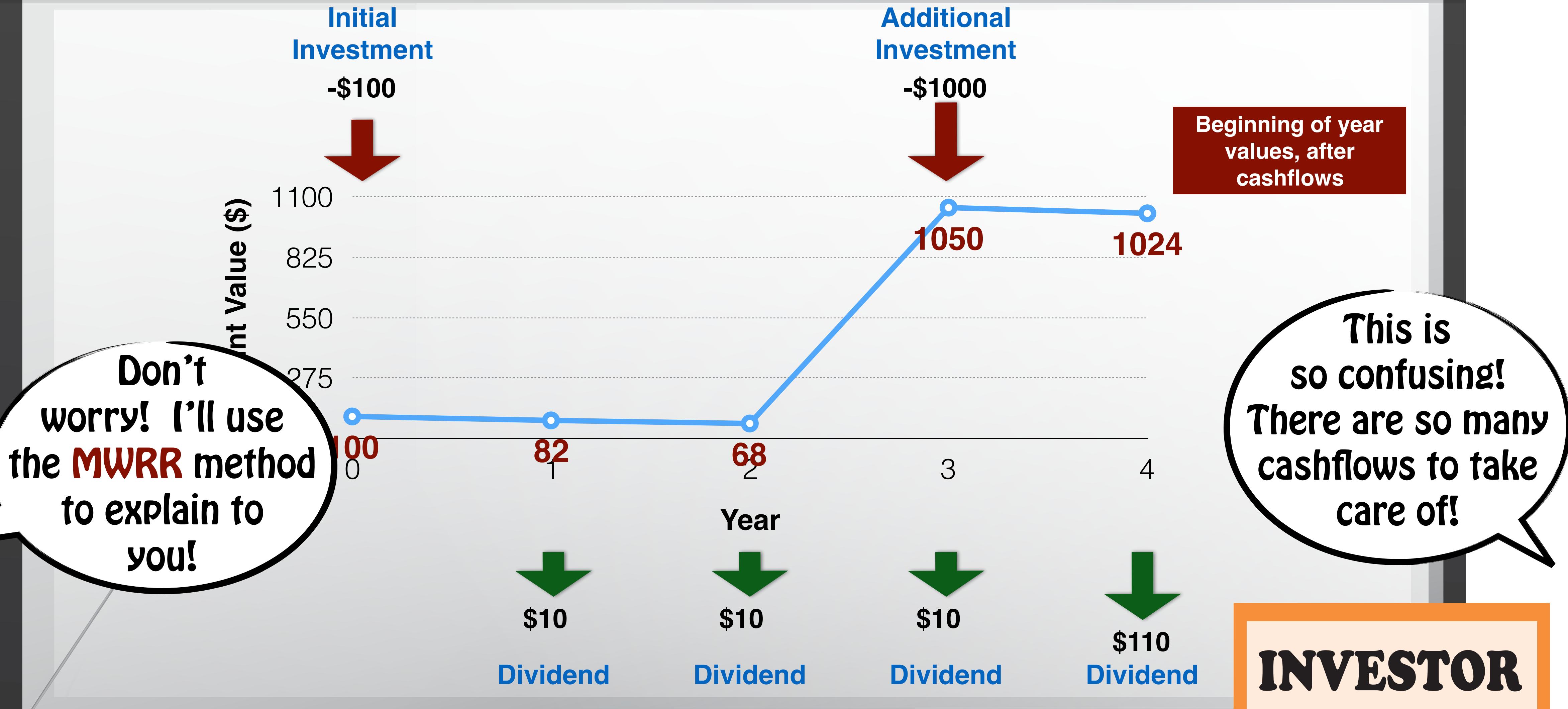




INVESTOR

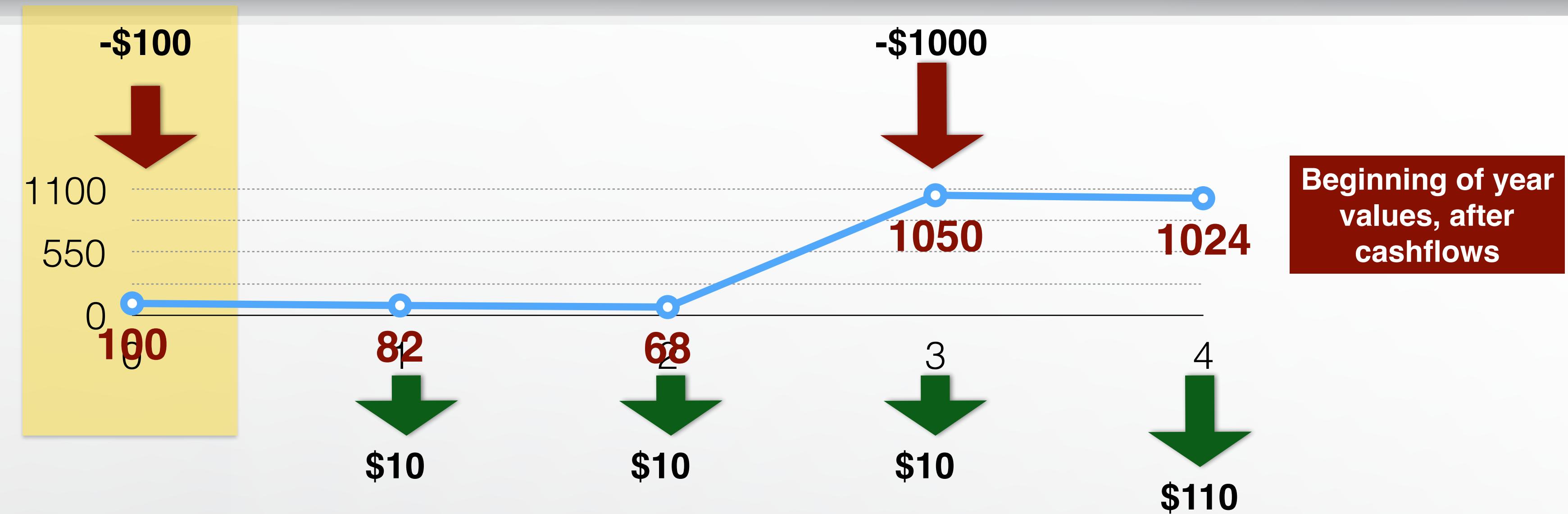
Portfolio Return Measurement

1. Money Weighted Rate of Return
2. Holding Period Return
3. Time Weighted Rate of Return



Portfolio Return Measurement

1. Money Weighted Rate of Return
2. Holding Period Return
3. Time Weighted Rate of Return



STEP 1 - Clear Memory

CF → 2ND CLR WORK

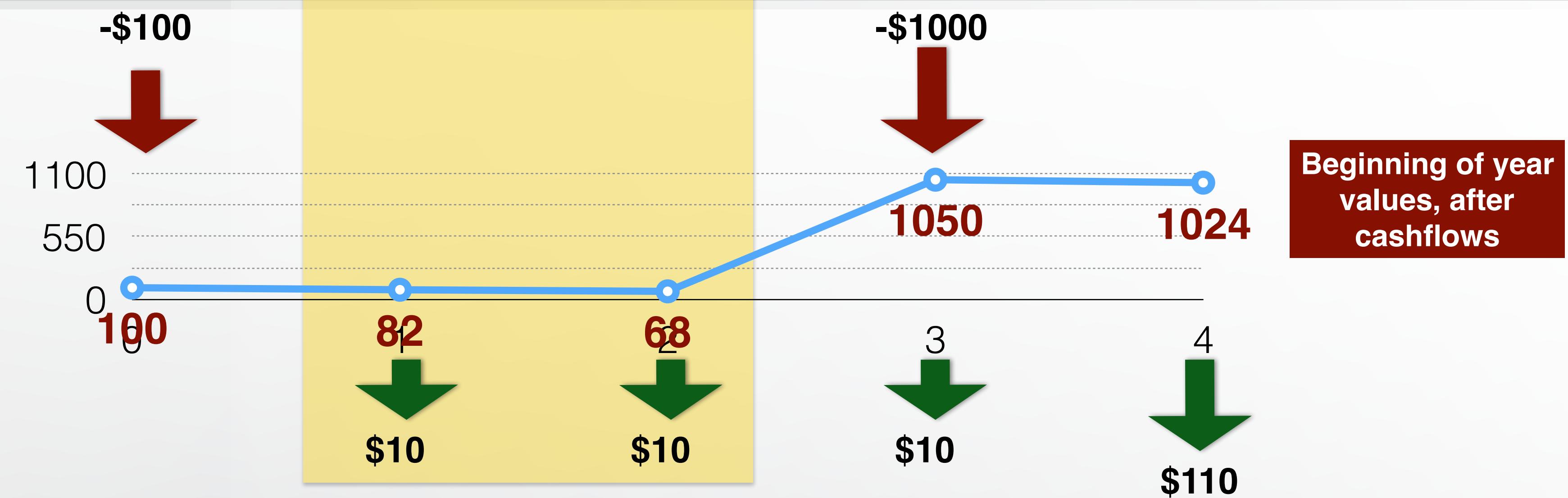
STEP 2 - Initial Cashflow CF0

-100 ENTER ↓

INVESTOR

Portfolio Return Measurement

1. Money Weighted Rate of Return
2. Holding Period Return
3. Time Weighted Rate of Return



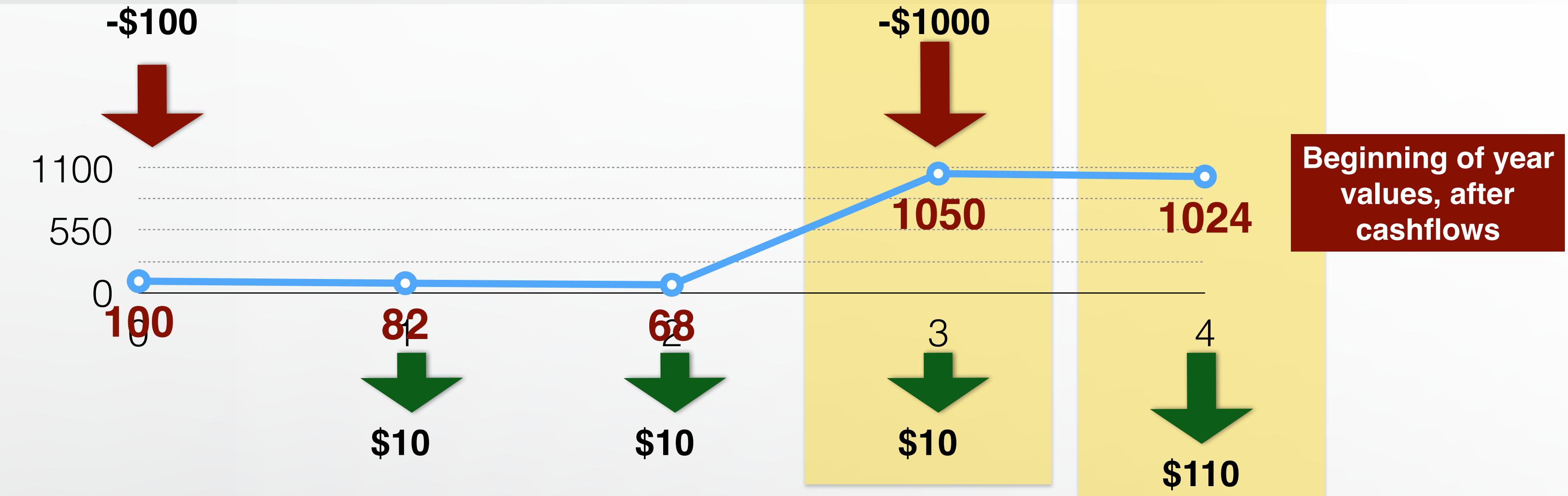
STEP 3 - C01=10, F01=2

10 **ENTER** 2 **ENTER**

INVESTOR

Portfolio Return Measurement

1. Money Weighted Rate of Return
2. Holding Period Return
3. Time Weighted Rate of Return



STEP 4 - C02=-990, F02=1

-990

ENTER



STEP 5 - C03=1134

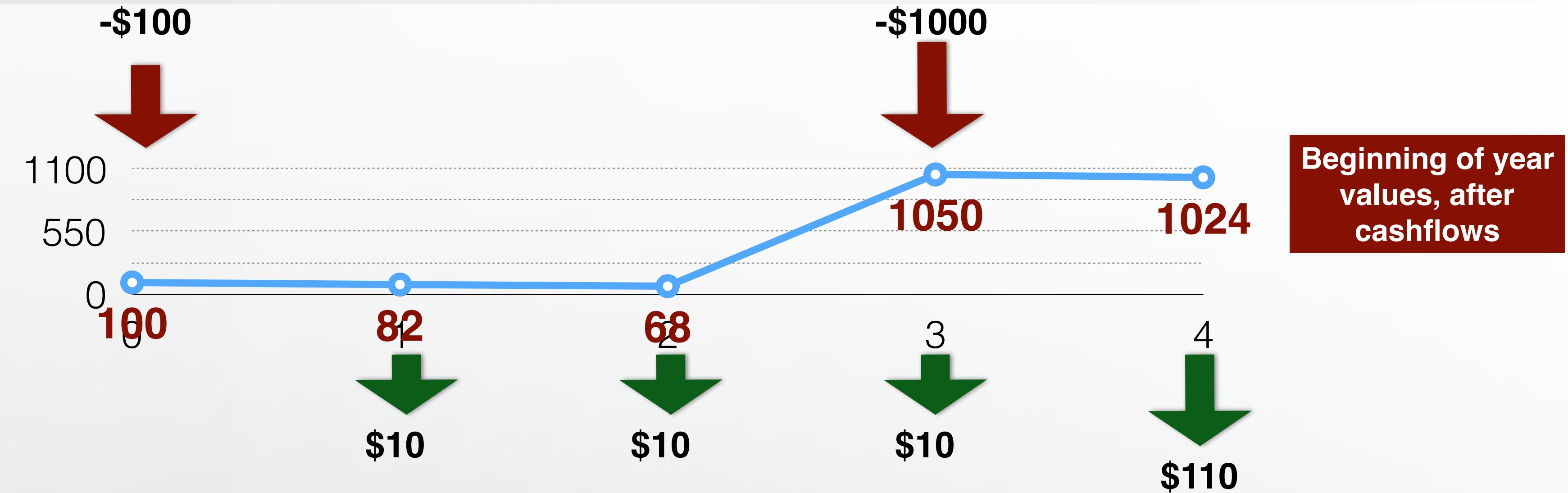
1134

ENTER

INVESTOR

Portfolio Return Measurement

1. Money Weighted Rate of Return
2. Holding Period Return
3. Time Weighted Rate of Return



STEP 5 - Compute IRR

IRR → **CPT**

MWRR = 4.68%

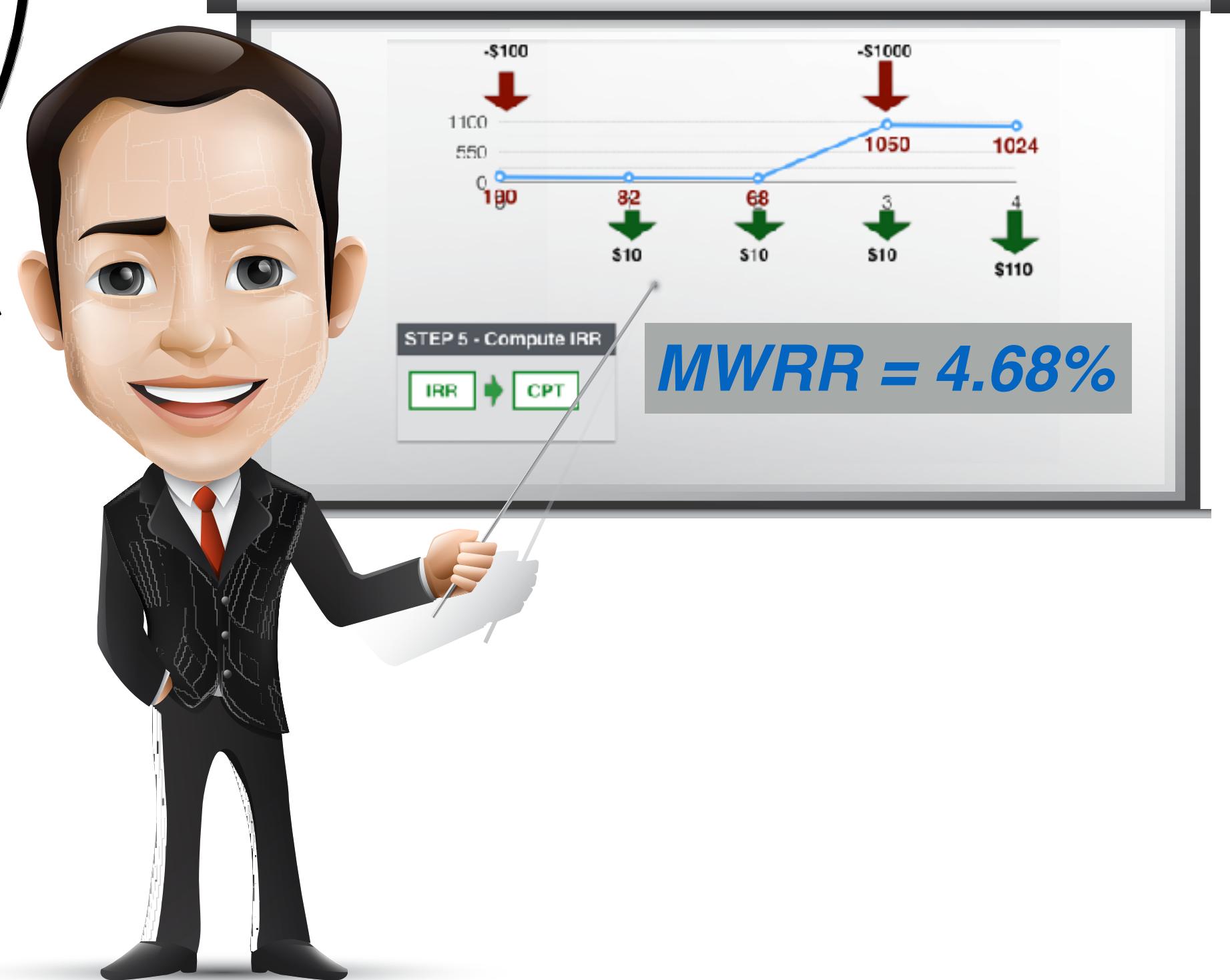
INVESTOR

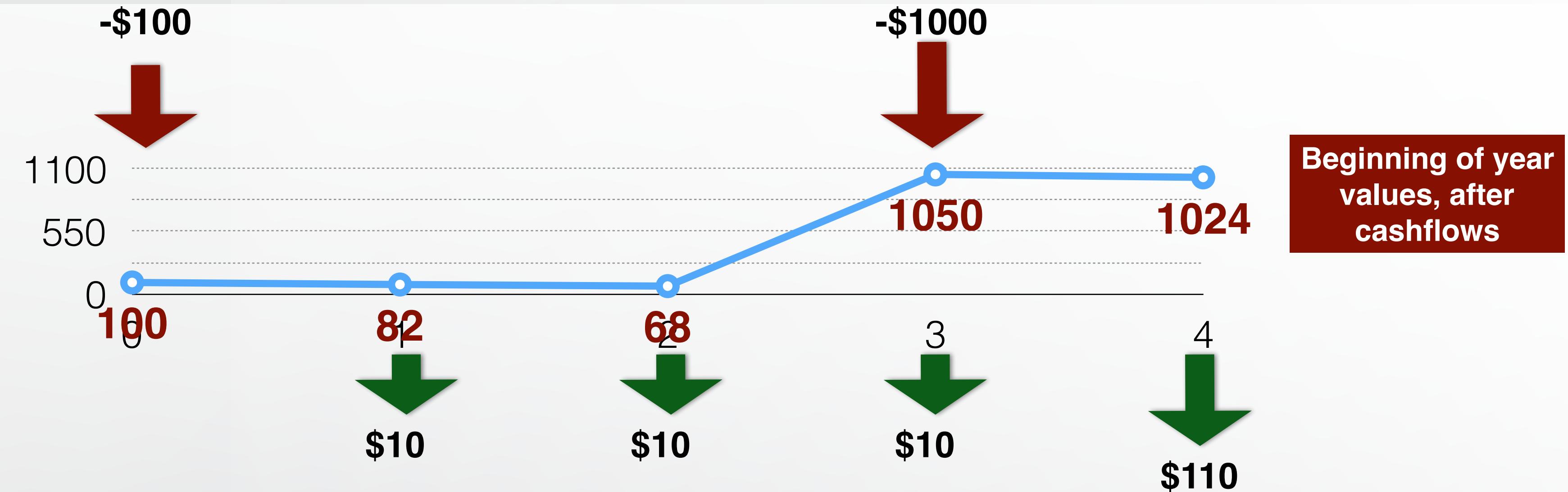
Portfolio Return Measurement

1. Money Weighted Rate of Return
2. Holding Period Return
3. Time Weighted Rate of Return



Your account
has grown an
annualised
4.68% for the
past four years!



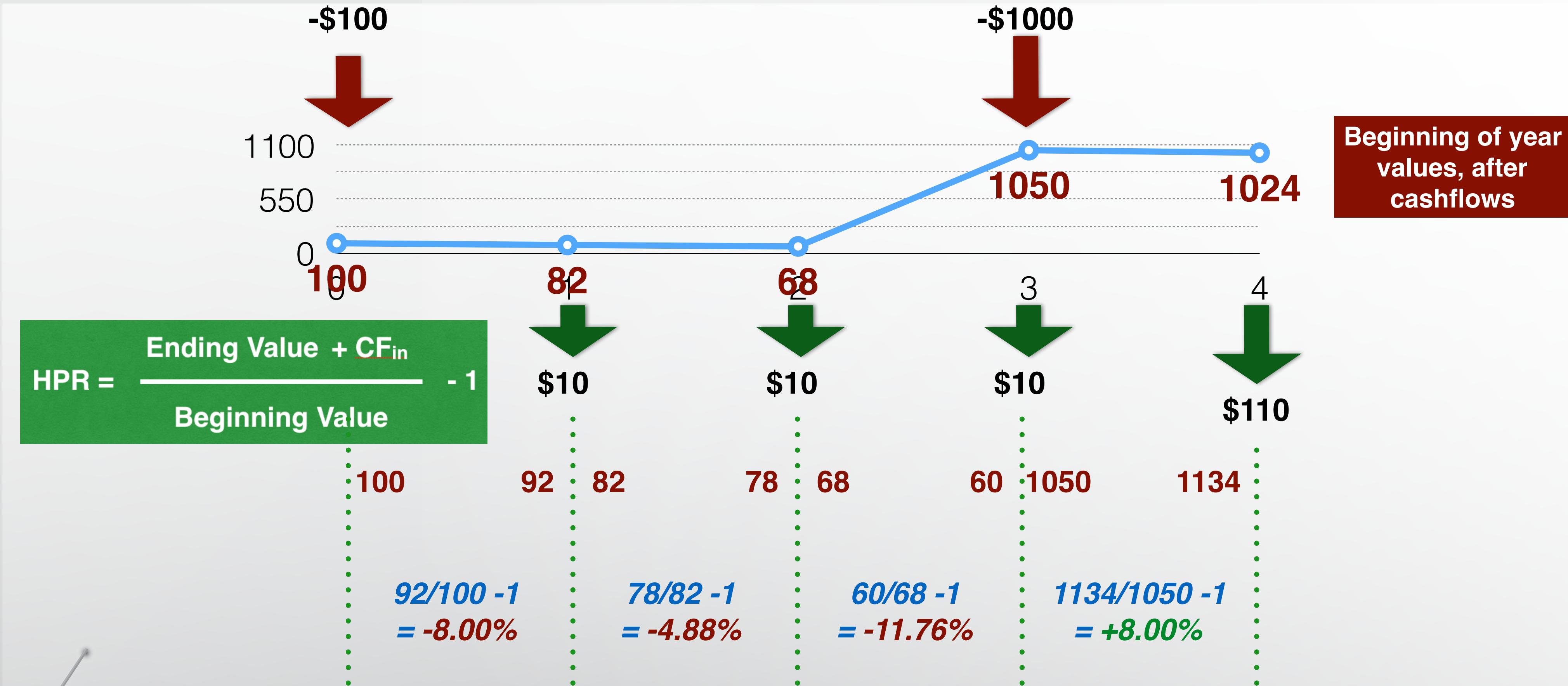


$$\text{Holding Period Return (HPR)} = \frac{\text{Ending Value} + \text{CF}_{in}}{\text{Beginning Value}} - 1$$

INVESTOR

Portfolio Return Measurement

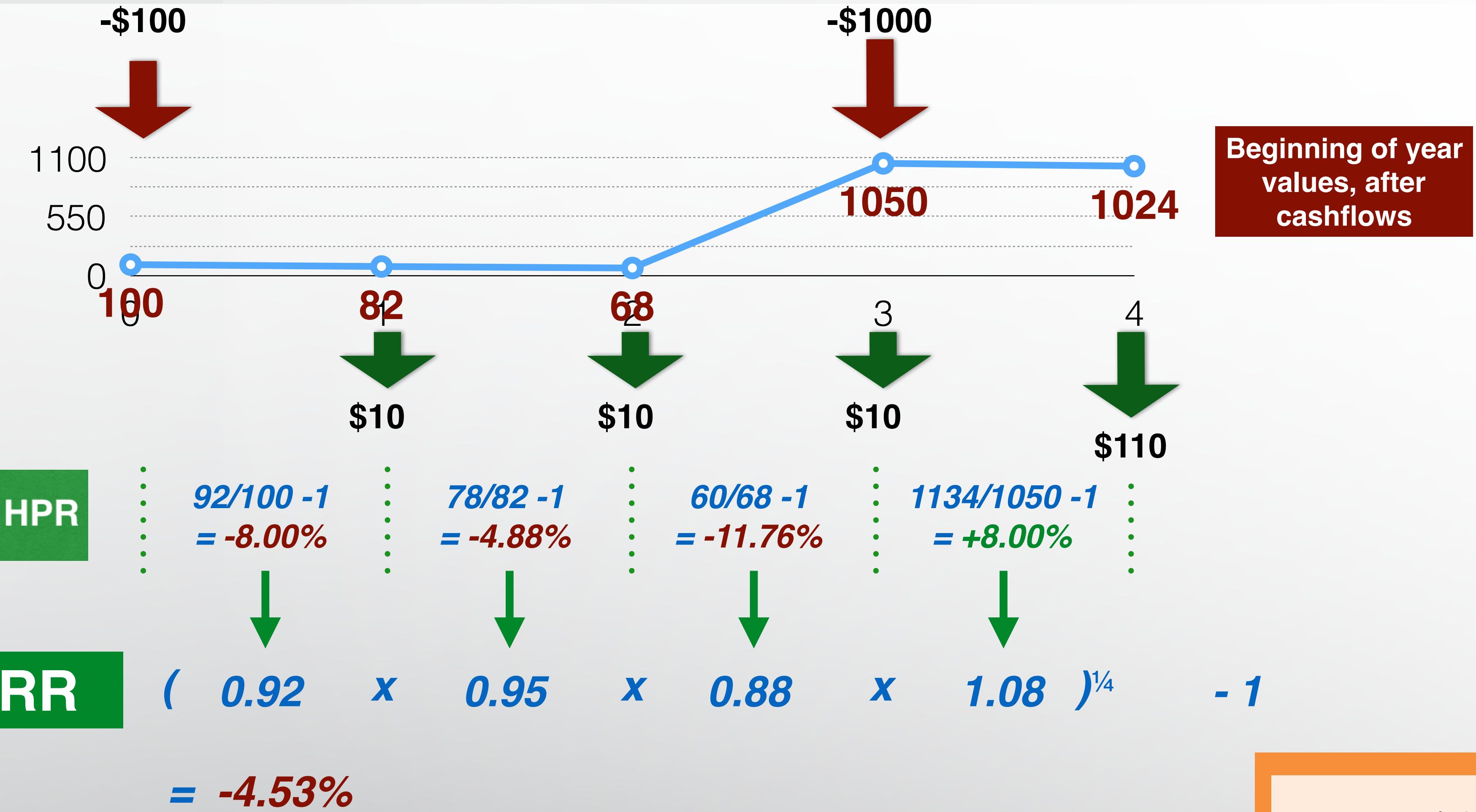
1. Money Weighted Rate of Return
2. Holding Period Return
3. Time Weighted Rate of Return



INVESTOR

Portfolio Return Measurement

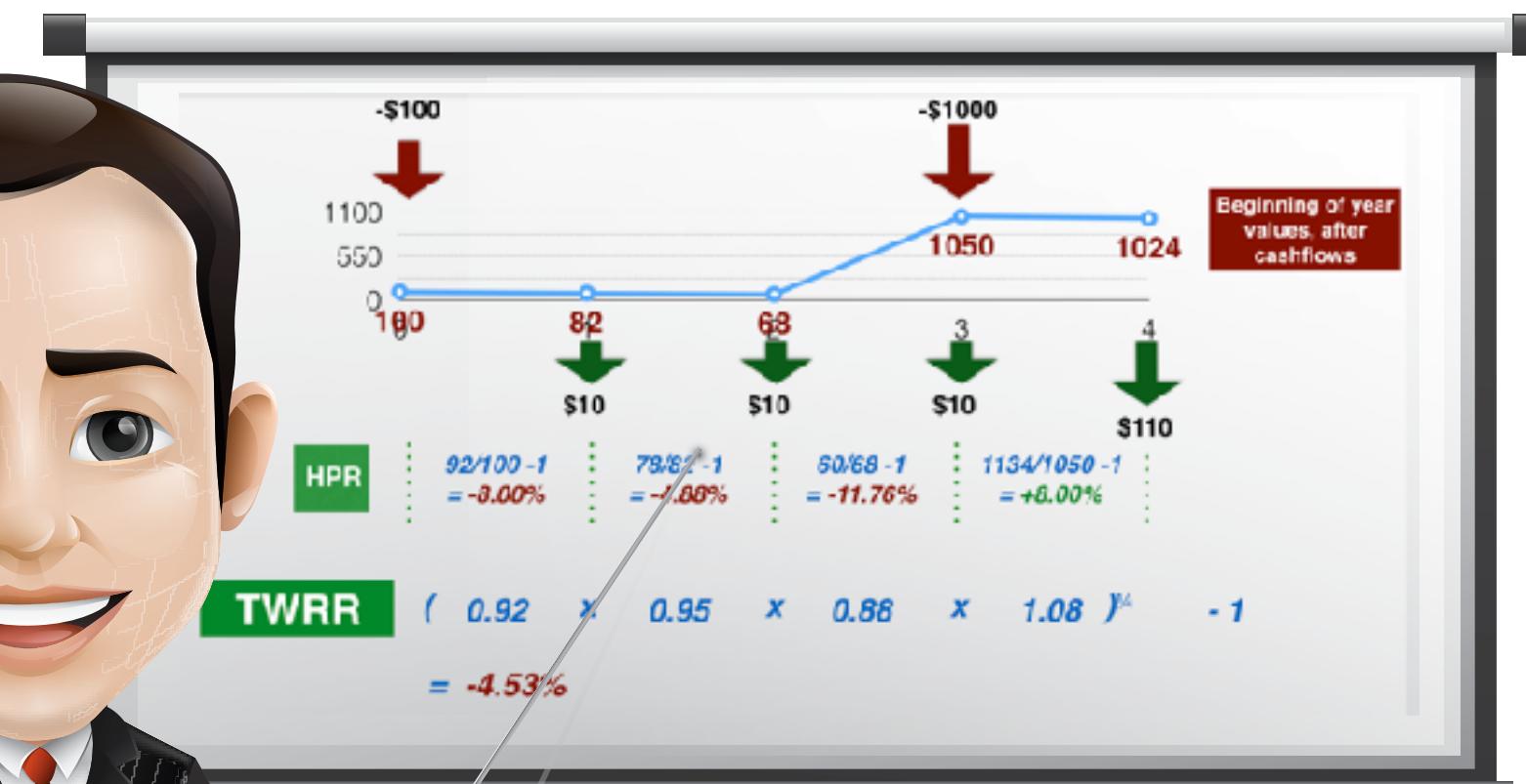
1. Money Weighted Rate of Return
2. Holding Period Return
3. Time Weighted Rate of Return



Portfolio Return Measurement

1. Money Weighted Rate of Return
2. Holding Period Return
3. Time Weighted Rate of Return

Er.. if you use
the TWRR
measure, the
annualised return is
actually
-4.53%



At the beginning of the year $t=0$, an investor buys 2 shares of a stock at \$520 each. At the end of the year, he sells one of the shares at \$800. The stock paid \$30 dividend per share at the end of both years. Calculate the annualised (1) MWRR and (2) TWRR if he sold the remaining share at the end of second year at \$750.

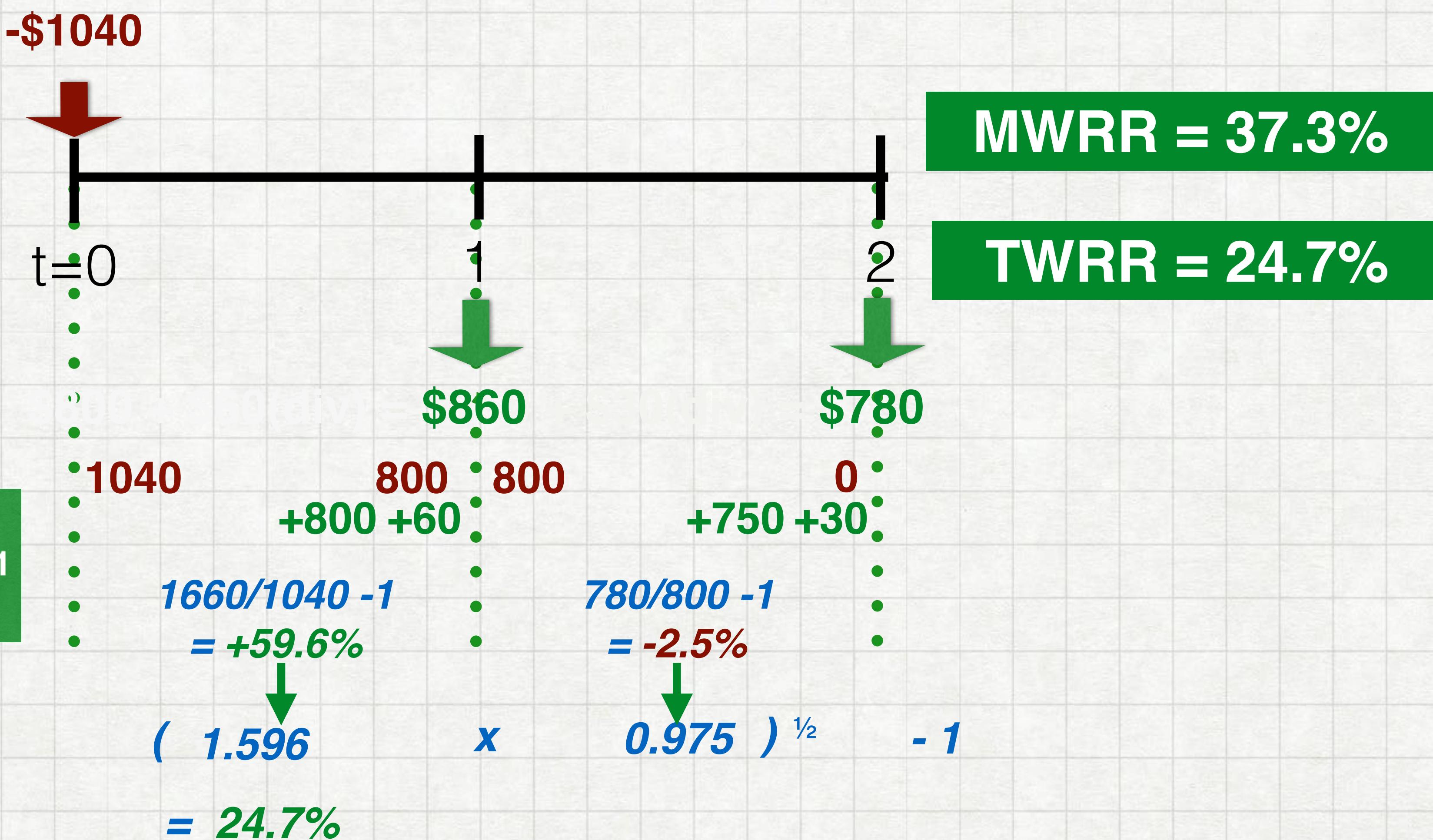


Clear Memory

CF → **2ND CLR WORK**

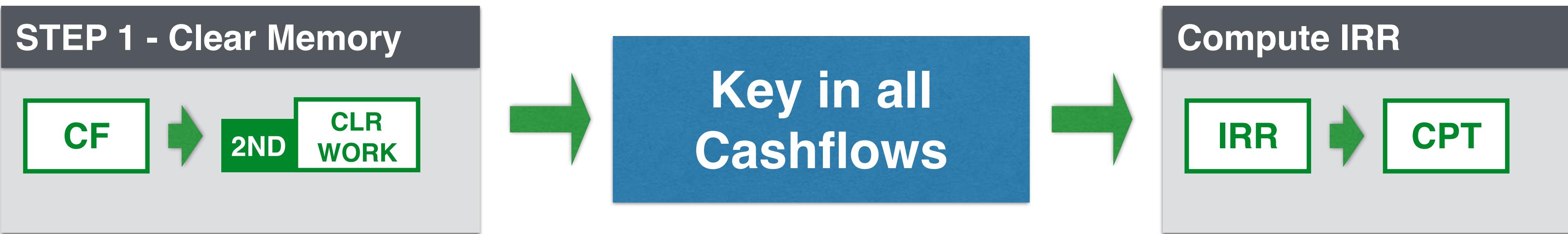
-1040 **ENTER** → **↓** → **860** **ENTER** → **↓** → **780** **ENTER** → **IRR** → **CPT**

At the beginning of the year $t=0$, an investor buys 2 shares of a stock at \$520 each. At the end of the year, he sells one of the shares at \$800. The stock paid \$30 dividend per share at the end of both years. Calculate the annualised (1) MWRR and (2) TWRR if he sold the remaining share at the end of second year at \$750.



1. Money Weighted Rate of Return

$$\text{MWRR} = \text{IRR}$$



2. Holding Period Return

$$\text{HPR} = \frac{\text{Ending Value} + \text{CF}_{in}}{\text{Beginning Value}} - 1$$

3. Time Weighted Rate of Return

Compute HPR
for each period → Geometric Mean

