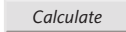






RPP Surplus/Deficit Allocation Calculator

The RPP Surplus-Deficit Allocation Calculator calculates the fair and equitable share of any surplus or deficit for participants in a pension plan (active members, retired members, plan sponsor, etc.). This calculation is based on time-weighted contributions, i.e. based on the time each contribution is made to or withdrawn from the plan. Calculations may be performed for an entire plan or for individuals in a plan.

Things to know...

- Dates should be formatted as mm/dd/yyyy.
- Enter all input data consecutively, i.e. no blank rows between records.
- Calculation loops may occur due to unusual inputs. To break the loop, press ESC, then check your input.
- When all data has been input, press the  button to execute calculations.

Tip

This symbol  next to bolded text indicates an input field and this symbol  next to bolded text indicates an output field.

This calculator may also be used by a partnership to calculate the value of each partner's share on an ad hoc basis or at the dissolution of the partnership where the contractual agreement does not specify share values.












Using the Calculator

This calculator was designed for use with Excel 97 or higher. To use this calculator, please ensure that macros are enabled *before* opening the calculator file by doing the following:

Set the **Macro Security Level** in Excel to **Medium**:

1. On the **Tools** menu, select **Macro**, then **Security...**
2. On the **Security** panel, select the **Security Level** tab, then choose **Medium Level**.
3. Click **OK**.

Methodology

- For each contribution/withdrawal, compute the amount of money accumulated to the **Calculation Date**  (denoted below as S):
$$\sim \text{Duration in years} = (\text{Calculation Date} \downarrow - \text{Entry / Withdrawal Date} \downarrow) / 365$$
$$\sim S = \text{Amount} \downarrow \times \exp(\text{Average Return Rate} \uparrow \times \text{Duration in years})$$
- Determine **Average Return Rate** . To determine **Average Return Rate**  which is similar to Internal Rate of Return (IRR), the following equation should be satisfied:
$$\sim \sum S_{\text{all}} = \text{Total End Value} \downarrow$$
- Determine end value for each group of participants or a partner by using the **Amount** , **Average Return Rate**  and Duration.
- Total the value for each group of participants or a partner and subtract this amount from the **Total End Value** . This difference should be nil. If it is not, determine **Average Return Rate**  again and repeat the above calculations until the difference is nil.
- Determine **Share**  as a percentage of **Total End Value**  of the assets of the pension plan or the enterprise value of the partnership.
- For pension plans only, determine **Surplus/Deficit**  applicable to each group of participants by using the **Share**  value.



Calculation Options

One of two calculation options can be used: **Pension Plan** ↓ or **Partnership** ↓ .

Inputs ↓

For the overall level:

Calculation Date ↓ : Date of calculating the value of the share in a pension plan or a partnership. For partnerships, this date field may be used for the partnership's dissolution date.

Total End Value ↓ : On the calculation date, the fair market value of the pension plan assets or enterprise value of the partnership.

For pension plans only:

Pension Obligation ↓ : On the calculation date, the fair market value of the obligations of the pension plan.

For each contribution or withdrawal level:

Name ↓ : Name of a group of participants or a partner.

Entry/Withdrawal Date ↓ : The date of each contribution or withdrawal made by each group of participants or a partner.

Amount ↓ : The amount of money that each group of participants or a partner contributes or withdraws from the pension plan or partnership.

Outputs ↑

Average Return Rate ↑ : The average rate of return earned from the **Entry/Withdrawal Date** ↑ up to the **Calculation Date** ↓ . (Note: continuous compounding basis).

Share ↑ : Each participant's share of plan assets or partner's share of enterprise value based on the **Average Return Rate** ↑ . It is expressed as a percentage of the **Total End Value** ↓ .

For pension plans only:

Total Surplus/Deficit ↑ in a pension plan.

Surplus/Deficit ↑ , applicable to each group of participants in a pension plan.

Acknowledgements

Appreciation is extended to Mr. Xu Bai, Ph.D., who developed this calculator on behalf of CGA-Canada.

Comments

Please forward any comments or enquiries about the RPP Surplus-Deficit Calculator to rppcalc@cga-canada.org.

Disclaimer:

The RPP Surplus-Deficit Allocation Calculator is provided 'as is' without warranty of any kind. The entire risk as to the results and the performance of the software is assumed by the user, and in no event will CGA-Canada be liable for any consequential, incidental or direct damages suffered in the course of its use.