CashCalc Specification Sheets (Client Facing)

Pension Drawdown Planner

Overview

The Pension Drawdown Planner is used to show the client the difference between if they were to take their pension as an immediate lump sum payment, or if they were to take it in a more tax-efficient manner (avoiding higher and top rate tax). This calculator takes the size of the current pension pot, whether the funds are crystallised, assumed net investment return and current total taxable income.

Assumptions

Below is a list of all assumptions made to perform the calculation:

- Figures are rounded up to the nearest penny
- Tax rates are those set by the current government
- Personal Allowance is at the full value of £11,850
- Client claims the full 25% tax-free lump sum if funds are crystallised
- Assumed Net Investment Return Rate has a range between 0.00% and 10.00% (Default: 3.00%)
- Values are not adjusted for inflation

Calculations Breakdown

The calculations require five parameters to calculate the given output, these being:

- Current Pension Pot
- Are Funds Crystallised?
- Do Scottish Tax Rates apply?
- Assumed Net Investment Return Rate
- Current Total Taxable Income

The Pension Drawdown Calculator calculates the total values withdrawn from the client's pension if they were to take it as a lump sum, or tax-efficiently over a calculated term. If the withdrawal is crystallised, then the value is taken down to 75% of the original, otherwise the withdrawal value is unaltered.

$$\text{Crystallised Withdrawal} = \text{Withdrawal} \times 0.75$$

There are two outputs produced with separate methods, following is the calculations performed for each output with the heading being the title displayed on the webpage.

If Taken as an Immediate Lump Sum Payment

First of all, it is calculated how much (if any) of the client's Personal Allowance is remaining as the Personal Allowance is subject to reduction as the total of the Pension Pot and Income increases over £100,000. This is calculated using the formula:

$$\text{Remaining PA} = £11,850 - \frac{((\text{Pension Pot} + \text{Income}) - £100,000)}{2}$$

This calculation provides an upper limit for the Pension Pot + Income of £123,700 before the entire Personal Allowance is gone. If the value is less than £123,700 then there is still a Personal Allowance, otherwise it is £0. Since the Personal Allowance is taxed at a 0% rate, it is to be subtracted from the client's income.

The tax charged is calculated using three tax bands and a personal allowance:

- o Personal Allowance: Up to £11,850 is taxed at 0%
- o Band 1: The next £34,500 above the Personal Allowance
- o Band 2: Between the upper limit of Band 1 and £150,000
- o Band 3: Any value over £150,000
  Note: *Figures above are taken from the 2017 - 2018 Tax Year*

If Scottish bands apply:

- o Personal Allowance: Up to £11,850 is taxed at 0%
- o Starter Band: The next £2,000 above the Personal Allowance
- o Basic Band: Between the upper limit of the Starter Band and £12,150
- o Intermediate Band: Between the upper limit of the Basic Band and £31,580
- o Higher Band: Between the upper limit of the Intermediate Band and £150,000
- o Top Band: Any value over £150,000
  Note: *Figures above are taken from the 2018 - 2019 Tax Year*

The calculator then passes in the sum of the withdrawal and the anticipated earnings for the current tax year and subtracts the above band thresholds and then calculates the tax charge for each amount for one month. Following is a run through of the calculations performed; values are subject to change as the calculation progresses:

Using British Tax Bands

Personal Allowance (PA): *Note: The Personal Allowance cannot be less than 0*

$$\text{Personal Allowance (PA)} = \frac{(\text{Income + Pension Pot}) - £100,000}{2} > 0$$
$$\text{Amount Taxed at 0\%} = \frac{\text{Pension Pot} - PA}{12}$$
$$\text{Remaining Pot} = \text{Pension Pot} + (\text{Income} - PA)$$

Band 1:

$$\text{Amount Taxed at 20\%} = \frac{\text{Lesser of (Remaining pot, Band 1)}}{12}$$
$$\text{Tax Payable After Band 1} = \text{Amount Taxed at 20\%} \times 0.2$$
$$\text{Remaining Pot After Band 1} = \text{Remaining Pot} - £33,500$$

Band 2:

$$\text{Amount Taxed at 40\%} = \frac{\text{Lesser of (Remaining pot After Band 1, Band 2)}}{12}$$
$$\text{Tax Payable After Band 2} = \text{Tax Payable After Band 1} + (\text{Amount Taxed at 40\%} \times 0.4)$$
$$\text{Remaining Pot After Band 2} = \text{Remaining Pot After Band 1} - £116,500$$

Band 3:

$$\text{Amount Taxed at 45\%} = \frac{\text{Remaining Pot After Band 2}}{12}$$
$$\text{Tax Payable After Band 3} = \text{Tax Payable After Band 2} + (\text{Amount Taxed at 45\%} \times 0.45)$$

Pension Lump Sum Taken:

$$\text{Lump Sum} = \text{Pension Pot Size} - \text{Tax Payable After Band 3}$$

Using Scottish Tax Bands

Personal Allowance (PA): *Note: The Personal Allowance cannot be less than 0*

$$\text{Personal Allowance (PA)} = \frac{\text{(Income + Pension Pot)} - £100{,}000}{2} > 0$$

$$\text{Amount Taxed at 0\%} = \frac{\text{Pension Pot} - PA}{12}$$

$$\text{Remaining Pot = Pension Pot + (Income - PA)}$$

Starter Band:

$$\text{Amount Taxed at 19\%} = \frac{\text{Lesser of (Remaining pot, Starter Band)}}{12}$$

$$\text{Tax Payable After Starter Band = Amount Taxed at 19\% x 0.19}$$

$$\text{Remaining Pot After Starter Band = Remaining Pot - Starter Band}$$

Basic Band:

$$\text{Amount Taxed at 20\%} = \frac{\text{Lesser of (Remaining pot, Basic Band)}}{12}$$

$$\text{Tax Payable After Basic Band = Amount Taxed at 20\% x 0.2}$$

$$\text{Remaining Pot After Basic Band = Remaining Pot - Basic Band}$$

Intermediate Band:

$$\text{Amount Taxed at 21\%} = \frac{\text{Lesser of (Remaining pot, Intermediate Band)}}{12}$$

$$\text{Tax Payable After Intermediate Band = Amount Taxed at 21\% x 0.21}$$

$$\text{Remaining Pot After Intermediate Band = Remaining Pot - Intermediate Band}$$

Higher Band:

$$\text{Amount Taxed at 41\%} = \frac{\text{Lesser of (Remaining pot, Higher Band)}}{12}$$

$$\text{Tax Payable After Higher Band = Amount Taxed at 41\% x 0.41}$$

$$\text{Remaining Pot After Higher Band = Remaining Pot - Higher Band}$$

Top Band:

$$\text{Amount Taxed at 46\%} = \frac{\text{Remaining Pot After Higher Band}}{12}$$

$$\text{Tax Payable After Top Band = Tax Payable After Higher Band + (Amount Taxed at 46\% x 0.46)}$$

Pension Lump Sum Taken:

$$\text{Lump Sum = Pension Pot Size - Tax Payable After Top Band}$$

These values are then displayed in a table form denoting the taxable pension pot size, how much is tax-free, taxed at 20%, taxed at 40% and taxed at 45%, Total Tax Payable and the Pension Lump Sum taken.

If Taken Tax-Efficiently (Avoid Higher Rate Tax)

For the client to take their pension efficiently, by avoiding a tax rate higher than 20%, they would have to follow the maximum drawdown per year. The maximum drawdown is calculated by:

$$\text{Max Drawdown per year = (Band 1 + Personal Allowance)- Income}$$

This amount is then subtracted from the pot each year, and then the pot remaining is adjusted for the set investment return rate. If the remaining pot size is less than the max drawdown per year, that year the client will receive the remaining value of their pension pot. Following is the calculations performed in this process:

If the Remaining Pot is greater than the Max Drawdown:

$$\text{Total Drawn Down}_n = \text{Total Drawn Down}_{(n-1)} + \text{Max Drawdown}$$
$$\text{Remaining Pot}_n = (\text{Remaining Pot}_{(n-1)} - \text{Max Drawdown}) \times \text{Investment Return Rate}$$

If the Remaining Pot is less than the Max Drawdown:

$$\text{Total Drawn Down}_n = \text{Total Drawn Down}_{(n-1)} + \text{Remaining Pot}$$
$$\text{Remaining Pot} = 0$$

As this method means that all money taken will be taxed at the lower band(s), the final calculations are as follows:

Using British Tax Bands

$$\text{Tax Payable} = \text{Total Drawn Down} * 0.2$$
$$\text{Total Drawn Down After Tax} = \text{Total Drawn Down} - \text{Tax Payable}$$

Using Scottish Tax Bands

$$\text{Tax Payable at 19\%} = \text{Total Drawn Down} * 0.2$$
$$\text{Tax Payable at 20\%} = \text{Total Drawn Down} * 0.2$$
$$\text{Tax Payable at 21\%} = \text{Total Drawn Down} * 0.21$$
$$\text{Tax Payable} = \text{Sum of}(\text{TP 19\%, TP 20\%, TP 21\%})$$
$$\text{Total Drawn Down After Tax} = \text{Total Drawn Down} - \text{Tax Payable}$$

These values are then displayed in a table form denoting the taxable pension pot size, how much is tax-free, how much is taxed within each band, Max Drawdown per year, Drawdown Period, Total Tax Payable and the Total Pension Drawn Down.

A PDF report can be created from this calculator which contains detailed information about the relevant client's details and the outputs of the calculations performed. The data plotted in graphical form is created by using the GoogleChartAPI.