Case Study 4

James and Maura Shannon

CFP® Examination Paper

Section A- Pre Retirement

Case Background

James and *Maura Shannon*, new clients, have requested that a CFP® professional assists them in evaluating and planning the family's financial future.

James is married to Maura, and they are both aged 50. They have two children, Nathan, aged 22 and Caoimhe aged 25.

James works as a consultant engineer with Mainstream Media. He is currently drawing a salary of €80,000 per annum from the company. *Maura* works full time with a US multinational based in Ireland, on an annual salary of €100,000.

Maura's mother, Brid, aged 80 was admitted to a nursing home at the start of 2019 following the death of her husband. The nursing home costs €30,000 per annum. Maura's father left an inheritance to her to support Brid in the long term. Brid's health has deteriorated over the past 12 months.

Apart from the family home, the couple own a residential investment property in Spain.

Nathan and Caoimhe left college in the past two years, are both working and independent from their parents.

Personal Information

Name:	James	Maura
Age:	50	50
Marital Status:	Married	Married
Health:	Good	Good
Occupation	Full time Employee, earns €80,000 per annum	Full time employee, earns €100,000 per year
Dependents	Brid, aged 80, is dependent on James and Maura for her nursing home costs	

Client Objectives

1. The clients, *James and Maura*, plan to fully retire at aged 65, in 15 years time. They estimate that in retirement they will require a combined net income of €60,000 in today's values.

2. The clients need to provide the finance for the long term nursing home care for Maura's mother and require advice on how to best utilise the recent inheritance from Maura's father.

3. *James and Maura* would like to be debt free when they retire.

4. *James and Maura* would like to ensure that their finances are properly structured so that in the event of death or illness, the family's lifestyle will not be affected.

Tax Environment

You should assume that tax rates have remained unchanged on the 2018 Finance Act treatments and should ignore any changes announced in the Budget Statement in October 2019 and resulting Finance Acts. No changes to tax rates are expected in future years.

James and Maura have asked that your advice be framed ignoring Social Welfare their entitlements in retirement. They prefer that their financial plans are based solely on the use of their own resources. Brid is currently in receipt of social welfare payments, which are detailed below.
You may assume that the appropriate rate for PRSI and all levies, excluding income tax, as a percentage of total income is 9%.

Financial Information

- James is a senior manager in Mainstream Media, earning a salary of €80,000 per annum.
- *James* has a personal pension fund of €250,000 but has not contributed to the fund in several years. In addition, he also has €25,000 in a deposit account earning 2% APR gross.
- *Maura* currently has a salary of €100,000, and has a personal pension fund worth €200,000. In addition, she also has €30,000 in a deposit account earning 2% APR gross.
- Separately, Maura inherited €100,000 in a managed fund portfolio and €100,000 in a deposit account from her father at the beginning of 2019. The inheritance is net of all taxes. James and Maura specifically require guidance on how best to utilise the deposit account funds from the inheritance within their financial plan.
- Brid's nursing home costs run at €30,000 per annum. She has a normal life expectancy. She is in receipt of a €12,000 a year state pension. The balance of her support is borne by James and Maura.
- *James and Maura's* principal dwelling house (PDH) is valued at €600,000 and has a mortgage outstanding of €400,000. The term remaining on the mortgage is 12 years.
- Mortgage protection, to cover the mortgage on their PDH, costs James and Maura €2,500 per annum.
- *James and Maura* intend selling the residential investment property asset in Spain (detailed below) at retirement. Currently, in addition to the rental income, the family have use of the property for a number of weeks in the year for personal use.

Property Portfolio Detail – All Figures in € Euro

	Owner	Location	Estimated Value as at 31/12/18	Loan Details	Annual Income	Lease
Principal Dwelling House (PDH)	James & Maura	Dublin House- purchased in 2004 at a cost of €800,000	€600,000	€400,000 loan balance– term remaining 12 years – capital & interest; variable rate is 5%	0	0
Residential Investment Property	James & Maura	Spain Apartment – purchased in 2007 at a cost of €250,000	€200,000	€160,000 loan balance – term remaining 10 years – capital & interest; variable rate is 5%	€12,000	3-year lease

Cashflow

James and Maura have presented some basic cash-flow details to you:

- Current lifestyle expenses are €37,000 per annum excluding loan repayments and mortgage protection premiums.
- Brid's nursing home costs are €30,000 per annum

Long Term Asset Returns/Inflation/Interest Rates

	Gross Yield	Capital Growth
Cash	2%	0%
Long Term Managed Fund		4.5%
Property		2%

Long term inflation expectation 2%

Interest Rates

ECB Interest Rates expected to remain at current levels

Exchange Rates

All figures are euro based

Section A
QUESTIONS – Pre Retirement Analysis:

Using the Certified Financial Planner 6-step process, analyse *James and Maura's* situation and make appropriate recommendations. Your answer should take the form of a 'Summary Financial Plan' which should include:

1. A reflection of the clients' Current Position, including a Statement of Net Worth; an estimation of Income Tax; and a Statement of Current Cash-Flow;**(30 Marks)**

2. An evaluation of James and Maura's stated objectives with a view to:
   a. identifying the relevant issues associated with meeting those objectives;
   b. setting out your recommended solutions, including the impact on cash-flows and pension funding requirements of investing at differing return and risk options;
   c. identifying relevant risks, and making suitable recommendations to mitigate against those risks;

(55 Marks)

Candidates should clearly state any assumptions made but should not apply assumptions that will materially alter the nature of this case.

Section B – Post Retirement
(Use solely the information provided below in constructing an answer in this section)

Updated Financial Information

12 years later, James and Maura's net worth statement shows €2,200,000 in investable assets, which are currently held on deposit. The family recently received a sizable inheritance from James parents, boosting retirement assets. The couple are now debt free and have no other assets. They have a desire to maintain the capital value of their investable assets in retirement, and pass it on to their children upon their death.

James and Maura now require a net income of €55,000 per annum having reduced their overheads and living expenses.

James & Maura ask your advice on the best way to invest to provide for their goals in retirement, excluding any social welfare entitlements for the couple.

The couple are educated in the investment process and aware of the risks of investing for the long term. Specifically, the couple is prepared to accept a downside risk of 10% in any one year of the investment plan.

Inflation is running at 2% per annum, and the couple's effective tax rate is 31%. Deposit rates are 2%.

SECTION B QUESTIONS – Post Retirement Analysis:

Construct a brief Investment Plan for the couple, based solely on the information provided in the post retirement section, under the following headings:

i. Return Requirement
ii. Risk Tolerance
iii. Time Horizon
iv. Liquidity Needs

(8 marks)

Investment Portfolio Options

Portfolio Allocation	A	B	C	D
Stocks	10.0%	30.0%	50.0%	80.0%
Bonds	75.0%	60.0%	45.0%	20.0%
Cash	15.0%	10.0%	5.0%	0.0%
Expected Annual Return	4.0%	6.5%	7.0%	9.0%
Standard Deviation	5.0%	8%	12.0%	16.0%
Current yield	3.5%	3.0%	2.5%	2.0%

Select the asset allocation strategy, from the table above, which is most appropriate for the Shannon's based on the information provided, and justify the selection with two supporting reasons.

(7 marks)

Candidates should clearly state any assumptions made but should not apply assumptions that will materially alter the nature of this case.

Sample Solution

The following was identified as an acceptable solution to the Case Study. However this is not the sole acceptable answer, and it is recognised that alternative solutions might be produced that are acceptable.

Net Worth Statement

Principle Private Residence	600,000	Loan	400,000
Investment Property	200,000	Loan	160,000
Pension (James)	250,000		
Pension (Maura)	200,000		
Cash (James)	25,000		
Cash (Maura)	130,000		
Managed Fund (Maura)	100,000		
Total	1,505,000		560,000
Net Worth	945,000		

Solvency Ratio (all assets)	62.8%

Income Tax Calculation

				James	Maura	Combined
Earned Income:						
Salary				80,000	100,000	180,000
Case III Income:		Income	Interest			
Overseas Property	***(Note 1)***	12,000	6,556	2,722	2,722	5,444
Case IV Income:						
Bank Interest				500	2,600	3,100
Case V Income:		Income	Interest			
		-	-	-	-	-
Schedule F:						
				-	-	-
TOTAL INCOME				83,222	105,322	188,544
Tax Calculation:						
Dirt	3,100	@	37%			1,147
Next	70,600	@	20%			14,120
Balance	114,844	@	40%			45,938
						61,205
Tax Credits:						
Married tax credit					3300	3,300
PAYE Credits					3300	3,300
						54,605
Less:						
Nursing Home costs	***(Note 2)***	18,000	@	40%		7,200
Tax Payable						47,405
Effective Tax Rate						25%
Estimated PRSI & levies (9%)						16,969
Total Tax and PRSI and Levies						64,374
Effective rate of Tax and levies						34%

See over for Notes to Tax calculation

Notes to tax :

1. Allowable Interest

A	Outstanding Balance	160,000
B	Monthly Repayments	1,697.05
C	Annual Repayments	20,365
D	Closing Balance of loan in 12 months	147,348
E	Capital to be repaid over next 12 months (A-D)	12,652
F	Interest to be paid ovber next 12 months (C-E	7,713
G	85% Allowable	6,556

Calculations:

A. Given in case study notes
B. N=120 | I = 5/12 | PV = 160,000 | FV= 0 | Solve PMT (END)
C. Output from B x 12
D. Calculate the future balance of the loan in 12 months time n=12 | I = 5/12 | PMT = -1,697.05 (B above) | PV = 160,000 | Solve FV (END)
E. Take away the balance at 31/12/18 from balance as at 1/1/18/ This represents the amount of capital to be repaid from the loan over the next 12 months.
F. From the total repayments to be made this year (C above) take away the amount of capital that will be repaid (calculated in E above). This amount represents the amount of interest to be paid over the next 12 months
G. Amount allowed as a tax deduction under current legislation.

2. Nursing Home costs

On the basis that the mother pays €12k towards the costs, this leaves €18k to be paid for by the clients. It is included in the current tax due to wording which indicates that clients are ***paying*** costs.

Cash Flow Position

Income:		
Salary		180,000
Deposit Interest		3,100
Rental Income		12,000
Childrens Allowance		-
TOTAL INCOME		**195,100**
Expenses:		
Tax & PRSI		64,374
PPR Mortgage	*(Note 5)*	44,392
Investment Loan		20,365
Nuring Home costs		18,000
Lifestyle Expenses		37,000
Mortgage Protection		2,500
TOTAL EXPENSES		**186,631**
Net Surplus/deficit		**8,469**

Calculations on Mortgages:

Note 5

N=144 | I = .4166 | PV = 400,000 | FV = 0| Solve PMT = 3,699.40 = 44,392 p.a.

Part B

Objective 1 – Nursing Home Care

Annual costs	30,000	
Social Welfare pension	12,000	
Shortfall	18,000	
Tax Relief @40%	7,200	
Net Costs	10,800	
Life Expectancy at age 80	11.6 years	*Refer to Tables*
Deposit rate	2.00%	*DIRT @37% applies = 1.26%*
Inflation	2.00%	
Discount factor	-0.7255%	*((1.0126/1.02)-1)*100*
Capital Sum required for a sinking fund	123,777	*BEGIN | i=-0.7255 | n=11.6 | PMT=10,800 | FV=0 | Solve PV*
Option 1 - fund from annual cash	10,800	
Option 2 - create a sinking fund (set aside a lump-sum now)	123,777	

Objective 2 – Insurance assessment

	Current Cash-Flow	Death of James	Death of Maura	
Income:				
Income:				
Salary	180,000	100,000	80,000	
Deposit Interest	3,100	3,100	3,100	
Rental Income	12,000	12,000	12,000	
Widows/ers Pension	-	10,062	10,062	
TOTAL INCOME	**195,100**	**125,162**	**105,162**	
Expenses:				
Tax & PRSI	64,674	37,549	28,394	*Assumed TaxRates of 30%/27%*
PPR Mortgage	44,392	-	-	*Cleared by Mtg. Prot.*
Investment Loan	20,365	20,365	20,365	
Nursing Home costs	18,000	-	-	*To be funded from a Sinking Fund*
Lifestyle Expenses	37,000	25,900	25,900	*assumes 30% reduction*
Mortgage Protection	2,500	-	-	
TOTAL EXPENSES	**186,931**	**83,814**	**74,659**	
Net Surplus/deficit	**8,169**	41,348	30,503	

Note: Nurising home costs have been excluded on the basis that the recommended solution for them is to create a sinking fund.

Estimated cost of Income protection

	James	Maura	
Salary	80,000	100,000	
Insured to 70%	56,000	70,000	
Less State Disability Payment	9,776	9,776	*Personal Rate*
Balance to be covered via PHI	46,224	60,224	
Cost of cover per 10,000 of income	495	495	*per tables - Age 50*
Cost of PHI	2,288	2,981	
Tax Relief	40%	40%	*Marginal rates*
Net cost to cash-flow	1,373	1,789	
Total Net Cost	3,162		

Objective 3 – Retirement Planning (Age 65)

1	**Future Value of Net Income Required at retirement**		
	Net retirement income	60,000	
	Years to retirement	15	
	Inflation Rate	2.0%	Given in tables
	Income adjusted for inflation	80,752	
	Assumed Effective Tax & Levies rate	10.0%	Assumed Rate
	Gross retirement income required	89,724	
2	**Capital required to generate this income**		
a	Years to age 100	35	
	Conservative Investment Returns	4.5%	Given in tables
	Inflation	2.0%	Given in tables
	Discount Factor	2.4510%	[(1.045/1.02)-1)*100]
	Capital Sum required at 65	2,143,439	BEGIN
b	Capitalisation using n annuity factor	2.270%	Given in tables
	Capital required	3,952,599	
3	**Captial Available In Retirement - assessment of client asset values**		
	Pension - James		
	Current Value	200,000	Given
	Annual contributions	-	Given
	Estimated Growth rate	4.5%	Given
	Years to retirement (sale)	15	
	Estmated Value at retirement	387,056	
	Pension - Maura		
	Current Value	250,000	Given
	Annual contributions	-	Given
	Estimated Growth rate	4.5%	Assumed
	Years to retirement (sale)	15	
	Estmated Value at retirement	483,821	
	Sale of property		
	Current Value	200,000	
	Estimated Growth rate	2%	
	Years to retirement (sale)	15	
	Estmated Value at retirement	269,174	
	Purchase Price	250,000	
	Capital Gain	19,174	
	Annual Exemption	2,540	
	Taxable Gain	16,634	
	Estimated CGT @33%	5,489	
	Loans to be repaid	-	
	Net Proceeds	263,685	
	Total	1,134,562	

4 Capital Shortfall in Retirement provisioning

Scenario	1	
Capital Required	2,143,439	From 5
Shortfall in assets	1,008,877	From 5 & 6
Required annual increase in retirement assets	46,450	@ 4.5%
Scenario	2	
Capital Required	3,952,599	From 5
Shortfall in assets	2,818,037	From 5 & 6
Required annual increase in retirement assets	129,747	@ 4.5%

Summary Recommendation

The following table sets out the resources available to and required by James and Maura in order to satisfy their objectives:

Resources to be used:		**Resources Required:**			
Cash	155,000	Nursing Home costs			
Managed Funds	100,000	a	Pay from cash-flow =	10,800	*(Tax relief has already been applied)*
Cash Flow Surplus	8,469	b	Set aside a lump-sum =	123,777	
N.B. This is on the basis that Nursing Home costs are paid from current cash-flow		Life Insurance		nil	
		Income Protection		3,162	
		Clear debt by retirement		nil	
		Retirement			
		Shortfall requires annual accumulation			
		a	Sinking Fund	46,450	per annum
		b	Annuity	129,747	per annum

- James and Maura have minimum cashflow surplus of €8,469 per annum before allowing for additional pension provision, sinking fund provision or extra life insurance. The couple have cash reserves of €155K on deposit, with €450K in pension provision and €100 K in a managed fund. Net worth of the couple is €945K.

- As all of James and Maura's objectives are dependent on their continued ability to generate earned income; it is essential that this is protected in the form of income protection insurance. The annual premiums will cost 5,269 *(ref p15)*, although tax relief is available at marginal rate of 40%, meaning a net cost to cash-flow of €3,162. This would have the effect of reducing the clients annual cash flow surplus to 5,307 *(8,369-3,162)*.

- James and Maura have sufficient assets to protect current lifestyle in the event of death.

- As the clients will be retiring in 15 years' time, it is preferable that nursing home costs do not become a potential drain on their post-retirement income. For this reason, a sinking fund of 124k from their cash assets will be set in order to cover these costs. This will have the effect of increasing annual cash-flow surplus to 16,107 *(10,800 nursing home + 5,307 surplus from point 2 above*).
  Lecturer Notes: The relief attaching to the nursing home spend has been factored into the effective tax rates.

- Clients are using income taxed at the highest marginal rate in order to pay debt on their PDH. To reduce this drain on resources, and free up funds for pension

contributions, it is recommended that the mortgage be reduced by €100k (Managed Funds). The new monthly repayments will be €2,774. Annual repayments are €33,288. Cash-flow surplus will be increased by €11,104 to €27,211.
Calculation Notes: New mortgage repayments: n=144 | i= .4166 | PV = 300,000 | FV = 0 END

- In deciding the best use of the investment funds, it also noteworthy that the clients would need to generate a guaranteed investment return of circa 8.3% to , assuming that growth on investment returns is taxable at 40%, in order to secure a similar monetary benefit to reducing their loans. (Loan rate of 5% divide by .6)

- The couple need substantial investment in their retirement capital. The clients have the options of accumulating wealth in their personal name, or through pension schemes. As tax relief on pension contributions is still available at marginal rate of tax, the clients should avail of this benefit to the maximum allowed. The maximum contributions allowed for tax purposes is 30% of income = 180,000*.3 = €54,000. Net of tax, this amounts to €32,400 (54,000 / .60).

  The clients do not have the resources to fund their pensions to this level. If we use the full amount of their cash-flow surplus (27,211) to their pensions, this would amount to €45,351 gross contributions. This would have the effect of reducing the cash-flow surplus to zero and would require the clients to maintain a disciplined approach to managing expenses. In case of emergency, access is available to €155,000 cash, of which €124,000 has been set aside for nursing home costs. This still leaves €31,000 available to the clients without compromising the nursing home costs.

  The effect of making this level of contributions over the next 15 years would be to accumulate a sum of €984,993 (using 4.5% growth).
  Calculation: n=15 | i=4.5 | PV=0 | PMT=45,351 | BEGIN | Solve FV

  This will still leave a shortfall in their retirement capital requirements of €23,884 *(2,143,439 -2,119,555)*. However, without access to other capital or income, there is not much more that the couple can do at this stage.

  The impact on their post-retirement income will be as follows:

Estimated value of pension funds at retirement (per earlier analysis)	1,134,562
Estimated future value of new contributions	984,993
Total value of retirement assets	2,119,555
Gross income to be provided in retirement	88,724
*Discount rate = (1.045/1.02-1)*100* *n=35 | i=2.4510 | PV= -2,119,555 | FV=0 | Solve PMT*	
Net Income using effective rate of 10%	79,852
Present day equivalent =	59,331

  In effect, the clients will enjoy a net retirement income of 59,331 rather than the desired 60,000 (99%)

Other options that could be explored closer to retirement include the downsizing of their PPR

Part C – Post Retirement

Summary calculations

The costs of meeting the various objectives are estimated as follows at age 65.

Allocation	A	B	C	D
Stocks	10.0%	30.0%	50.0%	80.0%
Bonds	75.0%	60.0%	45.0%	20.0%
Cash	15.0%	10.0%	5.0%	0.0%
Expected return	4.0%	6.5%	7.0%	9.0%
Standard Deviation	5.0%	8.0%	12.0%	18.0%
Current Yield	3.5%	3.0%	2.5%	2.0%

Calc. 1 **Downside Risk Calculation**

2 x Standard deviation	10.0%	16.0%	24.0%	36.0%
Downside	-6.0%	-9.5%	-17.0%	-27.0%

Portfolios A abd B satisfy downside investment threshold

Calc 2 **Sharpe Ratio**

Portfolio Return	4.0%	6.5%	7.0%	9.0%
Return less RF (2%)	2.0%	4.5%	5.0%	7.0%
Sharp Ratio	0.40	0.56	0.42	0.39

Portfolio B has the superior Sharp Ratio

Calc 3 **Required Return**

Total Investable Assets	2,200,000	
Net Required Income	55,000	
Required net-of tax Income Yield	2.5%	
Effective Tax Rate	31.0%	**
Required gross Income Yield	3.62%	
Inflation adjustment	2.00%	
Required Gross Return	5.62%	

Portfolios A, B, C and D satisfy the Required Rate of Return

Return objective

In order to meet their income requirements, James and Maura will require a total pre-tax return of 5.62%**. Portfolios B,C and D satisfy this requirement.

***** This assumes that the effective tax rate will be applied only to the income drawn from the portfolio.***

Risk Tolerance

James and Maura's Brian's relative youth mean that they have the ability to take on risk. The outcome of the risk profiler gives an indication that they are prepared to take on a moderate degree of risk, with the downside being capped at -10%.

Their portfolio must generate sufficient current income and also requires future growth in order to retain their post-retirement income needs and provide assets for inheritance purposes.

Portfolios A and B satisfy the downside risk requirement. Portfolios C and D are ruled at this stage.

Time Horizon

The portfolio has a long time horizon, given the clients relative youth. Their income needs for this duration, along with the need for capital preservation mean that their asset allocation will need to have a reasonable exposure to "growth assets".

Both Portfolios A and B have a growth component. Portfolio B has the greater growth component; of the total expected return of 6.5%, 3.5% is attributable to growth within the portfolio.

Liquidity

Some liquidity within the investment portfolio for income purposes is necessary. Both Portfolios have a reasonable exposure to cash.

Portfolio B is the one most suited to the achievement of Brian's objectives.

Justification:

Portfolio B is the optimal portfolio. It provides a return above the required 5.62% and has a respectable income component and acceptable cash allocation. In addition, it is broadly diversified and at an appropriate level of risk given the clients' situation. Even though it provides the highest expected return, Portfolio D can be eliminated immediately due to its substantial risk component: 80% equity, and extreme down-side risk potential. Portfolio D is not acceptable because it fails to meet the total return requirement and is not diversified. Portfolio C is also not considered, as despite its large bond content the portfolio exhibits significant downside risk. Portfolio A does not meet the clients target return objectives and is therefore also ruled out. Portfolio B is therefore the most suitable portfolio. Its Sharpe Ratio is also the best of the four available portfolios.