
Case Study 3

Brian Jones

Investment Case

Case Notes

Brian Jones recently won €2,750,000 in the Lotto. He immediately resigned from work, and plans on living off the proceeds of his Lotto win. Brian is age 40, married with three young children (ages 14, 12 and 10).

Brian estimates that he and his wife will need €80,000 net in present value to live comfortably. Inflation is expected to be 3% annually, and they expect their income requirements to be inflation-proof. Brian's estimated effective income tax rate on all income to be taken from his portfolio is 28%.

You have met Brian and his wife on a number of occasions, and invested heavily in educating them so that they understand the investment process. Brian has indicated to you that he expects the capital value of his investment to be preserved so that it can pass to his children upon the death of himself and his wife.

Brian has a desire to travel, and requires €50,000 to be set aside for travel purposes. He and his wife will also upgrade their home, and plan on spending €50,000 for this purpose.

Brian is willing to assume some risk to obtain his objectives, although he is a cautious person by nature. Your Risk Profiler indicated that Brian is prepared to accept a downside risk of -10%.

The current rate of cash is 1.5%

Requirements:

- A. Comment on Brian's Investment Plan under the following headings:
 - Return Objectives
 - Risk Tolerance
 - Time Horizon
 - Liquidity
- B. Based on the information presented in the case and your observations under A, select and justify one of the following portfolios for Brian Jones.

	Portfolio A	Portfolio B	Portfolio C	Portfolio D
Cash	0.00%	10.00%	15.00%	20.00%
Corporate Bonds	10.00%	30.00%	20.00%	50.00%
Government Bonds	0.00%	0.00%	10.00%	20.00%
Large- Cap Euro stocks	50.00%	30.00%	20.00%	10.00%
Small Cap Euro Stocks	10.00%	20.00%	10.00%	0.00%
International Stocks (Dev. Mkts)	5.00%	5.00%	5.00%	0.00%
International Stocks (Emerg. Mkts)	5.00%	5.00%	5.00%	0.00%
Property	0.00%	0.00%	5.00%	0.00%
Private Equity	20.00%	0.00%	10.00%	0.00%
	100.00%	100.00%	100.00%	100.00%
Portfolio Standard Deviation	17.60%	8.50%	11.30%	4.80%
Nominal Expected Return	12.00%	9.00%	7.00%	5.00%
Current Yields	1.50%	2.50%	4.00%	4.50%

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.

	A	B	C	D
Expected return	12.0%	9.0%	7.0%	5.0%
Standard Deviation	17.6%	8.5%	11.3%	4.8%
Current Yield	1.5%	2.5%	4.0%	4.5%

Calc. 1 **Downside Risk Calculation**

2 x Standard deviation	35.2%	17.0%	22.6%	9.6%
Downside	-23.2%	-8.0%	-15.6%	-4.6%

Portfolios B and D satisfy downside investment threshold

Calc 2 **Sharpe Ratio**

Portfolio Return	12.0%	9.0%	7.0%	5.0%
Risk Free rate	1.5%	1.5%	1.5%	1.5%
Return less RF	10.5%	7.5%	5.5%	3.5%
Sharp Ratio	0.597	0.882	0.487	0.729

Portfolio B has the superior Sharp Ratio

Calc 3 **Required Return**

Total Investable Assets	2,650,000	
Net Required Income	80,000	
Required net-of tax Income Yield	3.02%	
Effective Tax Rate	28.0%	**
Required gross Income Yield	4.19%	
Inflation adjustment	3.00%	
Required Gross Return	7.19%	

Portfolios A and B satisfy the Required Rate of Return

Part A

Return objective

In order to meet his liquidity requirements, Brian’s portfolio must generate a before-tax return of 7.19%. This is arrived at as follows:

- The income requirement is €80,000, which on an after-tax basis amounts to a net yield of 3.02%. [€80,000 / €2,650,000]
- The gross yield (before tax) is 4.19% (3.02 / 0.72)
- To maintain the purchasing power of the portfolio, and ensure that the Brian’s income is inflation-protected, the portfolio must generate an additional amount equal to the rate of inflation (3%). So the total, before tax nominal required return is 7.19%.

Portfolios A and B are the only 2 portfolios that meet the target rate of return requirement.

Note, this assumes that tax is payable only on income withdrawn from portfolio.

Risk Tolerance

Brian’s relative youth means that he has the ability to take on risk. The outcome of the risk profiler gives an indication that Brian is prepared to take on a moderate degree of risk, with the downside being capped at -10%.

Brian’s portfolio must generate sufficient current income and is required to grow in real terms. Future liquidity can be met by selling equities, with short-term needs to be met from liquidity within the portfolio.

	Portfolio A	Portfolio B	Portfolio C	Portfolio D
Sharpe	0.597	0.882	0.487	0.729
Worst Case Scenario	-23.20%	-8.00%	-15.60%	-4.60%

Portfolios B and D meet the risk tolerance criteria of Brian.

Time Horizon

The portfolio has a long time horizon, given Brian’s relative youth; and his objective that the portfolio pass to his children. His income needs for this duration, along with the need for capital preservation mean that Brian’s asset allocation will need to have a reasonable exposure to “growth assets”. His ability and willingness to endure this mix of assets has been covered under *Risk Tolerance*.

Liquidity

Brian's requires liquidity to cover travel and home improvement objectives. In addition, some liquidity within the investment portfolio for income purposes is necessary.

Part B

Justification:

Portfolio B is the optimal portfolio. It provides a return above the required 7.19% and has a respectable income component and acceptable cash allocation. In addition, it is broadly diversified and at an appropriate level of risk given his situation. Even though it provides the highest expected return, Portfolio A can be eliminated immediately due to its substantial risk component: 70% equity and 20% private 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 the sleeper in this set of portfolios due to its seemingly high degree of diversification. However C has a 10% allocation to venture capital which seems to drive its expected return, but also results in a worst-case scenario that is outside Brian's risk tolerance. Portfolio B is therefore the most suitable portfolio. Its Sharpe Ratio is also the best of the four available portfolios.

