Financial Exam Help 123™

2025 Level III Mock Exam
Portfolio Management Pathway

Afternoon Session Exam #1
Full Guideline Answers

Note to Candidates

In this volume, I have attempted to approximate the style used by CFA Institute in their published guideline answers for the actual morning exams between 1999 and 2018, as well as their explanations in the curriculum. Many of the essay answers here include more information than would likely be necessary for a candidate to write to earn full marks on each question. The answers are intended as both an assessment tool and a learning tool. Please use them accordingly.

Answers appear in red. Supporting commentary (which is not required in the answer, but helps to clarify the answer for the candidate) appears in blue.

The allocation of marks given for each essay answer is my best estimate of the way that CFA Institute's graders will mark actual exam questions, based on scoring that I have seen in their published Level III morning exams and guideline answers between 1999 and 2018. There is no guarantee that this is how CFA Institute's graders will mark exams this year.

If you believe that there is an error in an answer contained here, please consult my errata page to see if your concern has been addressed:

http://www.financialexamhelp123.com/errata/

If there is no erratum addressing your concern, feel free to e-mail me at:

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BCIII

Question 1 relates to Institutional Investors – Core Curriculum

GCA Case Scenario

1.1 **Identify** *two* factors of the Plan that will *most likely* contribute to an *increase* in the Plan's ability to take risk, and *three* factors of the Plan that will *most likely* contribute to a *decrease* in the Plan's ability to take risk.

Increase: Factor 1

The Plan is overfunded:

$$\text{EUR 41.2 billion (Plan Assets)} > \text{EUR 39.0 billion (Plan Liabilities)}$$

Increase: Factor 2

High ratio of active employees to retired employees:

$$\frac{\text{Active employees}}{\text{Retired employees}} = \frac{72{,}144}{23{,}676} = \underline{\underline{3.05}}$$

– or –

Low ratio of retired employees to active employees:

$$\frac{\text{Retired employees}}{\text{Active employees}} = \frac{23{,}676}{72{,}144} = \underline{\underline{0.33}}$$

– or –

High percentage of active employees:

$$\frac{\text{Active employees}}{\text{Total employees}} = \frac{72{,}144}{72{,}144 + 23{,}676} = \underline{\underline{75.3\%}}$$

– or –

Low percentage of retired employees:

$$\frac{\text{Retired employees}}{\text{Total employees}} = \frac{23{,}676}{72{,}144 + 23{,}676} = \underline{\underline{24.7\%}}$$

Decrease: Factor 1

The Plan has a limited time horizon: approximately 30 years overall.

(This assumes an average remaining lifespan of approximately 20 years after employees retire, added to the average of 8.3 years (= 60 years – 51.7 years) remaining until retirement.)

– or –

The Plan is closed to new employees, so it has a limited time horizon.

Note that by "limited" we mean the time horizon of the Plan ***compared to the time horizon of a normal defined benefit pension plan***, which is assumed to be perpetual.

Decrease: Factor 2

The Plan offers a lump-sum payout, which could increase the Plan's liquidity needs and decrease its time horizon.

Decrease: Factor 3

The payments on the Plan are adjusted for inflation. If inflation increases significantly, the Plan could become underfunded, and its liquidity needs would increase.

Allocation of marks:

1 mark for identifying *each* factor, up to *two* factors that increase the ability to take risk, and up to *three* factors that decrease the ability to take risk

Reading:

Portfolio Management for Institutional Investors

LOS: Evaluate risk considerations of private defined benefit (DB) pension plans in relation to 1) plan funded status, 2) sponsor financial strength, 3) interactions between the sponsor's business and the fund's investments, 4) plan design, and 5) workforce characteristics.

1.2 **Formulate** the time horizon section of the Plan's IPS.

The Plan has a 2-stage, long-term time horizon.

Stage 1 is from today until the last eligible worker retires, during which time regular, periodic contributions will continue to be made to the Plan, retirement benefits will continue to be earned, and retirement benefits will be paid.

Stage 2 is from the date when the last eligible worker retires until the final pension payment is paid to eligible workers, during which time no regular, periodic contributions will be made to the Plan (though additional contributions may be made as necessary if the Plan is underfunded), and no additional benefits will be earned, but retirement benefits will continue to be paid.

Allocation of marks:

1 mark for describing the time horizon as multi-stage or 2-stage

1 mark for describing the time horizon as long-term

1 mark for describing the first stage as now until the retirement of the last eligible employee

1 mark for describing the second stage as retirement of the last employee until the final pension payment is made

Reading:

Portfolio Management for Institutional Investors

LOS: Evaluate the investment policy statement of an institutional investor.

1.3 **Discuss** *one* factor that will *most likely* contribute to an increase in the Plan's liquidity needs.

Factor 1

The Plan's pension payments are adjusted for inflation.

If actual inflation is higher than the inflation amount assumed in the model for the Plan's pension obligation, then the Plan will have to make higher payments than anticipated, thereby increasing the Plan's liquidity need.

Factor 2

The Plan offers a lump-sum pension payout.

If employees opt for the lump-sum payout, the Plan will have to pay the entire present value of the employee's pension obligation, rather than being able to spread that payment over the remaining life of the employee. Any such large, immediate payout will increase the Plan's liquidity need.

Note: either factor above is sufficient to earn full marks

Allocation of marks:

1 mark for identifying the factor

2 marks for explaining or justifying how the factor will contribute to an increase in the liquidity needs

(Note: no marks are earned for explaining an incorrect factor.)

Reading:

Portfolio Management for Institutional Investors

LOS: Evaluate the investment policy statement of an institutional investor.

Question 2 relates to Fixed Income Investments – Portfolio Management Pathway

EQ&C Case Scenario

2.1 **Calculate** the modified duration for the Endowment's benchmark fixed income portfolio.

A portfolio's effective duration is the sum of all of its key rate durations:

Key Rate	Duration, Years
2-year	0.456
5-year	2.200
10-year	2.053
Total	4.709

For a portfolio with only option-free bonds, its modified duration is equal to its effective duration. Therefore, the modified duration of the benchmark fixed income portfolio is 4.709 years.

Allocation of marks:

3 marks for the correct modified duration (4.709 years)

If the answer is incorrect:

1 mark for the correct formula for modified duration

2 marks for the correct calculation of modified duration

Reading:

Yield Curve Strategies

LOS: Evaluate a portfolio's sensitivity using key rate durations of the portfolio and its benchmark.

2.2 **Calculate** the expected change in the value of the Endowment's benchmark fixed income portfolio (in USD), assuming Stenson's anticipated changes occur.

For each anticipated key rate yield change, the percentage change in the portfolio price, using the duration approximation, is:

$$\%\Delta P_i = -\left(\text{key rate duration}_i\right)\Delta y_i$$

and the total percentage change in the portfolio is the sum of these:

$$\%\Delta P = \sum_{i=1}^{n} \%\Delta P_i = -\sum_{i=1}^{n} \left(\text{key rate duration}_i\right)\Delta y_i$$

$$= -\left[(0.456)(-0.10\%) + (2.200)(-0.20\%) + (2.053)(-0.50\%)\right]$$

$$= \underline{\underline{1.5121\%}}$$

Therefore, the expected price change, in USD, is:

$$\Delta P = \%\Delta P(\text{Price}) = (1.5121\%)(\text{USD } 203{,}653{,}500) = \boxed{\text{USD } 3{,}130{,}070}$$

Allocation of marks:

3 marks for the correct change in portfolio value (USD 3,130,070)

If the answer is incorrect:

1 mark for the correct formula for the percentage change in the portfolio value

1 mark for the correct calculation of the percentage change in the portfolio value

1 mark for the correct calculation of the change in the portfolio value in USD

Reading:

Yield Curve Strategies

LOS: Evaluate a portfolio's sensitivity using key rate durations of the portfolio and its benchmark.

2.3 **Evaluate** the appropriateness of the position that Stenson is considering in the futures contract.

The 2-year futures position is appropriate.

Stenson anticipates a decrease in the 2-year yield, so he should lengthen the 2-year key rate duration of the portfolio. Taking a long position in a 2-year bond futures contract will increase the 2-year key rate duration, which is exactly what Stenson wants.

Allocation of marks:

1 mark for stating that the position is appropriate

2 marks for justifying the conclusion

(Note: no marks are earned for justifying an incorrect conclusion.)

Reading:

Yield Curve Strategies

LOS: Formulate a portfolio positioning strategy given forward interest rates and an interest rate view that diverges from the market view in terms of rate level, slope, and shape.

2.4 **Evaluate** the appropriateness of the position that Stenson is considering in the swap.

The 10-year swap position is inappropriate.

The swap fixed rate will be the 10-year par rate, and the floating rate will be the 1-year par (= 1-year spot) rate. Stenson anticipates a decrease in the 1-year rate, which will result in receiving a lower floating rate. Furthermore, he anticipates a decrease in the 10-year par rate, which will decrease the value of the swap; if he tries to exit the swap by entering into an offsetting (i.e., receive fixed, pay floating) swap, the new swap will have a lower fixed rate, so he will lose money. (The net position of entering into the offsetting swap will be paying the original (4.020%) fixed rate and receiving the new (3.520%) fixed rate; the floating rates will cancel each other.) Anticipating a decrease in the 10-year par rate, he wants to lengthen his 10-year key rate duration.

Given his expectations, the appropriate position in a 10-year interest rate swap would be to receive the fixed rate and pay the floating rate.

Allocation of marks:

1 mark for stating that the position is inappropriate

2 marks for justifying the conclusion

(Note: no marks are earned for justifying an incorrect conclusion.)

Reading:

Yield Curve Strategies

LOS: Formulate a portfolio positioning strategy given forward interest rates and an interest rate view that diverges from the market view in terms of rate level, slope, and shape.

Question 3 relates to Ethical and Professional Standards – Core Curriculum

Komoé River Case Scenario

3.1 In purchasing LP&E stock for her ten biggest clients, did Pépé *most likely* violate Standard II(A) Material Nonpublic Information and/or Standard III(C) Suitability?

a. She did not violate either standard
b. She violated exactly one of the standards
c. She violated both of the standards

Information from a questionable (unreliable) source cannot be considered material. Here, the source is the suspicion of a dental hygienist, which seems quite questionable. Therefore, Pépé most likely did not violate Standard II(A) Material Nonpublic Information.

Unless Pépé has memorized the details of all of the IPSs and portfolios of her ten biggest clients, for which no evidence is given, she cannot have known whether LP&E stock would be a suitable investment for any one of them, much less all ten of them. Pépé most likely violated Standard III(C) Suitability.

Reading:

Code of Ethics and Standards of Professional Conduct

LOS: Explain the ethical responsibilities required by the Code and Standards, including the sub-sections of each standard.

3.2 Has Pépé *most likely* violated the Code and Standards by accepting the gift offers from Kastrati and Martina, respectively?

	Kastrati	Martina
a.	No	No
b.	No	Yes
c.	Yes	No

Standard I(B) Independence and Objectivity makes it clear that gifts from clients for past performance are acceptable, as long as Pépé discloses the gift to her supervisor, which she did. Thus, Pépé accepting the gift from Kastrati does not violate Standard I(B), and no other standard addresses gifts from clients for past performance.

Martina's offer of a gift is for future performance, so it falls under Standard IV(B) Additional Compensation Arrangements. Such gifts are acceptable (i.e., do not violate the standard) if Pépé discloses the offer to her supervisor and gets permission from all parties involved in writing. Here, Pépé did not get permission in writing; her supervisor telephoned her. Therefore, Pépé's actions violate Standard IV(B).

Reading:

Code of Ethics and Standards of Professional Conduct

LOS: Explain the ethical responsibilities required by the Code and Standards, including the sub-sections of each standard.

3.3 With regard to ATL common stock, has Pépé *most likely* violated the Code and Standards?

a. No
b. Yes, she has violated Standard III(B) Fair Dealing
c. Yes, she has violated Standard V(B) Communication with Clients and Prospective Clients

Because Pépé knows that most of her clients follow X (formerly Twitter), it is reasonable for her to assume that a post (formerly tweet) recommending ATL will reach those clients, so there is no violation of Standard III(B). For those clients who do not follow X (formerly Twitter), because Pépé chose to phone them after she sent out the post (formerly tweet), the phone calls do not disadvantage her other clients, so that, too, does not violate Standard III(B). Note that it is impossible for Pépé to notify all of her clients simultaneously, but as long as she makes a reasonable effort to reach all of them quickly, she complies with the standard.

Finally, Pépé directed those clients who were interested in ATL to phone her for the details on the investment, so there is no evidence that she has violated Standard V(B).

Reading:

Code of Ethics and Standards of Professional Conduct

LOS: Explain the ethical responsibilities required by the Code and Standards, including the sub-sections of each standard.

3.4 Considering the race with Bela, has Pennequin Lebras *most likely* violated Standard I(B) Independence and Objectivity by issuing a strong buy recommendation for BMFG?

a. Yes
b. No, because Pennequin Lebras did not realize that Bela had deliberately lost the race and the wager
c. No, because whatever the outcome of the race and the wager, Pennequin Lebras had always intended to issue a strong buy recommendation

To violate Standard I(B), it isn't necessary for the payment from Bela to Pennequin Lebras to have influenced Pennequin Lebras's recommendation. If the payment "could be expected to compromise [Pennequin Lebras's] independence and objectivity", then she has violated the standard. In this case, it's reasonable to believe that a payment of PGK 25,000 could compromise Pennequin Lebras's independence and objectivity; Pennequin Lebras most likely has violated the standard.

Reading:

Code of Ethics and Standards of Professional Conduct

LOS: Explain the ethical responsibilities required by the Code and Standards, including the sub-sections of each standard.

Question 4 relates to Fixed Income Investments – Core Curriculum

Córdoba Wealth Case Scenario

4.1 **Calculate** *each* of the five components of the 10-year Brazilian bond's EUR return, in basis points.

Yield income

Today's bond price is calculated using its yield to maturity (YTM):

$$FV = \text{BRL } 1{,}000$$
$$PMT = \text{BRL } 1{,}000 \times \frac{10\%}{2} = \text{BRL } 50$$
$$n = 10 \times 2 = 20$$
$$i = \frac{12.71\%}{2} = 6.355\%$$

Solve for $PV = \underline{\text{BRL } -848.96}$

The coupon is paid semiannually and the first payment is reinvested at the YTM for ½ year:

$$\text{Annual coupon} = (\text{BRL } 50)\left(1 + \frac{12.71\%}{2}\right) + \text{BRL } 50 = \text{BRL } 103.18$$

$$\text{Yield income} = \frac{\text{Annual coupon}}{\text{Current bond price}} = \frac{\text{BRL } 103.18}{\text{BRL } 848.96} = 12.15\% = \boxed{1{,}215 \text{ bps}}$$

Rolldown return

The bond's price in one year is calculated using its anticipated YTM, assuming a stable (unchanged) yield curve:

$$FV = \text{BRL } 1{,}000$$
$$PMT = \text{BRL } 50$$
$$n = 9 \times 2 = 18$$
$$i = \frac{12.78\%}{2} = 6.39\%$$

Solve for $PV = \underline{\text{BRL } -853.81}$

$$\text{Rolldown yield} = \frac{\text{Price}_1 - \text{Price}_0}{\text{Price}_0} = \frac{\text{BRL } 853.81 - \text{BRL } 848.96}{\text{BRL } 848.96} = 0.57\% = \boxed{57 \text{ bps}}$$