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Level III of CFA® Program
Essay Type Exam 1
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FinQuiz.com – 1st Essay Type Exam 2019

2019 Level III CFA Essay Type Examination has 9 questions. For grading purposes, the maximum point value for each question is equal to the number of minutes allocated to that question.

Questions	Topic	Minutes
1	Portfolio Management – Individual Investor	28
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3	Portfolio Management – Economics	14
4	Portfolio Management – Asset Allocation	18
5	Portfolio Management – Fixed-Income Investments	20
6	Portfolio Management – Equity Investments	19
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8	Portfolio Management – Monitoring and Rebalancing	15
9	Portfolio Management – Performance Evaluation	20
	Total:	**180**

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QUESTION 1 HAS THREE PARTS (A, B, C) FOR A TOTAL OF 28 MINUTES.

Mike Richards is 40 and works as a professor at the University of Utah making a salary of $100,000 annually before taxes. His wife Laurie, age 38, also works at the university as a receivables clerk and makes $40,000 before taxes. The couple file taxes jointly and pay a 35% tax rate on income and investment gains. As a tenured professor, Mr. Richards' salary is fairly stable but only increases at the rate of inflation. The couple has two sons, ages five and six.

Mr. Richards just inherited $850,000 (after taxes) from the estate of his father and the couple are talking with their financial advisor, Max Cates about retirement planning. Besides the inheritance, the couple also has:

$165,000 in a portfolio of 70% bonds and 30% stocks
$150,000 in stock of Coopers Manufacturing, a former employer of Mr. Richards

The value of the stock in Coopers Mfg. has increased substantially and Mr. Richards is still confident in the company's future. The couple would like to buy a house with part of the inheritance proceeds and needs $40,000 for the down payment. The family's annual living expenses are $112,000 and any increases will be covered by increases in salary. They do not plan on paying for their sons' college tuition.

In talking with Cates, the couple discussed several key points:

- Their religious faith precludes them from investing in companies that sell alcohol or tobacco
- They plan on retiring in 17 years when their oldest son finishes college
- They would like to be able to retire comfortably and are not sure the current portfolio mix will get them the return they need. They are willing to take additional investment risk but would be willing to scale back their retirement plans as well.

Cates estimates that the couple will need $2 million to retire in 17 years. He discusses several options with the Richards and formulates an IPS

A.

i. Formulate the return objective of the IPS for the Richards. Calculate the pre-tax rate of return required to achieve this objective. **Show your calculations.**
ii. Identify two factors that increase the Richards' risk tolerance
iii. Identify one factor that limit the Richards' risk tolerance

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(16 minutes)

B. Formulate the constraints portion of the IPS for the Richards, addressing each of the following:

i. taxes
ii. unique Circumstances
iii. time horizon
iv. liquidity requirements

(8 minutes)

Twelve years have passed and there first son is entering college. The couple have changed their mind and would now like to pay for the first year's tuition for both sons which will amount to $45,000 this year and next.

C. Identify how this affects the couple's ability to tolerate risk. No calculations needed.

(4 minutes)

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QUESTION 2 HAS FIVE PARTS (A, B, C, D, E) FOR A TOTAL OF 28 MINUTES.

Merton-Hughes is a plastics manufacturer based in the United States. The company sponsors a defined benefit pension plan that has assets invested in a diversified mix of government and investment-grade bonds. Benefit payments are not adjusted for inflation and the plan includes both active and retired workers. The duration and the market value of the plan's assets are equal to that of the projected benefits obligation (PBO). The company is in good financial health and should be able to meet all obligations and contributions under the plan.

The company's CEO and founder has recently established a foundation for veterans returning from war and the board has approved a $10 million endowment. The foundation has one full-time worker to manage grants and other administrative duties. The foundation has no restrictions on its spending budget but does not expect any more funds from Merton-Hughes.

James Gillespie, an investment advisor who has worked with Merton-Hughes' founder, is advising the foundation on objectives and investments. He has put together the list below for the foundation's director.

- a 3% rate of inflation is an appropriate guide for increases in grant awards and overhead expenses
- the foundation should not hold more than 3% in any one security or debt issue
- annual management expenses for the investment portfolio will be 0.5% of assets
- the foundation's board should adopt a goal of increasing assets by seeking a portfolio return higher than the return required to maintain the real value of the portfolio after administrative and award needs
- the foundation must make annual distributions of 5% or greater to minimize taxes under U.S. code

The foundation's board has voted in favor of all recommendations by the advisor.

A. Formulate the return objective for the foundation's first year. Show your calculations.

(4 minutes)

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B. Formulate the following IPS constraints for the foundation. Justify your response with one reason or show your calculations where noted.

i. liquidity. Show your calculations.
ii. time horizon
iii. legal & Regulatory

(9 minutes)

C.

i. Determine whether the company's pension plan or the foundation has a greater ability to tolerate risk. Justify your response with one reason.
ii. Determine whether the company's pension plan or the foundation has a greater willingness to tolerate risk. Justify your response with one reason.

(6 minutes)

The foundation's board has adopted a spending rule that takes the average market value of its assets over the last year. The board's chairwoman is concerned that this might lead to a volatile budget and proposes a rolling three-year spending rule. Another board member proposes a geometric spending rule where the budget is determined by a geometrically declining average of annual asset values.

D. Explain the difference between the two smoothing rules and which has greater risk.

(4 points)

The board has been approached by a private equity firm with a request to invest in a joint venture. The venture would require a minimum investment of $3 million and would provide no income but has the potential to return 25% per year over the five-year lock-up period. The board's president recommends investing in the venture on the potential for high returns.

E. Choose whether the board member's recommendation is appropriate and justify with two reasons.

(5 minutes)

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QUESTION 3 HAS THREE PARTS (A, B, C) FOR A TOTAL OF 14 MINUTES.

Roger Conrad is a new economic analyst at Wilson-Dunphy Consulting and is working on an estimate for capital market expectations over the coming year.

He is developing an indicator using retail sales and production data to forecast economic growth over a twelve-month period. He has downloaded data for both series and economic growth back to 1947 from the Federal Reserve website and is ready to start his analysis. From previous conversations with colleagues, he thinks that the correlation is fairly strong with a regression coefficient of 0.65 for retail sales growth and 0.63 for production growth with constant growth of 0.5% outside of the factors.

He has been working with the data for a few hours and has found four time periods that support the conclusion. Roger finds that the correlations are weaker across the complete data, but he reasons that the economy has changed considerably over the entire period. The firm is forecasting retail sales growth of 3% and production growth of 4% over the next year. He writes up his findings and prepares a forecast of growth.

A. Using only the data above, Calculate Roger's forecast for economic growth. Show your calculations.

(4 minutes)

B. Identify two sources of bias in Roger's analysis. Support your answer with one reason each.

(6 minutes)

Thomas Kinroy, Chief Economist and Roger's supervisor has identified two psychological traps he believes the young economist has displayed in previous work. In his conversation with Roger, it is confirmed that his analysis showed the following traps,

1) Recallability
2) Confirming evidence

C. Identify one possible solution to correct the behavior for each psychological trap listed.

(4 minutes)

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QUESTION 4 HAS THREE PARTS (A, B AND C) FOR A TOTAL OF 18 MINUTES

The Poleski Pension Fund (PPF) has been established by the Regina National University (RNU), situated in Poland, for its university professors. Mark Lestor, CFA, is managing PPF's policy portfolio and is in the process of revising the fund's current strategic asset allocation. In a meeting with the plan's chief financial officer (CFO), Lestor learns that the pension fund can only tolerate volatility of up to 20% per year and would like to reduce future contribution risk.

Exhibit 1 presents PPF's current economic balance sheet.

Exhibit 1:
PPF's Economic Balance Sheet

Assets	**Millions**	**Liabilities**	**Millions**
Financial assets	50zl	*Financial liabilities*	25zl
		Extended liabilities	
		Present value of expected future contributions	10zl
		Net worth	
		Economic net worth (Economic assets – Economic liabilities)	15zl
Total	50zl	Total	50zl

Lestor applies the asset-only and liability-relative approaches to construct two alternative asset allocations. Exhibit 2 summarizes proposed asset allocations for the two approaches.

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Exhibit 2: Proposed Asset Allocations

	Proportions in Respective Approaches	
Proposed asset class*	Asset Only	Liability-relative**
Equity		
Global market equities	20%	10%
Domestic market equities	20	15
Private equity	8	5
Fixed-income		
Global developed market debt	35	53
Global emerging market debt	10	13
Cash	5	2
Real assets	2	2
Total	100%	100%
Portfolio Statistics		
Sharpe ratio	0.750	0.532
Volatilities	18%	20%

*Correlation between any two asset classes is less than or equal to 0.70.

**The risk exposures of fixed-income securities match liability risk exposures

A. Considering the asset classes, identify which of the following asset class specification criteria is being violated:

I. Asset classes should be homogenous
II. Asset classes should be mutually exclusive
III. Asset classes should be diversifying
IV. Asset classes should represent a preponderance of world investable wealth.

Your answer should describe how the criteria is being violated.

(8 minutes)

Answer Question 1 A in the template provided below.

B. Ignoring the violations in asset class specification criteria, state which of the proposed allocations is most suitable for PPF's portfolio. Support your choice with two reasons considering PPF's economic balance sheet and risk tolerance.

(4 minutes)

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Answer Question 1 B in the template provided below.

C. Lestor presents the two allocations to PPF's CFO. The CFO asks Lestor to differentiate between a liability-relative and an asset-only approach. Lestor draws a comparison between the two approaches in the statements below:

Statement 1: "Liability-relative approaches give fixed-income a larger role than asset-only approaches."

Statement 2: "In contrast to asset-only approaches, liability-relative portfolios may not make the most efficient use of risk."

Statement 3: "Liability-relative approaches focus on shortfall risk while asset-only approaches focus on volatility of portfolio return as a primary risk measure."

Identify the statements which are correct and incorrect. Explain your choices.

Answer Question 1 C in the Template provided below.

(6 minutes)

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Template for Question 1 A

Asset Class Specification Criteria	Violated?	Explanation
I. Asset classes should be homogenous	Yes No	
II. Asset classes should be mutually exclusive	Yes No	
III. Asset classes should be diversifying	Yes No	
IV. Asset classes should represent a preponderance of world investable wealth	Yes No	

Template for Question 1B

Most Suitable Allocation (Circle the correct option)	Support your choice with two reasons
Asset-only Liability Driven	

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Template for Question 1C

Statement	Correct or Incorrect?	Explain Your Choice
1: “Liability-relative approaches give fixed-income a larger role than asset-only approaches.”	Correct Incorrect	
2: “In contrast to asset-only approaches, liability-relative portfolios may not make the most efficient use of risk.”	Correct Incorrect	
3: “Liability-relative approaches focus on shortfall risk while asset-only approaches focus on volatility of portfolio return as a primary risk measure.”	Correct Incorrect	

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Question 5 has Four Parts (A, B, C and D) for a Total of 20 Minutes

Edward Lee is a fixed-income manager responsible for a $20 million fixed-income portfolio comprising 10-year on-the-run US Treasuries. Lee constructed this portfolio based on an assumption of a static yield curve outlook with a positive slope. His portfolio is financed using 3-year Treasuries carrying a yield-to-maturity of 0.56% and the portfolio will be sold one year from today. Details concerning the portfolio are summarized in Exhibit 1.

Exhibit 1: $20-million 10-Year Treasuries Portfolio

10-year Yield-to-maturity (%)	1.800
9-Year Yield-to-maturity (%)	1.652
Annual coupon (%)	5.000
Average expected modified duration	9.770
Expected convexity	0.920
Current bond price (per 100 of par value)	129.05
Expected bond price one year from today	127.79

A. Calculate the total expected return for Lee's portfolio (ignore the impact of leverage). Show your calculations.

(3 minutes)

B. Which of following yield curve positioning strategies Lee has employed?

I. Riding the yield curve
II. Barbell structure
III. Carry trade

Your answer should identify the correct strategy and explain why the other two strategies are incorrect.

(5 minutes)

Six months later, the yield curve outlook has changed. Lee arranges a meeting with Carl Strong, the firm's chief economic analyst. During the meeting, Strong shares his outlook for the US Treasury yield curve in Exhibit 2 which includes an increase in interest rate volatility.

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Exhibit 2: Yield Curve Outlook

Maturity		Current Yield (%)	Projected Change (%)	Forecasted Yield (%)
2-year		0.40	+ 0.01	0.41
3-Year		0.56	+ 0.03	0.59
5-Year		0.69	+ 0.15	0.84
7-Year		1.25	+ 0.22	1.47
10-Year		1.80	+ 0.30	2.10
20-Year		2.35	-	2.35
30-Year		2.99	-	2.99
2s-30s Spread		2.59		2.58
2/10/30 Spread		0.21		0.80

C. Based on Strong's yield curve outlook, Lee identifies three alternative strategies he can exploit to profit from the projections:

I. Purchase 7-Year Treasuries;
II. Purchase 2- and 30-Year Treasuries; or
III. Purchase 5-Year Treasuries and short 2- and 20-Year Treasuries

Determine whether each strategy is appropriate or inappropriate for exploiting the projected yield curve change. Justify your selection with one reason.

Answer Question 1 C in the template provided below.

(7 minutes)

D. Lee is of the opinion that the projected increase in interest rate volatility can be exploited using derivative instruments as an alternative to directly transacting in US Treasuries. He shortlists three alternative instruments which can be utilized for exploiting the forecast:

I. long position in interest rate futures
II. purchasing mortgage-backed securities (MBS)
III. long position in call options

Determine the instrument which is most suitable for exploiting the projected yield curve outlook. Your answer should explain your selection to undertake in the selected instrument.

(5 minutes)

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Question 1-C Template

Strategy	**Appropriate or Inappropriate**	**Justify Your Selection with *one* reason**
I. Purchase 7-Year Treasuries	Appropriate Inappropriate	
II. Purchase 2-Year and 30-Year Treasuries	Appropriate Inappropriate	
III. Purchase 5-Year Treasuries and short 2- and 20-Year Treasuries	Appropriate Inappropriate	

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QUESTION 6 HAS THREE PARTS (A, B, C) FOR A TOTAL OF 19 MINUTES.

Bill Meadows, CFA has just been hired by BBA Trust, an investment firm that manages money for family offices across the United States. The firm was not satisfied with their previous equity manager so hired Bill to reevaluate the holdings and manage the portfolio.

Bill talks with Jim Kilkenny, the firm's president, about expectations and the capital markets. He compiles a set of notes based on the conversation:

- The firm needs to provide above-benchmark returns to rationalize their fees and believes that they can do this through market inefficiencies
- The previous manager was fired because he tracked the benchmark too closely and it was believed he was not taking enough risk
- Many of the firm's clients and portfolios are able to defer or limit taxes on dividends and gains by using tax-advantaged structures
- Besides beating the benchmark, the firm would like to achieve a high information ratio to prove they can provide superior analysis and results
- The firm prefers not to use complicated models to construct portfolios because they have found that family offices do not understand and do not want their money managed using the models.

The previous manager was using a passive approach and the president questions whether this is appropriate.

A. Determine whether a passive approach is appropriate based on the notes above. Justify your answer with four reasons.

(6 minutes)

Bill begins constructing the portfolios using the S&P500 as a benchmark. Bill plans to select approximately 50 stocks of companies that have competent management with strong corporate governance and long-term focus. Bill's analysis emphasizes understanding the firms' business model and management's effectiveness. To gauge the value added by management, Bill uses ROA, ROE, earnings growth and invested capital info to assess the intrinsic value of the companies and compare those values with their current market prices.

B. Determine Bill's investment approach. Justify your response with two reasons.

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(7 minutes)

Six months have passed since Bill started managing the BBA trust. Jim observed that though Bill's portfolio is consistent with his declared investment style, however, BBA trust often holds significant positions in fewer stocks. Jim's major concern is to inquire whether Bill is engaging in activist investing because of his emphasis on strong corporate governance and management's effectiveness.

C. From the list provided in the template, determine which activist investing tactic Bill is likely or unlikely to use? Justify your selection with one reason.

Answer Question 6 C in the Template provided below.

(6 minutes)

Template for Question 6-C.

Active Investing Tactic	**Likely or Unlikely (Encircle)**	**Justify Your Selection with *one* reason**
Launching media campaign against existing management practices.	Likely Unlikely	
Proposing corporate changes to improve companies' value during the annual general meeting	Likely Unlikely	
Reaching out to other shareholders of the company to coordinate action for proxy fight.	Likely Unlikely	

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QUESTION 7 HAS TWO PARTS (A, B) FOR A TOTAL OF 18 MINUTES.

Le Grange is an international shipping company with business in the United States, Mexico and throughout Europe. The international business leaves it exposed to exchange rate risk between the euro (€) U.S. dollar ($) and the Mexican Peso (MXN). The company uses currency options, swaps and forwards to hedge this risk and Joel Stevens, a risk analyst at the company, has been tasked with analyzing the current positions.

The company has a long forward contract on MXN 30 million at €1.63/MXN, expiring in six months. It is also long 100 $ put options with expiration in six months at a strike price of $100/€ and a contract size of $9.5 million. The current rates for the currencies is 1.64 €/MXN and 101.5 $/€. All of the company's derivatives program is placed with Credit LaFleur, a domestic bank.

Six-month Risk Free Rates	
Euro	3.2%
MXN	5.0%
USD	0.5%

Stevens talks to a colleague about credit risk on the currency swaps and makes the following comments,

1) "The credit risk on currency swaps is greatest at the middle of the swap term."
2) "The credit risk on currency swaps is bilateral and isolated to the Le Grange – Credit LaFleur contracts."

A.

i. Determine if each statement is correct or incorrect. For each incorrect statement, identify one reason related to credit risk that makes it incorrect.
ii. Discuss one method to reduce credit risk associated with Le Grange's OTC currency derivatives positions.

(8 minutes)

B.

i. Calculate the amount at risk from a credit loss on the long USD forward contract. Determine which party bears the credit risk. Show your calculations.

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ii. Calculate the amount at risk from a credit loss on the long $ put option contract. Determine which party bears the credit risk. Show your calculations.

(10 minutes)

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QUESTION 8 HAS TWO PARTS (A, B) FOR A TOTAL OF 15 MINUTES.

Okun is a trader and has been following news that the Federal Reserve may begin to lower its benchmark interest rate soon. He knows that this will support many of the rate-sensitive stocks he trades and wants to be ready on the day of the next Fed meeting to trade into shares of Williams Financial.

He believes the price may rise throughout the day but wants to make separate orders to work into the momentum. He places an initial buy order at 9:30am for 100 shares and is filled at $11.31 per share. At 2pm, when the Fed announcement is made, the shares jump and he places another buy order for 750 shares and is filled at $13.07 per share. Finally, before the close he places another buy order for 350 shares and is filled at $14.00 per share.

The table below shows the bid and ask data during the time when the trader made his purchases.

Time	Bid Price	Quantity	Ask Price	Quantity
9:30am	$11.25	450	$11.40	400
2:00pm	$13.05	600	$13.17	800
3:45pm	$13.98	500	$14.07	650

A. Calculate the volume weighted average price for the shares. Show your calculations.

(4 minutes)

B. Calculate the quoted and effective spreads for these orders. Calculate the average quoted and average effective spread. Show your calculations.

(11 minutes)

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QUESTION 9 HAS TWO PARTS (A,B) FOR A TOTAL OF 20 MINUTES.

Jim Jones and Anna Styvoyavitch, two performance accountants at Willbury & James, are sitting in the conference room discussing performance measurement methods for fund managers and hedge funds.

Jim prefers to compare manager performance to a median of the universe of managers with the same investment mandate. Anna prefers to use the broad market index that is most closely related to the manager's investment style.

A.

i. Justify with one reason for each method why it may be appropriate for measuring manager performance.
ii. Justify with one reason for each method why it may be inappropriate for measuring manager performance.

(8 minutes)

Jones and Styvoyavitch are comparing the performance of two Russian equity managers and have collected the 5-year performance data shown below.

	Manager #1	**Manager #2**
Annualized Return	17.85%	17.85%
Sharpe ratio	1.14	0.98
Active risk	3.55%	2.05%
Information ratio	0.36	0.44
M^2	16.50%	14.00%
Treynor measure	18.80%	17.10%
Risk-free rate	2.25%	2.25%

B. Determine for each case below the most appropriate performance measure to compare the managers. Identify in each case which manager outperformed. Explain why one manager outperformed the other in the given metric.

i. Systematic risk
ii. Total risk
iii. Return generated by deviation from benchmark

Answer Question 9-B in the Template provided on page 18.

(12 minutes)

Template for Question 9-B

	Determine the most appropriate performance measure	**Identify which manager outperformed**	**Explain why the manager outperformed in the metric**
i. Systematic risk		Manager #1 Manager #2	
ii. Total risk		Manager #1 Manager #2	
iii. Return generated by deviation from benchmark		Manager #1 Manager #2	

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