FinQuiz.com

Level III of CFA Program
Mock Exam 1
June 2020
Revision 1

FinQuiz.com – 1st Mock Exam 2020 (AM Session)

The morning session of the 2020 Level III Examination has 8 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	32
2	Portfolio Management – Institutional Investors	36
3	Portfolio Management – Economics	18
4	Portfolio Management – Economics	20
5	Portfolio Management – Asset Allocation	27
6	Portfolio Management – Fixed-Income Investments	24
7	Portfolio Management – Alternative Investments	14
8	Portfolio Management – Equity Investments	9
	Total:	**180**

QUESTION 1 HAS FOUR PARTS (A, B, C, D) FOR A TOTAL OF 32 MINUTES.

Simon Becker is 45 years old stockbroker at P.S. Salow, a well-respected firm with a long history. Simon is sitting down with J.D. Smithson, the advisor that manages his retirement portfolio, to plan his retirement and other needs.

Simon has done well and would like to retire in ten years. He is married and his two twin boys will soon be moving out and attending college at the same time he is starting retirement. While he does not plan on paying their entire tuition, he would like to give them a one-time gift of $25,000 each when they move out.

Simon and his wife, who works as a medical examiner, would like to retire and buy a vacation home in Miami, which will cost about $200,000. They currently rent a home and have no significant debts or mortgages.

The Beckers currently have an investment portfolio of $1,250,000 in a money market account. They would like to buy an annuity for $2,000,000 when they retire that will cover their annual expenses. While the Beckers have worked hard to fund their portfolio to this point, they do not want to contribute any more for their remaining years to retirement. While he is familiar with the concept of risk and return, Mr. Becker has seen many of his coworkers lose their entire life savings to speculative investments. He feels that he and his wife have worked hard to save up and are pretty well set for their retirement.

A. Formulate each of the following constraints for Beckers investment policy statement (IPS):

i. Liquidity
ii. Time horizon
iii. Unique concerns

(6 minutes)

B. **Identify** Beckers' planned and unplanned goals.

(6 minutes)

After carefully preparing the Beckers' investment policy statement (IPS), Smithson focused his attention towards portfolio construction and monitoring process to build an appropriate investment plan and strategy. Smithson planned to apply a goal-based investing approach to put a greater focus on the goals that Beckers' family want to achieve.

C. **Describe** briefly goals-based investing (GBI) approach**. Determine** the main focus of the wealth manager when applying goals-based investing. State one advantage and one disadvantage of goals-based investing approach.

Answer Question 1-C in the template provided at the end of the Question 1.

(8 minutes)

Five years have passed and the Beckers have recently inherited a substantial amount of money from a relative. In addition, the Beckers have reassessed their plans in retirement and would like to live a more lavish lifestyle which will require more expenses. To accomplish this, Mr. Becker has decided to put part of their money to private equity and hedge funds.

D. Identify two factors that change Mr. Becker's capacity or perception to take risk, and state whether the factor increases or decreases the overall risk tolerance.

Answer Question 1-D in the Template provided at the end of Question 1.

(12 minutes)

Any marks made on this page will not be graded.

Answer Question 1 on This Page

Template for Question 1-C

Goals-based Investing	
Describe briefly	
Main focus of the wealth manager	
Advantage	
Disadvantage	

Answer Question 1 on This Page

Template for Question 1-D

	Identify three factors that change Beckers' risk tolerance.	Choose (encircle) whether the affect is with respect to **capacity or perception** to tolerate risk	Choose (encircle) whether the affect is an **increase** or **decrease** in his overall risk tolerance	**Justify your response**
1		Capacity Perception	Increase Decrease	
2		Capacity Perception	Increase Decrease	
3		Capacity Perception	Increase Decrease	

QUESTION 2 HAS FOUR PARTS (A, B, C, D) FOR A TOTAL OF 34 MINUTES.

Iowa State University is a public, tax-exempt institution that receives a portion of its funding needs from an endowment. Each year, the endowment pays out 3.5% of last year's market value to fund the current year's spending needs. The market value of the endowment last year was $250 million dollars, which means that this year's funding will be approximately 15% of the university's total needs. The university would like to maintain this level of support into the future. As a publicly funded institution the investment committee is wary of certain investments that contradict with the university's policy of a moral and healthy lifestyle.

The last five years history for the endowment and spending is shown below. (all dollar amounts are in thousands USD)

Year Ending December	Market Value in ('000)	3.5% Spending for Next Year
2014	$200,000	$7,000
2015	$275,000	$9,625
2016	$325,000	$11,375
2017	$215,000	$7,525
2018	$250,000	$8,750

The markets have been especially volatile over the last few years and the university investment committee is worried that they may not be able to meet spending needs in the future. Several of the past years have seen dramatic swings in the total assets of the fund and large drawdowns after yearly spending needs. The committee has decided to switch to market value rule based on 3.5% of the last five years moving average of assets.

Fund's current investment portfolio holds 50% equity, 40% alternative investments and 10% fixed income. Fund's investment approach involves significant active management and rely on externally managed asset.

A. State the primary objective of Iowa State University (ISU) endowment. **Name** three stakeholders of ISU.

(6 minutes)

B. Calculate the endowment's spending needs for 2019 based on market value spending rule by applying five year moving average. **Show** your calculations.

(3 minutes)

C. Select whether the change in spending rule increases or decreases the endowment's risk tolerance. Support your answer with one reason.

Answer Question 2-C in the Template provided at the end of Question-2.

(3 minutes)

D. **Identify** the investment approach currently being used by the investment committee of the ISU endowment. **Justify** your response. **State** one advantage and one disadvantage of the selected investment approach.

Answer Question 2-D in the template provided at the end of the Question 2.

(8 minutes)

E. Formulate each of the following constraints for the ISU endowment's investment policy statement (IPS):

i. Unique circumstances
ii. time horizon
iii. liquidity

(6 minutes)

The Save-a-Live Foundation is a nonprofit organization focused on providing support for the homeless in and around Minneapolis, Minnesota. The foundation has a very large investment portfolio left to it by a wealthy benefactor and receives much of its annual spending needs through donations. The foundation is tax-exempt as long as it meets minimum requirements for payment of proceeds set by the IRS.

F. Identify the type of Save-a-Live foundation.

(2 minutes)

G. Choose whether the risk tolerance component of the IPS is higher, lower, or no different for the Save a Life foundation relative to the ISU endowment. Discuss two reasons that support your answer.

Answer Question 2-G in the Template provided at the end of Question-2.

(6 minutes)

Any marks made on this page will not be graded.

Answer Question 2 on This Page

Template for Question 2-C

Select whether the change in spending rule increases or decreases risk tolerance	**Support with One reason**
Increase Decrease	

Answer Question 2 on This Page

Template for Question 2-D

	(Circle one)	Justify your response
Identify the investment approach currently being used by the investment committee of ISU endowment	Norway Model Endowment Model Canadian Model Liability-driven investing (LDI) Model	
State one Advantage		
State one Disadvantage		

Answer Question 2 on This Page

Template for Question 2-G

Choose whether the risk tolerance component of the IPS is higher, lower, or no different for the Save a Life foundation relative to the ISU endowment.	**Discuss two reasons that support your answer.**
Higher Lower No Different	

QUESTION 3 HAS TWO PARTS (A, B) FOR A TOTAL OF 18 MINUTES.

Joseph, Robert and Jason are all economic research analysts for the state's workforce development agency. Each is an expert in a different approach to forecast economic growth.

Joseph follows the release of economic data closely and favors using indicators to forecast growth. Robert uses checklists he has devised over the years and is confident they are the most accurate method. Jason is a recent statistics graduate and is more comfortable using econometric modeling.

The three argue for hours but cannot agree on the relative advantages and limitations of each approach.

A. For each of the approaches to economic forecasting, describe one advantage and one disadvantage.

Answer Question 3-A in the Template provided at the end of Question 3.

(12 minutes)

The three analysts decide to leave the debate aside for now and move on to talk about stocks and the business cycle. They are all familiar with the price-earnings multiple and discuss how it reacts to the business cycle and inflation. Robert makes the following assertions,

"The price-earnings ratio tends to be low and falling during the early stages of a recovery."

"Inflation has no effect on price-earnings ratios."

B. Determine whether each of the statements is accurate. Support each response with one reason.

Answer Question 3-B in the Template provided at the end of Question 3.

(6 minutes)

Any marks made on this page will not be graded.

Answer Question 3 on This Page

Template for Question 3-A

Forecasting Approach		**Describe one advantage and one limitation.**
Econometric Modeling	Advantage	
	Limitation	
Economic Indicators	Advantage	
	Limitation	
Checklist	Advantage	
	Limitation	

Template for Question 3-B

Determine whether each of the statements is accurate		**Support each response with one reason**
"The price-earnings ratio tends to be low and falling during the early stages of a recovery."	**Accurate**	
	Inaccurate	
"Inflation has no effect on price-earnings ratios."	**Accurate**	
	Inaccurate	

QUESTION 4 HAS TWO PARTS (A, B) FOR A TOTAL OF 20 MINUTES.

Paul Shannon works at Emerging Investment LLC and has been asked to write a report on Emerging markets.

A. List five economic risks of emerging market countries that make them potentially unable to pay debt on time.

(5 minutes)

Shannon is observing a country named Bellvale for part of his emerging market portfolio. Bellvale is a small but growing country. Shannon is determining the soundness of Bellvale based on the key macroeconomic elements.

Bellvale's bond market is offering significantly higher yields adjusted for inflation compared to developed countries' bond markets. Shannon believes that the debt premium of Bellvale will reduce overtime as the country is becoming structurally stronger. Historically, Bellvale's bond and stock markets have long been considered as high-risk investments. This probably stem from the perception that the Bellvale is politically instable and central bank frequently shifts policies.

Bellvale's annual growth rate is 5.5%. For the last eight years, the country's annual growth rate is ranged between 5.4% to 6.6%. Country's fiscal deficit to GDP ratio is consistently greater than 5%. Bellvale's new government has been indifferent towards the capital market that needs support. Bellvale's debt-to-GDP ratio is 35% and foreign reserves to short-term debt ratio is 210%.

B. **Describe** factors that support Shannon's decision to invest in Bellvale? **Describe** the risks Shannon might be overlooking?

Answer Question 4-B in the template provided at the end of Question 4.

(15 minutes)

Any marks made on this page will not be graded.

Answer Question 4 on This Page

Templates for Question 4-B

	Factors that support Shannon's decision to invest in Bellvale.	**Justify your response**
1		
2		
3		

	Risks Shannon might be overlooking.	**Justify your response**
1		
2		

QUESTION 5 HAS THREEPARTS (A, B, C) FOR A TOTAL OF 27 MINUTES.

John Galt Investments has been experiencing some peculiarly volatile results across its portfolios over the last year and its manager, Jim Blake, is anxious to find out why. Mr. Blake speaks to each of his five portfolio managers and finds out that each manager was using a different approach to asset allocation. To further complicate matters, while the managers could describe their approach, they did not know what the approach was formally called.

Below is the transcript from each manager's description of their approach:

Mr. Brown: I have developed my approach through years of work as a manager. I generally use a rule-based system that is widely used among professionals.

Ms. Emmet: I have no particular view on expected class returns and my clients have an average risk tolerance. My main goal is to design a well-diversified portfolio.

Mrs. Jenkins: After having tried other approaches, I found one that is not as sensitive to changes in input estimation. By drawing on historical averages of the inputs, I can design a portfolio around a more stable efficient frontier.

Mr. Crowley: My portfolio is designed for institutional investors like banks and insurance companies. These institutions are considered quasi-trust fiduciaries and are required to meet their financial obligations.

Ms. Jones: I have created a computer program that models possible capital market assumptions and applies thousands of possible combinations over the investing horizon. I then select the most appropriate allocation for the best long-term results.

A. Given the statements by each manager, decide the most likely asset allocation approach and describe one advantage of the approach. Possible allocation choices are: Resampled Mean-Variance Optimization, Black-Litterman, Monte Carlo Simulation, Asset-Liability Management, and Experienced-Based

Answer Question 5-A in the Template provided at the end of Question 5.

(15 minutes)

Mr. Blake is now looking over the portfolio of Shawn Bryan, a private wealth client who just inherited $1,740,000 from the sale of his father's business in the United States. Bryan plans to invest approximately $75,000 of this amount in a friend's start-up firm in about six months' time. When talking to Blake about his goals, Bryan states that he would not only like to invest in his friend's firm without eroding the initial capital, but would also like to earn a return that would at least cover inflation in the long-term.

In setting Bryan's risk objective, Blake includes a risk tolerance of 4 for him. Based on his IPS, Blake suggests three difference strategic asset allocations as given in Exhibit 1.

Exhibit 1: Strategic Asset Allocations for Blake's Portfolio

	Investor's Forecasts	
Asset Allocation	**Expected Return**	**Standard deviation of Return**
A	13.50%	22.00%
B	8.50%	16.00%
C	5.80%	11.00%

B. **Recommend** the *most* appropriate strategic asset allocation for Bryan based only on his risk-adjusted expected returns. **Show** your calculations.

(6 minutes)

C. **Justify** a strategic asset allocation given Bryan's threshold return and assuming a normal return distribution. **Show** your calculations.

(6 minutes)

Any marks made on this page will not be graded.

Answer Question 5 on This Page

Template for Question 5-A

Manager	**Given the statements by each manager, decide the most likely asset allocation.**	**Describe one advantage of the approach.**
Mr. Brown		
Ms. Emmet		
Mrs. Jenkins		
Mr. Crowley		
Ms. Jones		

QUESTION 6 HAS TWO PARTS (A & B) FOR A TOTAL OF 24 MARKS

Samantha Freeman is a specialized asset manager hired by The Iceberg Media House (TIMH) to manage their defined benefit pension plan. The present value of the plan's pension liabilities equals $289 million using a discount rate of 6% and a wage growth rate of 5.5%. The plan is currently slightly overfunded, with an asset portfolio having a market value of $299 million respectively. Freeman has estimated the effective durations of the pension obligations and the asset portfolio to equal 7.8 and 9.5 respectively.

Freeman's department has cited concerns over a predicted overheated economy, with rising inflation and increasing interest rates. Such a scenario could lead to a lower value of the pension assets, especially if the stock market is also expected to reverse after reaching its peak. Freeman favors a suggestion given to her by her financial team that involves bridging the duration gap between the pension plan's liabilities and assets to minimize losses. However, she does advise them not to sell or buy securities directly in the open market, as large transactions could significantly alter market prices and incur considerable tangible transaction costs.

Freeman assigns Charlie Robins, an immunization expert and market analyst, to identify and negotiate interest rate derivatives with a financial firm for the sole purpose of adjusting the duration gap of the pension plan. Robins negotiates the following contracts:

i. A 10-year futures contract with a BPV of $66.245 (per $100,000 in par value) and a conversion factor of 0.9203.
ii. A 20-year fixed-for-floating swap contract with a fixed rate of 5.00% and the 3-month Libor as the floating rate. Its net effective duration to the fixed-rate receiver is 19.00.
iii. An option to enter the 20-year swap contract at a strike rate of 6.3%. The swaption premium equals 50bps per unit of the notional principal of the swap.
iv. A swaption collar that involves the above option and another that has the same premium. The new option has a strike rate of 3.00%. The idea is to construct a zero cost strategy so that there is no upfront premium to be paid.

Robins determines that a hedging ratio of 75% would be most appropriate for the plan considering the size of the plan, the plan's stakeholders, and the expected accuracy of the interest rate predictions. The first task that Robins assigns his team is to determine the positions that the plan would have to take under each contract based on the market values of the obligations and assets.

A. Construct a derivative overlay strategy using *each* of the interest rate derivatives put forth by Charlie Robins.

(16 minutes)

B. Describe *one* challenge for each of the derivative strategies determined above.

(8 minutes)

Any marks made on this page will not be graded.

QUESTION 7 HAS THREE PARTS (A, B, and C) FOR A TOTAL OF 14 MINUTES

Abram Gael is a hedge fund manager at GI Equity Hedge Fund based in Brasília, the capital of Brazil. He is well-known for his dedicated short biased strategies and has currently R$150 million assets under management. Gael's assistant has consolidated information regarding the two potential investment candidates. The information is as follows:

Exhibit 1:
Particulars of Potential Investment Candidates

Characteristics	Stock A	Stock B	Industry Average
P/E	30	27	10
P/B	7	9	5.5
Long Term Growth	8%	3%	7%
Liquidity	High	High	-
Borrowing cost	15%	8%	-

A. **Determine** which stock is *most likely* appropriate to be added to Gael's short biased portfolio. **Justify** your response with two reasons.

Answer Question 7-A in the template provided at the end of Question 7.

(5 minutes)

Brazil's economy was in recession from the past decade; thus, short biased strategy had been the preferred one by all equity hedge fund managers. The country is now out of recession and among the growing economies of the world. Gael desires to change his equity investment strategy, keeping in view the shifting market conditions. The market imposes no restriction on the use of leverage and Gael is indifferent for the exposure to market beta. He is evaluating the equity market trend to determine whether he should move to Long/Short Equity strategy or Equity Market Neutral strategy. The projected growth rate of the equity market is highest in the history of Brazil's economy. Equity is more likely to outperform other alternative investments with a low degree of co-integration among stocks. Interest rates are expected to decline further.

B. **Determine** the *most* appropriate strategy for GI Equity Hedge Fund under shifting economic conditions. **Justify** your response.

Answer Question 7-B in the template provided at the end of Question 7.

(5 minutes)

C. **State** and **Discuss** the risks associated with dedicated short biased strategy under changing market conditions.

(4 minutes)

Any marks made on this page will not be graded.

Answer Question 7 on This Page

Template for Question 7-A

Stock (Circle the correct answer)	Justify your response
A B	

Template for Question 7-B

Strategy (Circle the correct answer)	Justify your response
Long/Short (L/S) Equity Strategy Equity Market Neutral (EMN) Strategy	

QUESTION 8 HAS THREE PARTS (A, B, C) FOR A TOTAL OF 9 MINUTES.

Thomas McGrath is 46 years old and lives in Germany. McGrath started a clothing line for women around ten years ago. The business achieved high success and the demand for his clothing increased manifold over the years. McGrath has managed to recently launch his personal designer wear by the name of 'Exquisite Fashion' that covers designs for both men and women. McGrath owns several boutiques in the country and has a total net worth of around €50 million.

McGrath now wishes to invest €5 million in the stock market, and for this, has hired Melissa Wells, the chief portfolio manager at Allen Investment Advisors. During an introductory meeting, Wells convinces McGrath that an active management approach is suitable based on his above-average ability to tolerate risk. McGrath instructed Wells to invest in domestic equities only., McGrath has asked his financial adviser Denial Ross to evaluate Wells past performance. Ross gathered the following information.

Exhibit 1
Wells Portfolio Analysis (1)

	Portfolio	Market Benchmark
Number of stocks	35	1000
P/E ratio	22	15
P/B ratio	2.9	2.0
Dividend yield	1.5%	2.3%
Weighted average market cap	€16 billion	€22 billion
Expected EPS growth rate	17%	12%

Exhibit 2
Wells Portfolio Analysis (2)

Sector	Portfolio	Market Benchmark
Consumer discretionary	10%	18%
Energy	15%	13%
Finance	13%	25%
Health care	22%	12%
Information Technology	25%	17%
Industrials	5%	7%
Telecommunications	10%	8%

A. **Determine** the investment style followed by Wells in the management of her portfolio. **Justify** your response with *four* reasons.

Answer Question 8-A in the template provided at the end of Question 8.

(7 minutes)

B. Determine the major risk factor faced by investors following the investment style identified in part (i).

(2 minutes)

Any marks made on this page will not be graded.

Answer Question 8 on This Page

Template for Question 8-A

Determine the investment style followed by Wells in the management of her portfolio.	**Justify your response with *four* reasons.**