

2024

WILEY'S CFA<sup>®</sup> PROGRAM EXAM REVIEW



Wiley's

# LEVEL III CFA<sup>®</sup>

## PROGRAM STUDY GUIDE

COMPLETE SET

WILEY

**Wiley's CFA® Program Exam Review  
Study Guide for 2024  
Level III CFA Exam**

**Complete Set**

Thousands of candidates from more than 100 countries have relied on these Study Guides to pass the CFA<sup>®</sup> Exam. Covering every Learning Outcome Statement (LOS) on the exam, these review materials are an invaluable tool for anyone who wants a deep-dive review of all the concepts, formulas, and topics required to pass.

Wiley study materials are produced by expert CFA charterholders, CFA Institute members, and investment professionals from around the globe. For more information, contact us at [info@efficientlearning.com](mailto:info@efficientlearning.com).

**Wiley's CFA<sup>®</sup> Program Exam Review  
Study Guide for 2024  
Level III CFA Exam**

**Complete Set**

**WILEY**

© 2023 UWorld, LLC. All rights reserved.

Reproduction or translation of any part of this work beyond that permitted by sections 107 and 108 of the United States Copyright Act without the permission of the copyright owner is unlawful.

Printed in English, in the United States of America.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, scanning, or otherwise, except as permitted under Section 107 or 108 of the 1976 United States Copyright Act, without either the prior written permission of the Publisher.

Limit of Liability/Disclaimer of Warranty: While the publisher and author have used their best efforts in preparing this book, they make no representations or warranties with respect to the accuracy or completeness of the contents of this book and specifically disclaim any implied warranties of merchantability or fitness for a particular purpose. No warranty may be created or extended by sales representatives or written sales materials. The advice and strategies contained herein may not be suitable for your situation. You should consult with a professional where appropriate. Neither the publisher nor author shall be liable for any loss of profit or any other commercial damages, including but not limited to special, incidental, consequential, or other damages.

Required CFA Institute® disclaimer:

“CFA® and Chartered Financial Analyst® are trademarks owned by CFA Institute. CFA Institute (formerly the Association for Investment Management and Research) does not endorse, promote, review or warrant the accuracy of the products or services offered by John Wiley & Sons, Inc.”

Certain materials contained within this text are the copyrighted property of CFA Institute. The following is the copyright disclosure for these materials:

“Copyright 2023, CFA Institute. Reproduced and republished with permission from CFA Institute. All rights reserved.”

These materials may not be copied without written permission from the author. The unauthorized duplication of these notes is a violation of global copyright laws and the CFA Institute Code of Ethics. Your assistance in pursuing potential violators of this law is greatly appreciated.

Disclaimer: UWorld’s study materials should be used in conjunction with the original readings as set forth by CFA Institute in the 2023 CFA Level III Curriculum. The information contained in this book covers topics contained in the readings referenced by CFA Institute and is believed to be accurate. However, their accuracy cannot be guaranteed.

978-1-394-21238-5 (ePDF); 978-1-394-21237-8 (ePub)

## Contents

**About the Authors** **xi**

**Wiley's CFA® Program Exam Review Study Guide for 2024 Level III CFA Exam**

**Volume 1: PORTFOLIO MANAGEMENT: Capital Market Expectations & Asset Allocation and Related Decisions in Portfolio Management**

**PORTFOLIO MANAGEMENT, PROGRAM CURRICULUM VOLUME 1**

### **Capital Market Expectations**

Learning Module 1: Capital Market Expectations, Part 1: Framework and Macro Considerations	3
Lesson 1: A Framework for Developing Capital Market Expectations	3
Lesson 2: Economic and Market Analysis (Part 1)	6
Lesson 3: Economic and Market Analysis (Part 2)	11
Lesson 4: International Interactions	15
Learning Module 2: Capital Market Expectations, Part 2: Forecasting Asset Class Returns	19
Lesson 1: Forecasting Fixed Income Returns	19
Lesson 2: Forecasting Equity Returns	22
Lesson 3: Forecasting Real Estate Returns	26
Lesson 4: Forecasting Exchange Rate Returns	28
Lesson 5: Forecasting Volatility	34
Lesson 6: Adjusting a Global Portfolio	37

### **Asset Allocation and Related Decisions in Portfolio Management**

Learning Module 3: Overview of Asset Allocation	41
Lesson 1: The Economic Balance Sheet and Asset Allocation	41
Lesson 2: Approaches to Asset Allocation	42
Lesson 3: Strategic Asset Allocation	45
Lesson 4: Implementation Choices	50
Lesson 5: Strategic Considerations for Rebalancing	52
Learning Module 4: Principles of Asset Allocation	53
Lesson 1: The Traditional Mean-Variance Optimization (MVO) Approach	53
Lesson 2: Monte Carlo Simulation and Risk Budgeting	55
Lesson 3: Factor-Based Asset Allocation	56
Lesson 4: Liability-Relative Asset Allocation	57

Lesson 5: Goal-Based Asset Allocation, Heuristics, Other Approaches to Asset Allocation, and Portfolio Rebalancing	60
Learning Module 5: Asset Allocation with Real-World Constraints	63
Lesson 1: Constraints in Asset Allocation	63
Lesson 2: Asset Allocation for the Taxable Investor	66
Lesson 3: Revising the Strategic Asset Allocation and Short-Term Shifts in Asset Allocation	67
Lesson 4: Behavioral Biases in Asset Allocation	69

## Wiley's CFA® Program Exam Review Study Guide for 2024 Level III CFA Exam

### Volume 2: PORTFOLIO MANAGEMENT: Derivatives, Currency Management, & Fixed-Income

#### PORTFOLIO MANAGEMENT, PROGRAM CURRICULUM VOLUME 2

##### Derivatives and Currency Management

Learning Module 1: Option Strategies	3
Lesson 1: Position Equivalencies	3
Lesson 2: Covered Calls and Protective Puts	5
Lesson 3: Option Strategies	7
Lesson 4: Implied Volatility, Skew, and Using Options to Target Risk Exposures	16
Learning Module 2: Swaps, Forwards, and Futures Strategies	19
Lesson 1: Changing Risk Exposures with Swaps, Futures, and Forwards	19
Lesson 2: Derivatives on Volatility	30
Lesson 3: Uses of Derivatives in Portfolio Management	33
Learning Module 3: Currency Management: An Introduction	39
Lesson 1: Review of Foreign Exchange Concepts	39
Lesson 2: Currency Risk and Portfolio Return and Risk	44
Lesson 3: Currency Management: Strategic Decisions	47
Lesson 4: Currency Management: Tactical Decisions	49
Lesson 5: Tools of Currency Management	52
Lesson 6: Currency Management for Emerging Market Currencies	59

##### Fixed-Income

Learning Module 4: Overview of Fixed-Income Portfolio Management	63
Lesson 1: Roles of Fixed-Income Securities in Portfolios	63
Lesson 2: Fixed-Income Portfolio Measures	68
Lesson 3: Bond Market Liquidity	69
Lesson 4: Components of Fixed-Income Returns	71
Lesson 5: Leverage	73
Lesson 6: Fixed-Income Portfolio Taxation	76
Learning Module 5: Liability-Driven and Index-Based Strategies	79
Lesson 1: Liability-Driven Investing	79
Lesson 2: Managing Single and Multiple Liabilities	80
Lesson 3: Risks in Managing a Liability Structure	83
Lesson 4: Bond Index Investing	84
Lesson 5: Alternative Passive Bond Investing	85
Lesson 6: Choosing a Benchmark	86

**PORTFOLIO MANAGEMENT, PROGRAM CURRICULUM VOLUME 3****Fixed-Income**

Learning Module 1: Yield Curve Strategies	91
Lesson 1: Factors Affecting Fixed-Income Returns	91
Lesson 2: Strategies for Static and Changing Yield Curves	93
Lesson 3: Fixed-Income Volatility Strategies	96
Lesson 4: Evaluating Portfolio Sensitivity Using Key Rate Durations	98
Lesson 5: Fixed-Income Cross-Currency Strategies	99
Lesson 6: Scenario Analysis for Yield Curve Strategies	100
Learning Module 2: Fixed-Income Active Management: Credit Strategies	101
Lesson 1: Investment-Grade and High-Yield Corporate Bond Portfolios	101
Lesson 2: Credit Spreads	102
Lesson 3: Credit Strategy Approaches	105
Lesson 4: Liquidity Risk and Tail Risk in Credit Portfolios	112
Lesson 5: Scenario Analysis for Yield Curve Strategies	115
Lesson 6: International Credit Portfolios	118
Lesson 7: Structured Financial Instruments	120
Lesson 8: Fixed-Income Analytics	123

**Wiley's CFA® Program Exam Review Study Guide for 2024 Level III CFA Exam****Volume 3: PORTFOLIO MANAGEMENT: Equity, Alternative Investments, & Private Wealth Management****PORTFOLIO MANAGEMENT, PROGRAM CURRICULUM VOLUME 3 (continued)****Equity**

Learning Module 3: Overview of Equity Portfolio Management	3
Lesson 1: The Role of the Equity Portfolio and Approaches to Equity Investing	3
Learning Module 4: Passive Equity Investing	9
Lesson 1: Introduction to Passive Equity Investing	9
Lesson 2: Approaches to Passive Equity Investing	11
Lesson 3: Constructing Passively Managed Equity Portfolios	13
Lesson 4: Tracking Error	14
Lesson 5: Sources of Return and Risk	16
Learning Module 5: Active Equity Investing: Strategies	19
Lesson 1: Active Equity Investing: Strategies	19
Learning Module 6: Active Equity Investing: Portfolio Construction	31
Lesson 1: Active Equity Investing: Portfolio Construction	31

**PORTFOLIO MANAGEMENT, PROGRAM CURRICULUM VOLUME 4****Alternative Investments**

Learning Module 1: Hedge Fund Strategies	47
Lesson 1: Classifying Hedge Funds and Strategies	47
Lesson 2: Equity Strategies	48
Lesson 3: Event-Driven Strategies	51
Lesson 4: Relative Value Strategies	53

Lesson 5: Opportunistic Strategies	55
Lesson 6: Specialist Strategies	56
Lesson 7: Multi-Manager Strategies	58
Lesson 8: Analyzing Hedge Fund Strategies	60
Lesson 9: Portfolio Contribution of Hedge Fund Strategies	62
Learning Module 2: Asset Allocation to Alternative Investments	63
Lesson 1: The Role of Alternative Investments in Multi-Asset Portfolios	63
Lesson 2: Diversifying Equity Risks	66
Lesson 3: Classifying the Investment Opportunity Set	67
Lesson 4: Considerations Relevant to Alternative Asset Investment	69
Lesson 5: Suitability Considerations	75
Lesson 6: Asset Allocation Approaches	76
Lesson 7: Liquidity Planning	80
Lesson 8: Monitoring an Alternative Assets Program	82
<b>Private Wealth Management</b>	
Learning Module 3: Overview of Private Wealth Management	87
Lesson 1: Private Wealth Management Practice	87
Lesson 2: Knowing Your Client	91
Lesson 3: Investment Planning	96
Lesson 4: The Investment Policy Statement	99
Lesson 5: Developing and Evaluating Advice	105
Learning Module 4: Topics in Private Wealth Management	109
Lesson 1: General Principles of Taxation	109
Lesson 2: The Investor's Jurisdiction	111
Lesson 3: Measuring After-Tax Efficiency	115
Lesson 4: Different Types of Account: Accumulation and Decumulation	120
Lesson 5: Application of Tax Management Strategies	125
Lesson 6: Concentrated Single-Asset Positions: Risk and Tax Considerations	130
Lesson 7: Strategies for Managing Concentrated Positions in Public Equities	131
Lesson 8: Strategies for Managing Concentrated Positions in Privately Owned Businesses and in Real Estate	135
Lesson 9: Gift and Estate Planning Objectives	136
Lesson 10: Gift and Estate Planning Strategies	137
Lesson 11: Managing Wealth Across Generations: Family Governance	143
Learning Module 5: Risk Management for Individuals	147
Lesson 1: Human Capital and Financial Capital	147
Lesson 2: Seven Financial Stages of Life	148
Lesson 3: A Framework for Individual Risk Management	150
Lesson 4: Life Insurance	152
Lesson 5: Other Types of Insurance	157
Lesson 6: Annuities	160
Lesson 7: Implementation of Risk Management for Individuals	164

## Wiley's CFA® Program Exam Review Study Guide for 2024 Level III CFA Exam

### Volume 4: PORTFOLIO MANAGEMENT: Institutional Investors, Trading, Performance Evaluation, and Manager Selection, & Cases in Portfolio Management and Risk Management

#### PORTFOLIO MANAGEMENT, PROGRAM CURRICULUM VOLUME 5

##### Institutional Investors

Learning Module 1: Portfolio Management for Institutional Investors	3
Lesson 1: Features of Institutional Portfolio Management	3
Lesson 2: Characteristics of Liabilities	11
Lesson 3: Liquidity Needs and Constraints	15
Lesson 4: Investment Objectives and Risk	20
Lesson 5: Asset Allocation and Portfolio Considerations	21

##### Trading, Performance Evaluation, and Manager Selection

Learning Module 2: Trade Strategy and Execution	29
Lesson 1: Motivations to Trade	29
Lesson 2: Trading Strategies and Strategy Selection	31
Lesson 3: Trade Execution (Strategy Implementation)	34
Lesson 4: Trade Evaluation	38
Lesson 5: Trade Governance	41
Learning Module 3: Portfolio Performance Evaluation	45
Lesson 1: The Evaluation Process and Attribution	45
Lesson 2: Return Attribution Approaches	46
Lesson 3: Risk and Multi-Level Return Attribution Approaches	52
Lesson 4: Benchmarking Investments and Managers	55
Lesson 5: Performance Appraisal	60
Learning Module 4: Investment Manager Selection	65
Lesson 1: A Framework for Investment Manager Search and Selection	65
Lesson 2: Quantitative Elements of Manager Search and Selection	67
Lesson 3: Qualitative Elements of Manager Due Diligence	70

##### Cases in Portfolio Management and Risk Management

Learning Module 5: Case Study in Portfolio Management: Institutional	81
Lesson 1: Case Study in Portfolio Management—Institutional	81
Lesson 2: Liability Characteristics	84
Learning Module 6: Case Study in Risk Management: Private Wealth	89
Lesson 1: Early Career Stage	89
Lesson 2: Career Development Stage	91
Lesson 3: Peak Accumulation Stage	93
Lesson 4: Early Retirement Stage	94
Learning Module 7: Integrated Cases in Risk Management: Institutional	97
Lesson 1: The Financial Risks of Institutional Investors	97
Lesson 2: Environmental and Social Risks for Institutional Investors	102
Lesson 3: Case Study	104

**Wiley's CFA® Program Exam Review Study Guide for 2024 Level III CFA Exam****Volume 5: Ethical and Professional Standards****PROGRAM CURRICULUM VOLUME 6****Ethical and Professional Standards**

Learning Module 1: Code of Ethics and Standards of Professional Conduct	3
Lesson 1: Code of Ethics and Standards of Professional Conduct	3
Learning Module 2: Guidance for Standards I-VII	7
Lesson 1: Standard I: Professionalism	7
Lesson 2: Standard II: Integrity of Capital Markets	32
Lesson 3: Standard III: Duties to Clients	42
Lesson 4: Standard IV: Duties to Employers	65
Lesson 5: Standard V: Investment Analysis, Recommendations, and Actions	79
Lesson 6: Standard VI: Conflicts of Interest	92
Lesson 7: Standard VII: Responsibilities as a CFA Institute Member or CFA Candidate	101
Learning Module 3: Application of the Code and Standards: Level III	109
Lesson 1: Case Study—Sovereign Investment Corp	109
Lesson 2: Case Study—Marcia Lopez, David Hockett, and Bank Global	111
Lesson 3: Case Study—Castle Biotechnology	115
Lesson 4: Case Study—Lionsgate Limited and Bank of Australia	119
Lesson 5: Case Study—Gabby Sim	124
Learning Module 4: Asset Manager Code of Professional Conduct	131
Lesson 1: Asset Manager Code of Professional Conduct	131
Learning Module 5: Overview of the Global Investment Performance Standards	139
Lesson 1: Objective and Scope of the GIPS Standards	139
Lesson 2: Fundamentals of Compliance	141
Lesson 3: Return Calculations: Time-Weighted Rates of Return	144
Lesson 4: Composite Time-Weighted Return Calculations	148
Lesson 5: Composite Construction, Presentation, and Reporting	149
Lesson 6: Verification	153

---

---

## ABOUT THE AUTHORS

---

---

Wiley's Study Guides are written by a team of highly qualified CFA charterholders and leading CFA instructors from around the globe. Our team of CFA experts work collaboratively to produce the best study materials for CFA candidates available today.

Wiley's expert team of contributing authors and instructors includes:

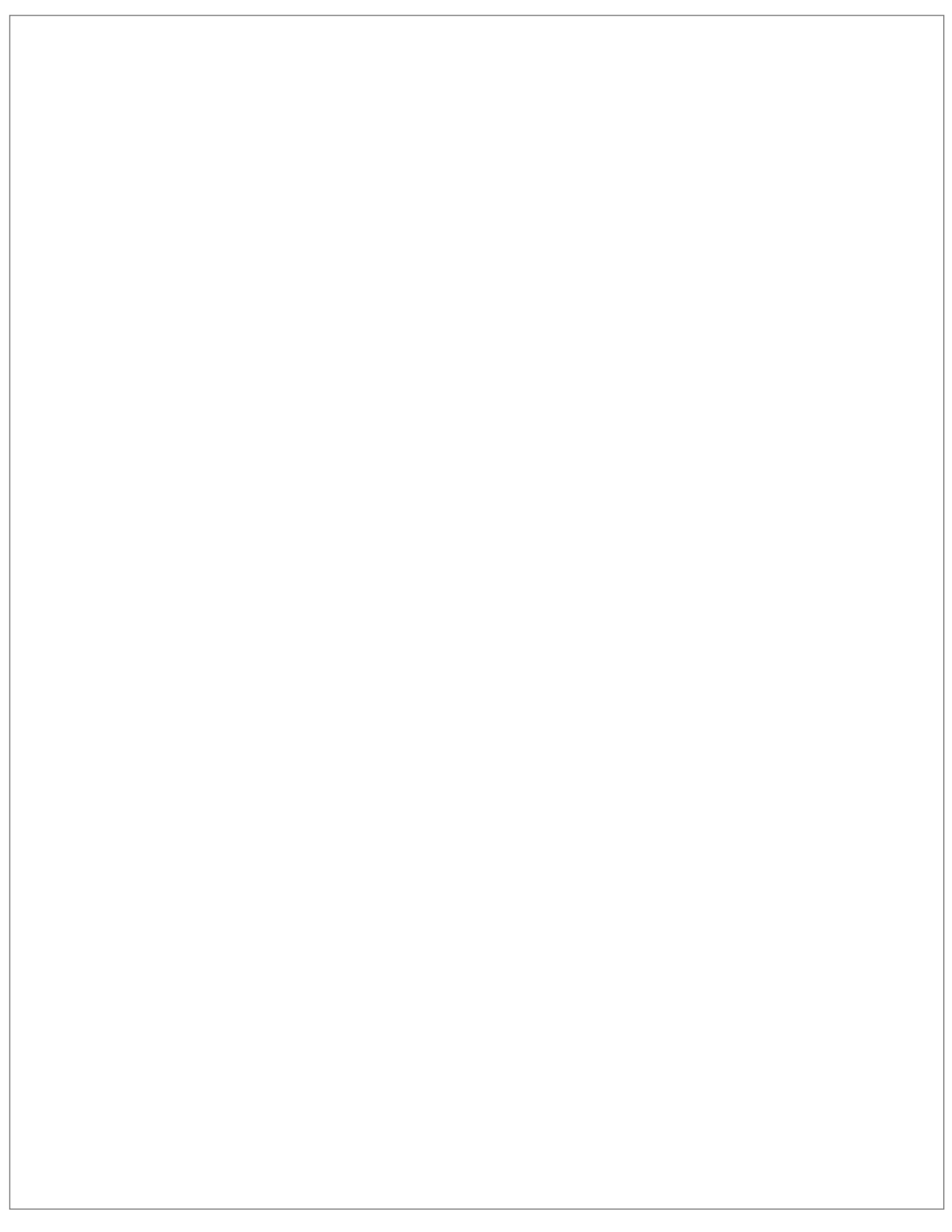
Peter Olinto, CFA, CPA (inactive), JD

Jad Doumith, CFA, FRM

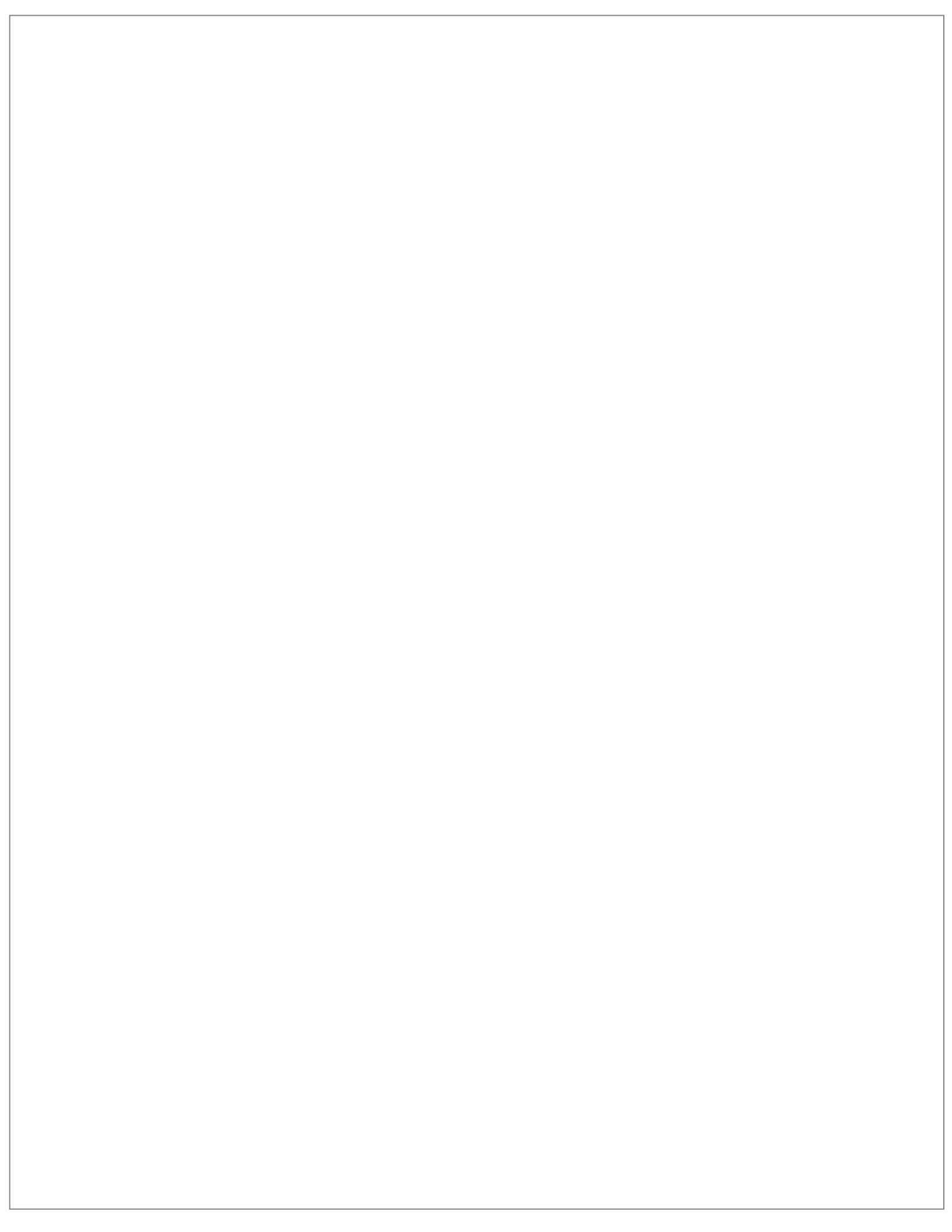
Darren Degraaf, CFA, MAFM, PRM

Heber Longhurst, Ph.D., CFA

There are many more expert CFA charterholders who contribute to the creation of Wiley materials. We are thankful for their invaluable expertise and diligent work. To learn more about Wiley's team of subject matter experts, please visit: [www.efficientlearning.com/cfa](http://www.efficientlearning.com/cfa).



# CAPITAL MARKET EXPECTATIONS



## LEARNING MODULE 1: CAPITAL MARKET EXPECTATIONS, PART 1: FRAMEWORK AND MACRO CONSIDERATIONS

### LESSON 1: A FRAMEWORK FOR DEVELOPING CAPITAL MARKET EXPECTATIONS

#### LOS: Discuss the role of, and a framework for, capital market expectations in the portfolio management process.

The expected risk and return properties of investor-defined asset classes are known as **capital market expectations** (CME). CME are a critical input to an investor's strategic asset allocation; therefore, analysts must properly form the CME set with realistic risk and return projections to help investors reach their goals.

The technology bubble of the 1990s showed how using risk and return projections based on historical data can result in overoptimistic CME inputs that can put investor goals at risk. As a result, most institutions now use forward-looking rather than historical estimation for developing CME.

Although it's not always possible to have precise estimates of the future, it's important to ensure internal consistency across asset classes (**cross-sectional consistency**) and over time (**intertemporal consistency**) in order to best determine the strategic asset allocation likely to achieve risk–return objectives.

The following approach helps add discipline to setting CME:

1. Specify the expectations set (i.e., asset classes) and time horizons.
2. Research the historical record to develop some possible ranges for future results.
3. Specify the methods/models and their required inputs.
4. Determine the best information sources.
5. Implement the research and investment process. Apply experience and judgment to interpret the current investment environment. Make sure to apply consistent assumptions, compatible methods, and consistent judgments to ensure cross-sectional and intertemporal consistency.
6. Provide the necessary expectations set along with documented conclusions.
7. Use actual outcomes as feedback to the expectations setting process.

While several cycles may be necessary to validate longer-term conclusions, the actual data may inform the current expectations-setting cycle.

Asset classification detail should guide formation of the input set for CME, but some general ways to slice the data include:

- Geographic, regional or country; political; economic bloc (e.g., European Union)
- Major asset class and subclasses
  - Equity—style, size, sector, industry
  - Fixed income—issuer, maturity, credit quality, securitization, fixed versus floating, nominal versus inflation-protected
  - Real assets—real estate, commodities, timber
  - Other alternative assets

Longer time horizons generally suggest using a discounted cash flow approach. Analysts should make sure to seamlessly integrate shorter-period estimates with longer timeframe projections in order to maintain intertemporal consistency.

Good forecasts are generally:

- Objective, unbiased, and well researched;
- Efficient in minimizing forecast errors; and
- Cross-sectionally and intertemporally consistent.

---

### LOS: Discuss challenges in developing capital market forecasts.

---

#### Limitations of the Data Used

Analysts need to understand the limitations of the data they use with respect to accuracy, timeliness, variable definition, and series construction.

Data from some sources may be reported at **lags** of up to two years, impairing its usefulness for assessing current market conditions. Analysts must also be careful when using data that was subsequently subject to revision—models should not assume that the revision was known when the data was initially released, as this can lead to spurious relationships. Analysts must be aware of when indexes are **rebased** (i.e., resetting the index constituents and value to a particular time period) and should be careful not to compare data relating to different base periods. Data may also be subject to **survivorship bias**, in which only successful entities are included in the reporting, or **smoothing**, in which the use of appraisal-based data in illiquid markets understates true asset price volatility.

It is generally assumed that the more data used in analysis, the better the resulting forecast. However, this can be problematic when using historical data for forecasting. The further back in time an analyst goes in the collection of data, the less relevant the data is likely to be to current market conditions. Changes in risk/return relationships (known as **non-stationarity**) due to shifts in technological, political, or regulatory environments are referred to as a change in **regime** and are more likely to occur over longer time periods. An analyst should use as much data as possible, but only data that is unlikely to have experienced a regime change with respect to current market conditions (e.g., a policy switch to negative interest rates or emergency monetary policy such as quantitative easing).

Using more *frequent* observations in a particular time period tends to improve variance, covariance, and correlation estimates; it does *not* necessarily result in greater forecast accuracy for the sample mean. For statistical reasons, the number of observations required to estimate covariance must exceed the number of variables (e.g., assets) in the analysis. In cases with many variables, **factor models** may be used to reduce the number of variables to keep data requirements reasonable. For example, the returns of 30 assets being explained by three or four systematic factors plus an uncorrelated idiosyncratic (asset-specific) factor for each asset requires only that correlations of factors be estimated rather than the pairwise correlations that exist between all 30 assets.

Increasing the frequency of observations increases the chance that data becomes **asynchronous**, meaning that data for different variables labeled as relevant to the same period may not truly relate to the same time period. For example, data for the same day may not overlap due to the variables relating to different time zones.

**Ex post** (historical) risk/return may be very different than **ex ante** (expected) risk/return. For example, historical analysis of central bank monetary policy decisions might observe a decision to keep interest rates unchanged which led to a market rally. However, the market

rallied because *prior* to the decision the market expected (ex ante) the central bank to raise rates. Ignoring this expectation of a negative event would lead to overestimating current ex ante returns. Conversely, historical data that includes a crash may be overly pessimistic for the current period if a similar event is not likely to occur.

When using risk measures that only consider the subset of worst case outcomes, data that includes rare events can overstate the likelihood of such events happening in the future. For example, the decline in the shares of Facebook (not Meta) during March 2020 (related to COVID-19) overstate the probability of similar downturns occurring in the future.

### Biases in Methods Employed

Analysts should be wary of looking through a data set in search of relationships that have no economic rationale (**data mining bias**). Analysts should also be aware that relationships may be time-period specific (**time-period bias**), and should check that any forecasted relationship works well on data that was *not* used to establish the model (“out of sample” data).

Forecasts should reflect **conditioning information**, that is, how relationships are likely to behave in the current period, given the current market conditions. For example, it may be assumed that the average beta for a security over a full market cycle is 1. However, it is also well established by the data that the beta is 1.2 in falling markets and 0.8 in rising markets. An analyst who ignores the fact that the current period is expected to see a rising market would overestimate the beta, and the returns, of the security.

Analysts should be aware that correlation does not always lead to **causation**. Conversely, a lack of correlation may not indicate a complete lack of relationship between two variables since correlation only measures the strength of *linear* relationships. There may still exist a *nonlinear* relationship between variables that exhibit zero correlation.

### Psychological Biases of Individuals Involved

Behavioral biases that could lead to forecast errors include:

- **Anchoring bias**—Giving too much weight to initial information with insufficient adjustment when new information is received.
- **Availability bias**—Overemphasizing recent or extreme events because they have a stronger impression than other possible outcomes.
- **Confirmation bias**—Seeking and overweighting evidence that confirms existing or preferred beliefs.
- **Status quo bias**—Perpetuating initial information through a desire to avoid errors involved with change.
- **Overconfidence bias**—Overestimating the ability to understand and use information, which often results in failing to consider all possible outcomes, especially in the “unknown unknowns” category.
- **Prudence bias**—Avoiding forecasts that appear extreme so as not to damage one’s reputation if the forecast is wrong. This may lead to underweighting the expectation of a non-consensus outcome.

### Uncertainty

Forecasts generally are subject to three kinds of uncertainty:

1. **Model uncertainty**—Choosing the conceptually and structurally incorrect model. For example, an analyst could choose to model expected returns through a single

factor model such as CAPM, when in reality there are multiple relevant factors that explain an asset's return.

2. **Input uncertainty**—Related to the errors in the underlying data. For example, if the analyst chooses to use the CAPM, he or she needs to estimate the market risk premium as an input to the model.
3. **Parameter uncertainty**—Related to the errors in estimated parameters. For example, the analyst using CAPM must estimate the relative systematic risk (i.e., beta) of the security being analyzed.

## LESSON 2: ECONOMIC AND MARKET ANALYSIS (PART 1)

### LOS: Explain how exogenous shocks may affect economic growth trends.

Trends are related to long-term rates of change; cycles are shorter-term fluctuations around the longer-run trend. Some series, such as demographic trends, may be easy to forecast based on slowly evolving data. However, trends may be interrupted by regime change, described earlier, or by some other exogenous shock.

Exogenous shocks involve changes from outside the existing system, such as policy changes, geopolitics, natural disasters, or financial crises. For our purposes, exogenous shocks may also include disruptive changes in technology or impacts to a supply chain.

Financial crises may be grouped into three types:

- Type 1—A permanent, one-time decline with resumption of the trend rate after the initial shock.
- Type 2—No persistent one-time decline but continuing at a lower trend rate.
- Type 3—Both a permanent, one-time decline and continuation at a lower trend rate.

In some cases, policy missteps result in the one-time shock whereas new structural considerations may contribute to continuation at a lower trend rate.

### LOS: Discuss the application of economic growth trend analysis to the formulation of capital market expectations.

Long-term economic trend analysis is generally based on the *inputs* to economic growth:

- Labor input growth
  - Increase in hours worked
  - Increase in labor force size (population growth)
  - Increase in labor force participation rate
- Labor productivity growth
  - Increase in capital inputs
  - Total factor productivity (TFP) increase (i.e., technology improvement)

These components of growth can be summed together to attain an estimate of the long-term trend real growth rate of an economy. Expected inflation would be added to this to estimate the long-term nominal growth rate of the economy.

Default-free bond rates (e.g., U.S. Treasuries) are both theoretically and empirically observed to be linked to the trend rate of GDP growth. That is, countries with high trend growth tend to also have high bond yields.

Similarly, aggregate equity market value is also directly related to long-term trend GDP growth. This is best demonstrated by viewing the value of the stock market ( $V^e$ ) as a combination of GDP, corporate earnings as a percentage of GDP ( $E/GDP$ ), and the price-to-earnings multiple ( $P/E$ ) as follows:

$$V^e = GDP \times \frac{E}{GDP} \times \frac{P}{E}$$

The key insight here is that corporate earnings as a percentage of GDP ( $E/GDP$ ) and the price-earnings multiple ( $P/E$ ) *cannot* continually rise over the long term (it would not make sense for workers to work in a world where all GDP wealth flowed to corporate earnings ( $E/GDP$ ), or for valuations ( $P/E$ ) to increase without bound). Hence, the only way the value of the stock market can increase over the long term is through long-term growth in GDP. Note that this analysis explains the long-term *capital appreciation* of the stock market; expected dividend yield would need to be added to this to estimate the total returns of the equity market.

### Example 2-1

An analyst compiles the following estimates for her domestic economy:

- Labor input growth = 1.4%
- Labor productivity growth = 1.5%
- Inflation = 3.0%
- Dividend yield = 2.5%

The analyst considers the current market to be significantly overvalued due to unsustainable central bank actions. She forecasts that a recent expansion in  $P/E$  of 20% on a continuously compounded basis which occurred over the last 5 years will likely be followed by a 20% fall over the next 10 years.

What is the analyst's projection for annual continuously compounded domestic market equity returns over the next 10 years?

#### Solution

Real long-term trend GDP growth = Labor input growth + Labor productivity growth = 1.4% + 1.5% = 2.9%.

Nominal GDP growth = Real GDP growth estimate + Expected inflation = 2.9% + 3.0% = 5.9%.

The analyst also expects  $P/E$  ratios to fall by 20% over the next 10 years on a continuously compounded basis. This implies an annual contraction in  $P/E$  ratios of  $-20\% \div 10 = -2\%$ .

Capital appreciation of stock market = Nominal GDP + ( $E/GDP$ ) +  $P/E$  = 5.9% + 0% - 2% = 3.9%.

Note that with no mention of change in earnings as a share of GDP, this would be assumed to be zero.

Annual domestic market equity returns = Capital appreciation + Dividend yield = 3.9% + 2.5% = 6.4%.

---

**LOS: Compare major approaches to economic forecasting.**


---

There are three distinct approaches to forecast economic change (illustrated in Table 2-1):

1. **Econometrics**—Uses statistical methods to model relationships among economic variables
  - **Structural models**—Use underlying economic theory to develop a functional form and parameters for the model. For example, a structural credit risk model would theorize that borrowers default when their assets fall below the payments required on their debt, and attempt to model the likelihood of this happening.
  - **Reduced-form models**—Less closely tied to economic theory and more driven by empirical data. For example, a reduced-form credit risk model would model relationships between market conditions and default probabilities based on historical data.
2. **Economic indicators**—Economic statistics representing information on an economy’s past (**lagging economic indicator**), concurrent, or likely future activity (**leading economic indicator**). A diffusion index compiles many leading economic indicators and determines a direction based on how many point up and how many point down.
3. **Checklist approach**—A more subjective approach in which an analyst examines a broad spectrum of economic data and checks which data point in one direction or the other.

**Table 2-1: Strengths and Weaknesses of Economic Forecasting Approaches<sup>1</sup>**

Forecast Type	Strengths	Weaknesses
Econometric	<ul style="list-style-type: none"> <li>● Many factors help represent reality; robust (valid statistical relationship)</li> <li>● Quickly updated using new data</li> <li>● Provides quantitative estimates</li> <li>● Imposes analytical discipline/consistency</li> </ul>	<ul style="list-style-type: none"> <li>● Complex, time-consuming to formulate</li> <li>● Forecasting inputs difficult</li> <li>● Model may be misspecified due to changing relationships</li> <li>● False precision impression</li> <li>● Turning points hard to forecast</li> </ul>
Leading indicators	<ul style="list-style-type: none"> <li>● Intuitive and simple</li> <li>● Focuses on turning points</li> <li>● Available from third parties</li> <li>● Easy to track</li> </ul>	<ul style="list-style-type: none"> <li>● Can provide false signals</li> <li>● Binary (yes/no) directional guidance</li> <li>● Subject to frequent revision               <ul style="list-style-type: none"> <li>○ Current data might not be relevant to historical returns</li> <li>○ Overstates accuracy due to overfitting in sample</li> </ul> </li> </ul>

<sup>1</sup> Exhibit 4, Volume 1, CFA Program Curriculum 2024.

Forecast Type	Strengths	Weaknesses
Checklist approach	<ul style="list-style-type: none"> <li>● Not overly complex</li> <li>● Can include a wide variety of check points (breadth)</li> <li>● Flexible               <ul style="list-style-type: none"> <li>○ Easily incorporates structural changes</li> <li>○ Items easily added/dropped</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Arbitrary, judgmental, and subjective</li> <li>● Manual process that limits ability to combine different types of information</li> <li>● Time consuming</li> </ul>

**LOS: Discuss how business cycles affect short- and long-term expectations.**

A **business cycle** results from short- to medium-term cycles that cause oscillations around the longer-term trend growth rate of an economy. Business cycles represent differences between expectations underlying business decisions and what really happens that affects investment outcomes. The business cycle is not well defined; it varies in both intensity and duration and thus turning points become difficult to forecast.

Business cycles are often characterized into expansion and contraction phases marked by changes in direction at the peak or trough of the phase. Changes in capital market expectations tend to correlate with the economic indicators present during each phase (see Table 2-2).

**Table 2-2: Phases of the Business Cycle**

Phase	Economic Features	Capital Market Features
Initial recovery (a few months)	<ul style="list-style-type: none"> <li>● After the low point, the output gap is large, inflation is decelerating, stimulative policies remain in place, and the economy starts to grow.</li> </ul>	<ul style="list-style-type: none"> <li>● S-T and L-T government bond yields are likely to be bottoming but may still decrease.</li> <li>● Stock markets may begin to rise quickly as recession fears subside.</li> <li>● Riskier small-cap stocks, high-yield bonds, and emerging market securities start to do well.</li> </ul>
Early expansion	<ul style="list-style-type: none"> <li>● Output gap remains negative, but unemployment starts to fall.</li> <li>● Consumers start to borrow to spend; housing and consumer durable demand increases.</li> <li>● Businesses step up production; profits begin to expand rapidly.</li> <li>● Central bank begins to remove stimulus.</li> </ul>	<ul style="list-style-type: none"> <li>● Short rates begin to increase; long rates remain stable or increase slightly.</li> <li>● Flattening yield curve.</li> <li>● Stock prices trend upward.</li> </ul>

**Table 2-2: Phases of the Business Cycle (continued)**

Phase	Economic Features	Capital Market Features
Late expansion	<ul style="list-style-type: none"> <li>• Positive output gap and danger of inflation; capacity pressures boost investment spending.</li> <li>• Low unemployment, strong profits, rising wages and prices (inflation).</li> <li>• Debt coverage ratios may deteriorate as business borrows to fund growth.</li> <li>• Monetary policy becomes more restrictive.</li> </ul>	<ul style="list-style-type: none"> <li>• Private sector borrowing causes rates to rise.</li> <li>• Yield curve continues to flatten as short rates rise faster than long rates.</li> <li>• Stocks are volatile as investors watch for deceleration.</li> <li>• Inflation hedges (e.g., commodities) may begin to outperform other cyclical assets.</li> </ul>
Slowdown	<ul style="list-style-type: none"> <li>• Fewer viable investment projects and overleveraging cause slowing growth; business confidence wavers.</li> <li>• Inflation continues to rise as business pricing attempts to outpace rising input costs.</li> <li>• The economy is vulnerable to shocks.</li> </ul>	<ul style="list-style-type: none"> <li>• L-T bonds may top but S-T rates continue to rise or may peak; yield curve may invert.</li> <li>• Credit spread widens, depressing bond prices for lower credit issues.</li> <li>• Stocks may fall; utilities and quality stocks are likely to outperform.</li> </ul>
Contraction (12 to 18 months)	<ul style="list-style-type: none"> <li>• Firms cut investment spending, then decrease production; unemployment can rise quickly (which hinders household formation).</li> <li>• Profits drop sharply; credit markets tighten, accounting transgressions are uncovered, and bankruptcies can result.</li> </ul>	<ul style="list-style-type: none"> <li>• S-T and L-T rates begin to fall; yield curve steepens</li> <li>• Credits spread widens; remains wide until trough.</li> <li>• Stock market <ul style="list-style-type: none"> <li>○ Early phase—Declining</li> <li>○ Late phase—Begins to rise</li> </ul> </li> </ul>

Forecasting the market based on economic cycles is not as easy as this may suggest. While the relationship between the real economy and capital markets is strong, different investors tend to have different viewpoints on the outlook for the phase of the business cycle.

While business cycle analysis sometimes sends a noisy signal, it is likely to be strongest during the one to three years of the expansion or contraction phase. Beyond that range, returns increasingly reflect averaging of an expectation of a turning point.

### **LOS: Explain the relationship of inflation to the business cycle and the implications of inflation for cash, bonds, equity, and real estate returns.**

Deflation (falling prices) is widely considered damaging to the economy because it increases the real value of fixed-rate corporate debt, whilst at the same time corporate income flows are likely to be falling. Also, in periods of persistent deflation it is likely that interest rates fall to very low levels close to (or even below) zero, removing a key monetary policy tool of the central bank to stimulate the economy.

In contrast, moderate inflation imposes only small costs while allowing the flexibility for the economy to grow. Central banks, then, target low inflation and investors consider this in their capital market expectations. Credible central bank targets will tend to result in larger output gaps during the beginning of a recession and greater inflation as the peak approaches, with average inflation near the target over the cycle.

Analysts should assess both the discount rates and cash flows of investments to determine the effects of inflation on asset class returns:

- **Cash equivalents** (short-term interest-bearing instruments)—Relatively attractive when rates rise and unattractive when rates fall, due to their short duration. Inflation protected as long as short-term rates move in line with inflation. May be very attractive in a deflationary environment if interest rates are not allowed to go negative.
- **Bonds**—Due to fixed nominal cash flows, inflation effects are transmitted through yield into price changes:
  - Inflation within the expected inflation range—Shorter-term yields rise or fall more than longer-term yields, but the price impact is small due to the lower duration impact at shorter-term maturities.
  - Inflation above the expected inflation range—Longer-term yields may rise more than expected as investors incorporate higher expected inflation into required returns, causing capital losses to bondholders.
- Persistent deflation can benefit higher-credit issues because issuers will likely still be able to service their debt and these cash flows will have a higher real value to investors. Lower-credit issues, however, may find deflation impairs the creditworthiness of their debt as they struggle to meet the higher real debt payments as prices and income fall.
- **Stocks**—The valuation process considers inflation in the discount rate applied to cash flows; inflation within an expectation range will have little impact on stock prices. Unexpectedly high inflation raises the discount rate and decreases valuations; however, it can benefit companies that can pass on higher costs to customers.
- **Real estate**—Lease rates include an inflation expectation, and inflation expectations within an expectation range will have little impact on asset prices. The effect on lease income of higher-than-expected inflation will depend on the length of underlying leases; shorter leases may increase rent at a faster rate, hence, have more protection against rising inflation. Prime property values will likely increase in line with inflation. Less-than-prime properties are most adversely affected by deflation, as they may have to cut rents to attract tenants.

### Implications of Negative Interest Rates for Capital Market Expectations

When interest rates are negative, the long-run equilibrium short-term rate can be used as the baseline rate (upon which we add risk premiums). This rate can be estimated using the neutral rate in the Taylor rule.

In forming capital market expectations for shorter time horizons, investors must consider the expected path of interest rates, which are expected to converge to the long-run equilibrium rate estimate.

Negative policy rates are expected to produce asset class returns similar to those occurring in the contraction and early recovery stage of a more “normal” business/policy cycle.

## LESSON 3: ECONOMIC AND MARKET ANALYSIS (PART 2)

### LOS: Discuss the effects of monetary and fiscal policy on business cycles.

Most central banks have the mandate to achieve low inflation and unemployment consistent with the economy’s potential growth. Toward that end, central banks employ monetary policy to help offset the business cycle and maintain a more stable growth environment.

A central bank's ability to counter business cycles will be adversely affected, however, by the lag in deciding and implementing monetary policy. The result of such policy also tends to be uncertain. Therefore, central banks find it difficult to fine-tune the economy based on monetary policy and, in fact, they may reinforce rather than mediate the cycle.

The government may also use fiscal policy (government spending and taxation) to mediate business cycles, however, this is usually used for longer-term objectives rather than short-term fine-tuning for two reasons. First, it takes a long time to decide and implement fiscal policy changes (the decision/implementation time lags involved are longer than those for monetary policy). Second, short-term changes large enough to make a meaningful change endanger ongoing government services due to the large swings in budget deficits that this may cause.

Therefore, monetary policy shoulders most of the responsibility for cyclical mediation, although the government may have some fiscal features in place with countercyclical consequences. For example, countries with a progressive income tax regime—where taxes increase as income rises—automatically slow the economy as people make more money. Also, means-based transfer payments essentially provide an earnings floor if people become unemployed.

Central banks may use the Taylor rule to establish an interest rate target that maintains stable growth:

$$i^* = r_{\text{neutral}} + \pi_e + 0.5(\widehat{Y}_e - \widehat{Y}_{\text{trend}}) + 0.5(\pi_e - \pi_{\text{target}})$$

where:

$i^*$  = target nominal policy rate

$r_{\text{neutral}}$  = real policy rate targeted with trend growth and target inflation

$\widehat{Y}_e - \widehat{Y}_{\text{trend}}$  = expected and trend real GDP growth rates

$\pi_e, \pi_{\text{target}}$  = expected and target inflation rates

Subtracting expected inflation from both sides of the equation gives:

$$i^* - \pi_e = r_{\text{neutral}} + 0.5(\widehat{Y}_e - \widehat{Y}_{\text{trend}}) + 0.5(\pi_e - \pi_{\text{target}})$$

This expression shows that the *real* target interest rate should be set equal to the real neutral rate *plus* the equally weighted (0.5) adjustments for GDP growth being above trend, and inflation being above target.

### Example 3-1

An analyst has collected the following data regarding the domestic economy:

- Current central bank short-term target rate: 4.5%
- Estimated neutral real policy rate = 2.0%
- Central bank target inflation = 2.5%
- Estimated long-term GDP trend growth = 1.5%

The analyst expects the economy to enter a period where inflation is expected to be 3.0% and GDP is expected to contract by 1.0%.