2025 CFA®
Exam Prep

SchweserNotes™
Quantitative Methods, Economics, and Corporate Issuers

Level I Book 1

KAPLAN SCHWESER

Kaplan Schweser's Path to Success

Level I CFA® Exam

CFA®

Welcome

As the head of Advanced Designations at Kaplan Schweser, I am pleased to have the opportunity to help you prepare for the CFA® exam. Kaplan Schweser has decades of experience in delivering the most effective CFA exam prep products in the market and I know you will find them to be invaluable in your studies.

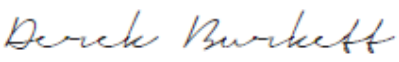
Our products are designed to be an integrated study solution across print and digital media to provide you the best learning experience, whether you are studying with a physical book, online, or on your mobile device.

Our core product, the SchweserNotes™, addresses all of the Topics, Learning Modules, and LOS in the CFA curriculum. Each reading in the SchweserNotes has been broken into smaller, bite-sized modules with Module Quizzes interspersed throughout to help you continually assess your comprehension. Online Topic Quizzes appear at the end of each Topic to help you assess your knowledge of the material before you move on to the next section.

All purchasers of the SchweserNotes receive online access to the Kaplan Schweser online platform (our learning management system or LMS) at www.Schweser.com. In the LMS, you will see a dashboard that tracks your overall progress and performance and also includes an Activity Feed, which provides structure and organization to the tasks required to prepare for the CFA exam. You also have access to the SchweserNotes, Module Quizzes, and Topic Quizzes content as well as the Module Videos (if purchased), which contain a short video that complements each module in the SchweserNotes. Look for the icons indicating where video content, Module Quizzes, and Topic Quizzes are available online. I strongly encourage you to use the dashboard to track your progress and stay motivated.

Again, thank you for trusting Kaplan Schweser with your CFA exam preparation. We're here to help you throughout your journey to become a CFA charterholder.

Regards,



Derek Burkett, CFA, FRM, CAIA
Vice President (Advanced Designations)

Contact us for questions about your study package, upgrading your package, purchasing additional study materials, or for additional information:

888.325.5072 (U.S.) | +1 608.779.8327 (Int'l.)

staff@schweser.com | www.schweser.com/cfa

Book 1: Quantitative Methods, Economics, and Corporate Issuers

SchweserNotes™ 2025

Level I CFA®

SCHWESERNOTES™ 2025 LEVEL I CFA® BOOK 1: QUANTITATIVE METHODS, ECONOMICS, AND CORPORATE ISSUERS

©2024 Kaplan, Inc. All rights reserved.
Published in 2024 by Kaplan, Inc.

ISBN: 978-1-0788-4560-1

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.

Required CFA Institute Disclaimer: "Kaplan Schweser is a CFA Institute Prep Provider. Only CFA Institute Prep Providers are permitted to make use of CFA Institute copyrighted materials which are the building blocks of the exam. We are also required to create/use updated materials every year and this is validated by CFA Institute. Our products and services substantially cover the relevant curriculum and exam and this is validated by CFA Institute. In our advertising, any statement about the numbers of questions in our products and services relates to unique, original, proprietary questions. CFA Institute Prep Providers are forbidden from including CFA Institute official mock exam questions or any questions other than the end of reading questions within their products and services.

CFA Institute does not endorse, promote, review or warrant the accuracy or quality of the product and services offered by Kaplan Schweser. CFA Institute®, CFA® and "Chartered Financial Analyst®" are trademarks owned by CFA Institute."

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

Disclaimer: The Schweser study tools should be used in conjunction with the original readings as set forth by CFA Institute. The information contained in these study tools covers topics contained in the readings referenced by CFA Institute and is believed to be accurate. However, their accuracy cannot be guaranteed nor is any warranty conveyed as to your ultimate exam success. The authors of the referenced readings have not endorsed or sponsored these study tools.

CONTENTS

Learning Outcome Statements (LOS)

QUANTITATIVE METHODS

READING 1
Rates and Returns

Module 1.1: Interest Rates and Return Measurement
Module 1.2: Time-Weighted and Money-Weighted Returns
Module 1.3: Common Measures of Return
Key Concepts
Answer Key for Module Quizzes

READING 2
The Time Value of Money in Finance

Module 2.1: Discounted Cash Flow Valuation
Module 2.2: Implied Returns and Cash Flow Additivity
Key Concepts
Answer Key for Module Quizzes

READING 3
Statistical Measures of Asset Returns

Module 3.1: Central Tendency and Dispersion
Module 3.2: Skewness, Kurtosis, and Correlation
Key Concepts
Answer Key for Module Quizzes

READING 4
Probability Trees and Conditional Expectations

Module 4.1: Probability Models, Expected Values, and Bayes' Formula
Key Concepts
Answer Key for Module Quizzes

READING 5
Portfolio Mathematics

Module 5.1: Probability Models for Portfolio Return and Risk
Key Concepts
Answer Key for Module Quizzes

READING 6
Simulation Methods

Module 6.1: Lognormal Distributions and Simulation Techniques
Key Concepts
Answer Key for Module Quizzes

READING 7
Estimation and Inference

Module 7.1: Sampling Techniques and the Central Limit Theorem
Key Concepts
Answer Key for Module Quizzes

READING 8
Hypothesis Testing

Module 8.1: Hypothesis Testing Basics
Module 8.2: Types of Hypothesis Tests
Key Concepts
Answer Key for Module Quizzes

READING 9
Parametric and Non-Parametric Tests of Independence

Module 9.1: Tests for Independence
Key Concepts
Answer Key for Module Quizzes

READING 10
Simple Linear Regression

Module 10.1: Linear Regression Basics
Module 10.2: Analysis of Variance (ANOVA) and Goodness of Fit
Module 10.3: Predicted Values and Functional Forms of Regression
Key Concepts
Answer Key for Module Quizzes

READING 11
Introduction to Big Data Techniques

Module 11.1: Introduction to Fintech
Key Concepts
Answer Key for Module Quizzes

Topic Quiz: Quantitative Methods

ECONOMICS

READING 12
Firms and Market Structures

Module 12.1: Breakeven, Shutdown, and Scale
Module 12.2: Characteristics of Market Structures

Module 12.3: Identifying Market Structures
Key Concepts
Answer Key for Module Quizzes

READING 13
Understanding Business Cycles

Module 13.1: Business Cycles
Key Concepts
Answer Key for Module Quizzes

READING 14
Fiscal Policy

Module 14.1: Fiscal Policy Objectives
Module 14.2: Fiscal Policy Tools and Implementation
Key Concepts
Answer Key for Module Quizzes

READING 15
Monetary Policy

Module 15.1: Central Bank Objectives and Tools
Module 15.2: Monetary Policy Effects and Limitations
Key Concepts
Answer Key for Module Quizzes

READING 16
Introduction to Geopolitics

Module 16.1: Geopolitics
Key Concepts
Answer Key for Module Quizzes

READING 17
International Trade

Module 17.1: International Trade
Key Concepts
Answer Key for Module Quizzes

READING 18
Capital Flows and the FX Market

Module 18.1: The Foreign Exchange Market
Module 18.2: Managing Exchange Rates
Key Concepts
Answer Key for Module Quizzes

READING 19
Exchange Rate Calculations

Module 19.1: Foreign Exchange Rates
Key Concepts
Answer Key for Module Quizzes

Topic Quiz: Economics

CORPORATE ISSUERS

READING 20
Organizational Forms, Corporate Issuer Features, and Ownership

Module 20.1: Features of Corporate Issuers
Key Concepts
Answer Key for Module Quizzes

READING 21
Investors and Other Stakeholders

Module 21.1: Stakeholders and ESG Factors
Key Concepts
Answer Key for Module Quizzes

READING 22
Corporate Governance: Conflicts, Mechanisms, Risks, and Benefits

Module 22.1: Corporate Governance
Key Concepts
Answer Key for Module Quizzes

READING 23
Working Capital and Liquidity

Module 23.1: Liquidity Measures and Management
Key Concepts
Answer Key for Module Quizzes

READING 24
Capital Investments and Capital Allocation

Module 24.1: Capital Investments and Project Measures
Module 24.2: Capital Allocation Principles and Real Options
Key Concepts
Answer Key for Module Quizzes

READING 25
Capital Structure

Module 25.1: Weighted-Average Cost of Capital
Module 25.2: Capital Structure Theories
Key Concepts
Answer Key for Module Quizzes

READING 26

Business Models

Module 26.1: Business Model Features and Types
Key Concepts
Answer Key for Module Quizzes

Topic Quiz: Corporate Issuers

Formulas

Appendix A: Areas Under the Normal Curve
Cumulative *Z*-Table
Appendix B: Student's *t*-Distribution
Appendix C: *F*-Table at 5% (Upper Tail)
Appendix D: *F*-Table at 2.5% (Upper Tail)
Appendix E: Chi-Squared table

Index

Learning Outcome Statements (LOS)

1. Rates and Returns

The candidate should be able to:

a. interpret interest rates as required rates of return, discount rates, or opportunity costs and explain an interest rate as the sum of a real risk-free rate and premiums that compensate investors for bearing distinct types of risk.
b. calculate and interpret different approaches to return measurement over time and describe their appropriate uses.
c. compare the money-weighted and time-weighted rates of return and evaluate the performance of portfolios based on these measures.
d. calculate and interpret annualized return measures and continuously compounded returns, and describe their appropriate uses.
e. calculate and interpret major return measures and describe their appropriate uses.

2. The Time Value of Money in Finance

The candidate should be able to:

a. calculate and interpret the present value (PV) of fixed-income and equity instruments based on expected future cash flows.
b. calculate and interpret the implied return of fixed-income instruments and required return and implied growth of equity instruments given the present value (PV) and cash flows.
c. explain the cash flow additivity principle, its importance for the no-arbitrage condition, and its use in calculating implied forward interest rates, forward exchange rates, and option values.

3. Statistical Measures of Asset Returns

The candidate should be able to:

a. calculate, interpret, and evaluate measures of central tendency and location to address an investment problem.
b. calculate, interpret, and evaluate measures of dispersion to address an investment problem.
c. interpret and evaluate measures of skewness and kurtosis to address an investment problem.
d. interpret correlation between two variables to address an investment problem.

4. Probability Trees and Conditional Expectations

The candidate should be able to:

a. calculate expected values, variances, and standard deviations and demonstrate their application to investment problems.
b. formulate an investment problem as a probability tree and explain the use of conditional expectations in investment application.
c. calculate and interpret an updated probability in an investment setting using Bayes' formula.

5. Portfolio Mathematics

The candidate should be able to:

a. calculate and interpret the expected value, variance, standard deviation, covariances, and correlations of portfolio returns.
b. calculate and interpret the covariance and correlation of portfolio returns using a joint probability function for returns.
c. define shortfall risk, calculate the safety-first ratio, and identify an optimal portfolio using Roy's safety-first criterion.

6. Simulation Methods

The candidate should be able to:

a. explain the relationship between normal and lognormal distributions and why the lognormal distribution is used to model asset prices when using continuously compounded asset returns.
b. describe Monte Carlo simulation and explain how it can be used in investment applications.

c. describe the use of bootstrap resampling in conducting a simulation based on observed data in investment applications.

7. Estimation and Inference

The candidate should be able to:

a. compare and contrast simple random, stratified random, cluster, convenience, and judgmental sampling and their implications for sampling error in an investment problem.
b. explain the central limit theorem and its importance for the distribution and standard error of the sample mean.
c. describe the use of resampling (bootstrap, jackknife) to estimate the sampling distribution of a statistic.

8. Hypothesis Testing

The candidate should be able to:

a. explain hypothesis testing and its components, including statistical significance, Type I and Type II errors, and the power of a test.
b. construct hypothesis tests and determine their statistical significance, the associated Type I and Type II errors, and power of the test given a significance level.
c. compare and contrast parametric and nonparametric tests, and describe situations where each is the more appropriate type of test.

9. Parametric and Non-Parametric Tests of Independence

The candidate should be able to:

a. explain parametric and nonparametric tests of the hypothesis that the population correlation coefficient equals zero, and determine whether the hypothesis is rejected at a given level of significance.
b. explain tests of independence based on contingency table data.

10. Simple Linear Regression

The candidate should be able to:

a. describe a simple linear regression model, how the least squares criterion is used to estimate regression coefficients, and the interpretation of these coefficients.
b. explain the assumptions underlying the simple linear regression model, and describe how residuals and residual plots indicate if these assumptions may have been violated.
c. calculate and interpret measures of fit and formulate and evaluate tests of fit and of regression coefficients in a simple linear regression.
d. describe the use of analysis of variance (ANOVA) in regression analysis, interpret ANOVA results, and calculate and interpret the standard error of estimate in a simple linear regression.
e. calculate and interpret the predicted value for the dependent variable, and a prediction interval for it, given an estimated linear regression model and a value for the independent variable.
f. describe different functional forms of simple linear regressions.

11. Introduction to Big Data Techniques

The candidate should be able to:

a. describe aspects of "fintech" that are directly relevant for the gathering and analyzing of financial data.
b. describe Big Data, artificial intelligence, and machine learning.
c. describe applications of Big Data and Data Science to investment management.

12. Firms and Market Structures

The candidate should be able to:

a. determine and interpret breakeven and shutdown points of production, as well as how economies and diseconomies of scale affect costs under perfect and imperfect competition.
b. describe characteristics of perfect competition, monopolistic competition, oligopoly, and pure monopoly.
c. explain supply and demand relationships under monopolistic competition, including the optimal price and output for firms as well as pricing strategy.
d. explain supply and demand relationships under oligopoly, including the optimal price and output for firms as well as pricing strategy.

e. identify the type of market structure within which a firm operates and describe the use and limitations of concentration measures.

13. Understanding Business Cycles

The candidate should be able to:

a. describe the business cycle and its phases.
b. describe credit cycles.
c. describe how resource use, consumer and business activity, housing sector activity, and external trade sector activity vary over the business cycle and describe their measurement using economic indicators.

14. Fiscal Policy

The candidate should be able to:

a. compare monetary and fiscal policy.
b. describe roles and objectives of fiscal policy as well as arguments as to whether the size of a national debt relative to GDP matters.
c. describe tools of fiscal policy, including their advantages and disadvantages.
d. explain the implementation of fiscal policy and difficulties of implementation as well as whether a fiscal policy is expansionary or contractionary.

15. Monetary Policy

The candidate should be able to:

a. describe the roles and objectives of central banks.
b. describe tools used to implement monetary policy tools and the monetary transmission mechanism, and explain the relationships between monetary policy and economic growth, inflation, interest, and exchange rates.
c. describe qualities of effective central banks; contrast their use of inflation, interest rate, and exchange rate targeting in expansionary or contractionary monetary policy; and describe the limitations of monetary policy.
d. explain the interaction of monetary and fiscal policy.

16. Introduction to Geopolitics

The candidate should be able to:

a. describe geopolitics from a cooperation versus competition perspective.
b. describe geopolitics and its relationship with globalization.
c. describe functions and objectives of the international organizations that facilitate trade, including the World Bank, the International Monetary Fund, and the World Trade Organization.
d. describe geopolitical risk.
e. describe tools of geopolitics and their impact on regions and economies.
f. describe the impact of geopolitical risk on investments.

17. International Trade

The candidate should be able to:

a. describe the benefits and costs of international trade.
b. compare types of trade restrictions, such as tariffs, quotas, and export subsidies, and their economic implications.
c. explain motivations for and advantages of trading blocs, common markets, and economic unions.

18. Capital Flows and the FX Market

The candidate should be able to:

a. describe the foreign exchange market, including its functions and participants, distinguish between nominal and real exchange rates, and calculate and interpret the percentage change in a currency relative to another currency.
b. describe exchange rate regimes and explain the effects of exchange rates on countries' international trade and capital flows.
c. describe common objectives of capital restrictions imposed by governments.

19. Exchange Rate Calculations

The candidate should be able to:

a. calculate and interpret currency cross-rates.
b. explain the arbitrage relationship between spot and forward exchange rates and interest rates, calculate a forward rate using points or in percentage terms, and interpret a forward discount or premium.

20. Organizational Forms, Corporate Issuer Features, and Ownership

The candidate should be able to:

a. compare the organizational forms of businesses.
b. describe key features of corporate issuers.
c. compare publicly and privately owned corporate issuers.

21. Investors and Other Stakeholders

The candidate should be able to:

a. compare the financial claims and motivations of lenders and shareholders.
b. describe a company's stakeholder groups and compare their interests.
c. describe environmental, social, and governance factors of corporate issuers considered by investors.

22. Corporate Governance: Conflicts, Mechanisms, Risks, and Benefits

The candidate should be able to:

a. describe the principal-agent relationship and conflicts that may arise between stakeholder groups.
b. describe corporate governance and mechanisms to manage stakeholder relationships and mitigate associated risks.
c. describe potential risks of poor corporate governance and stakeholder management and benefits of effective corporate governance and stakeholder management.

23. Working Capital and Liquidity

The candidate should be able to:

a. explain the cash conversion cycle and compare issuers' cash conversion cycles.
b. explain liquidity and compare issuers' liquidity levels.
c. describe issuers' objectives and compare methods for managing working capital and liquidity.

24. Capital Investments and Capital Allocation

The candidate should be able to:

a. describe types of capital investments.
b. describe the capital allocation process, calculate net present value (NPV), internal rate of return (IRR), and return on invested capital (ROIC), and contrast their use in capital allocation.
c. describe principles of capital allocation and common capital allocation pitfalls.
d. describe types of real options relevant to capital investments.

25. Capital Structure

The candidate should be able to:

a. calculate and interpret the weighted-average cost of capital for a company.
b. explain factors affecting capital structure and the weighted-average cost of capital.
c. explain the Modigliani–Miller propositions regarding capital structure.
d. describe optimal and target capital structures.

26. Business Models

The candidate should be able to:

a. describe key features of business models.
b. describe various types of business models.

READING 1

RATES AND RETURNS

MODULE 1.1: INTEREST RATES AND RETURN MEASUREMENT

Video covering this content is available online.

LOS 1.a: Interpret interest rates as required rates of return, discount rates, or opportunity costs and explain an interest rate as the sum of a real risk-free rate and premiums that compensate investors for bearing distinct types of risk.

Interest rates measure the time value of money, although risk differences in financial securities lead to differences in their equilibrium interest rates. Equilibrium interest rates are the **required rate of return** for a particular investment, in the sense that the market rate of return is the return that investors and savers require to get them to willingly lend their funds. Interest rates are also referred to as **discount rates** and, in fact, the terms are often used interchangeably. If an individual can borrow funds at an interest rate of 10%, then that individual should discount payments to be made in the future at that rate to get their equivalent value in current dollars or other currencies. Finally, we can also view interest rates as the **opportunity cost** of current consumption. If the market rate of interest on 1-year securities is 5%, earning an additional 5% is the opportunity forgone when current consumption is chosen rather than saving (postponing consumption).

The **real risk-free rate** of interest is a theoretical rate on a single-period loan that contains no expectation of inflation and zero probability of default. What the real risk-free rate represents in economic terms is **time preference**, the degree to which current consumption is preferred to equal future consumption.

When we speak of a real rate of return, we are referring to an investor's increase in purchasing power (after adjusting for inflation). Because expected inflation in future periods is not zero, the rates we observe on U.S. Treasury bills (T-bills), for example, are essentially risk-free rates, but not real rates of return. T-bill rates are nominal risk-free rates because they contain an **inflation premium**. This is the relation:

$$(1 + \text{nominal risk-free rate}) = (1 + \text{real risk-free rate})(1 + \text{expected inflation rate})$$

Often, including in many parts of the CFA curriculum, this relation is approximated as follows:

$$\text{nominal risk-free rate} \approx \text{real risk-free rate} + \text{expected inflation rate}$$