CAIA ASSOCIATION®

The Global Mark of Distinction in Alternative Investments

September 2010

CAIA® Level I Study Guide

Chartered Alternative Investment Analyst Association®

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Introduction to the Level I Program

Congratulations on becoming a Chartered Alternative Investment Analyst℠ candidate, and welcome to the Level I examination program. The CAIA® program, organized by the CAIA Association® and co-founded by the Alternative Investment Management Association (AIMA) and the Center for International Securities and Derivatives Markets (CISDM), is designed to be the only globally recognized professional designation in the area of alternative investments, the fastest growing segment of the investment industry. The curriculum provides breadth and depth by first placing emphasis on understanding alternative asset classes and then by building applications in manager selection, risk management and asset allocation.

Passing the Level I exam is an important accomplishment and will require a significant amount of preparation. All candidates will need to study and become familiar with the material in order to build confidence and be successful on the exam day. The CAIA program asks candidates to work through the curriculum to identify and describe various asset classes, risk-return characteristics of each asset class, the role of each class in a diversified portfolio, the role of active management in investment processes, the manager selection method and risk management.

The business school faculty and industry practitioners who built our program bring years of experience in the financial services industry. Our goal is to provide you with a curriculum that reflects current industry practices and academic research. The methods employed in our program have proven effective in professional courses. Our study guides are organized for quick learning and easy retention. Each topic is structured around keywords and learning objectives with action words that help candidates concentrate on what is most important for the exam. For all these reasons, we believe that the CAIA Association has built a rigorous program with high standards while also maintaining an awareness of the value candidates place upon their time.

The CAIA Prerequisite Program

Returning candidates should be aware that the prerequisite program has been expanded.

Candidates registered for the CAIA program are assumed to have an understanding of the central concepts of quantitative analysis and finance. This includes awareness of the instruments that trade in traditional markets, models used to value these instruments, and the tools and methods used to analyze data.

The CAIA Prerequisite Program organizes these foundations into topics and learning objectives in a way similar to the Level I and Level II programs. **All CAIA candidates are assumed to have an understanding of the prerequisite material, and candidates can expect to see the prerequisite material incorporated into Level I and Level II examination questions.** For example, a candidate may be asked to evaluate the output of

a regression analysis, or calculate the value of a bond (a prerequisite concept), as part of a response to a broader exam question.

We therefore highly recommend that candidates obtain the **Prerequisite Study Guide**, work through the Prerequisite Outline, study the reading materials and take the Prerequisite Diagnostic Review (PDR), an assessment tool available on the CAIA website. Candidates who score 70% or higher on the PDR are assumed to have the background knowledge necessary to begin Level I of the CAIA program.

The reading materials for the Prerequisite program are:

Quantitative_Investment Analysis by DeFusco, McLeavey, Pinto, and Runkle (Wiley Publishers, 2nd Edition)
Investments by Bodie, Kane, and Marcus (McGraw Hill Publishers, 8th Edition).

Preparing for the Level I Exam

Candidates should purchase all the reading materials and follow the outline provided in the study guide. The reading materials for the Level I exam are:

Standards of Practice Handbook. 9th edition. Charlottesville, Virginia: CFA Institute, 2005. ISBN: 1-932495-33-9.
CAIA Level I: An Introduction to Core Topics in Alternative Investments. Wiley. 2009. ISBN: 978-0-470-44702-4.

The learning objectives are an important way for candidates to organize their study as they form the basis for examination questions. Learning objectives provide guidance on the concepts, equations, and keywords that are most important to understanding the CAIA curriculum. A candidate that is able to meet all learning objectives in this study guide should be well prepared for the exam.

Candidates should be aware that key equations are no longer provided in the study guide and will not be provided on the exam. This is an outgrowth of the new curriculum and the use of original reading materials developed by CAIA. All equations in the readings are important to understand. Some equations may be provided as part of an examination question.

Candidates should be able to define all keywords provided whether or not this is stated explicitly in a learning objective. Keywords can also help candidates to focus their progress towards fulfilling the learning objectives. Candidates should know how keywords are related to the learning objectives when applicable.

The action words used within the learning objectives indicate a type of exam question to expect. However, actual exam questions are not limited in scope to the exact action word used in the learning objectives. For example, the action word "understand" could result

in an exam question that asks candidates to define, explain, calculate and so forth. A complete list of the action words used with learning objectives is provided in the back of the study guide in the Action Words Table.

Preparation Time

Regarding the amount of time necessary to devote to the program, we understand that all candidates are different. Therefore, it is nearly impossible to estimate the amount of study time appropriate for everyone. Candidate surveys suggest an average of 150 hours of study time. We believe that to be successful, a candidate should spend a minimum of 200 hours studying. Because the number of keywords and learning objectives differ across the 7 topics, the amount of time per topic may vary greatly.

Exam Format

The Level I examination, administered twice annually, is a four-hour computerized exam that is offered at test centers throughout the world. For more information visit the CAIA website at www.caia.org. The Level I exam is composed of 200 multiple choice questions.

Level I Exam Topic Weights and Question Format

Topic	Approximate Exam Weight
Professional Standards and Ethics	15% - 20%
Introduction to Alpha Drivers and Beta Drivers	10% - 15%
Real Estate	10% - 15%
Hedge Funds	20% - 25%
Commodities and Managed Futures	10% - 15%
Private Equity	10% - 15%
Credit Derivatives	10% - 15%

Errata Sheet

Correction notes appear in this study guide to address known errors existing in the assigned readings. Occasionally additional errors in the readings and learning objectives are brought to our attention and we will then post errata on the study guide website: http://www.caia.org/program/studyguides/. It is the responsibility of the candidate to review these errata prior to taking the exam. Please report suspected errata to curriculum@caia.org.

Calculator Policy

A calculator is needed for the Level I examination. The calculations that are required to perform range from simple mathematical operations to more complex methods of

valuation. The CAIA Association allows candidates to bring into the examination the TI BA II Plus (as well as the Professional model) or the HP 12C (as well as the Platinum edition). No other calculators or electronic devices will be allowed in the testing center. The exam proctor will require that all calculator memory be cleared prior to the start of the exam.

Level I Sample Questions

These questions are designed to be representative of the format and nature of actual CAIA Level I examination questions in September 2010. The sample questions are not a facsimile of the actual questions. The sample questions do not cover all of the study materials that comprise the CAIA Level I curriculum, nor have they been verified to be equally difficult as the actual questions. Accordingly, these sample questions should not be used to assess a candidate's level of preparedness for the exam.

Candidates should be aware that multiple-choice exam questions ask for the "best" answer. In some cases this means that it is possible that a choice is technically accurate but is not the correct answer because it is superseded by another choice.

The Level II Exam and Completion of the Program

All CAIA candidates must pass the Level I exam before sitting for the Level II exam. A separate study guide is available for the Level II curriculum. As with the Level I exam, the CAIA Association administers the Level II exam twice annually. Upon successful completion of the Level II exam, and assuming that the candidate has met all the Association's membership requirements, the CAIA Association will confer the CAIA designation upon the candidate. Candidates should reference the CAIA website for information about examination dates and membership requirements.

CAIA candidates must pass the Level II exam within 3 years of passing the Level I exam to qualify for the CAIA designation.

Study Materials: Level I

Registered candidates can find detailed information on ordering and retrieving required curriculum materials on the CAIA Association® website at www.caia.org. To access this information, registered candidates should follow the link to "Curriculum Readings" under the "The Program" menu.

1. *Standards of Practice Handbook*. 9th edition. Charlottesville, Virginia: CFA Institute, 2005. ISBN: 1-932495-33-9.
2. *CAIA Level I: An Introduction to Core Topics in Alternative Investments.* Wiley. 2009. ISBN: 978-0-470-44702-4.

CAIA Level I Outline

Topic 1: Professional Standards and Ethics
- CFA Institute Standards of Professional Conduct (Standards I and II)
- CFA Institute Standards of Professional Conduct (Standards III and IV)
- CFA Institute Standards of Professional Conduct (Standards V and VI)

Topic 2: Alpha Drivers and Beta Drivers
- What is an Alternative Asset Class?
- Why Alternative Asset Classes are Important
- The Beta Continuum
- Alpha versus Beta
- The Calculus of Active Management

Topic 3: Real Estate
- Real Estate Investment Trusts
- Introduction to NCREIF and the NCREIF Indexes
- Real Estate as an Investment
- Core, Value Added, and Opportunistic Real Estate

Topic 4: Hedge Funds
- Introduction to Hedge Funds
- Establishing a Hedge Fund Program
- Due Diligence for Hedge Fund Managers
- Risk Management Part I: Hedge Fund Return Distributions
- Risk Management Part II: More Hedge Fund Risks
- Hedge Fund Benchmarks and Asset Allocation
- Hedge Fund Incentive Fees and the Free Option
- Hedge Fund Collapses

Topic 5: Commodities and Managed Futures
- Introduction to Commodity Markets
- Investing in Commodity Futures
- Commodity Futures in a Portfolio Context
- Managed Futures

Topic 6: Private Equity
- Introduction to Venture Capital
- Introduction to Leveraged Buyouts
- Debt as Private Equity Part I: Mezzanine Debt
- Debt as Private Equity Part II: Distressed Debt
- Trends in Private Equity
- The Economics of Private Equity

Topic 7: Credit Derivatives
- Introduction to Credit Derivatives
- Collateralized Debt Obligations
- Risks and New Developments in CDOs

Topic 1: Professional Standards and Ethics

Readings

Standards of Practice Handbook. 9th edition. Charlottesville, Virginia: CFA Institute, 2005, pages 7-49. I -VI.

Standard I: Professionalism Standard II: Integrity of Capital Markets

Keywords

Buy-side
Due diligence
Firewalls
Fraud
Insider trading
Market manipulation
Material nonpublic information
Mosaic theory
Plagiarism
Pump and dump
Restricted list
Sell-side
Soft commissions
Soft dollars
Thinly traded security
Watch list
Whistle-blowing

Learning Objectives

1. State and interpret Standard I with respect to:
   a. knowledge of the law.
   b. independence and objectivity.
   c. misrepresentation.
   d. misconduct.
2. Understand procedures for compliance with Standard I with respect to:
   a. knowledge of the law.
   b. independence and objectivity.
   c. misrepresentation.
   d. misconduct.
3. State and interpret Standard II with respect to:
   a. material nonpublic information.
   b. market manipulation.
4. Understand procedures for compliance with Standard II with respect to material nonpublic information.

Standard III: Duties to Clients
Standard IV: Duties to Employers

Keywords

Best execution
Block allocation
Block trades
Brokerage
Commissions
Composites
Custody
Directed brokerage
Disclosure
Execution of orders
Fair dealing
"Flash" report
Global Investment Performance Standards (GIPS)
"Hot issue" securities
Independent contractors
Material changes
Misappropriation
Oversubscribed issue
Round-lot
Secondary offerings
Self-dealing
Whisper number

Learning Objectives

1. State and interpret Standard III with respect to:
   a. loyalty, prudence, and care.
   b. fair dealing.
   c. suitability.
   d. performance presentation.
   e. preservation of confidentiality.
2. Understand procedures for compliance with Standard III with respect to: loyalty, prudence and care.
   a. fair dealing.
   b. suitability.
   c. performance presentation.
   d. preservation of confidentiality.
3. State and interpret Standard IV with respect to:
   a. loyalty.
   b. additional compensation arrangements.
   c. responsibilities of supervisors.
4. Understand procedures for compliance with Standard IV with respect to:
   a. additional compensation arrangements.
   b. responsibilities of supervisors.

Standard V: Investment Analysis, Recommendations, and Actions
Standard VI: Conflicts of Interest

Keywords

Additional compensation
Blackout/restricted periods

Front-running
Incentive fees
Performance fees
Referral fees
Secondary research

Learning Objectives

1. State and interpret Standard V with respect to:
   a. diligence and reasonable basis.
   b. communication with clients and prospective clients.
   c. record retention.
2. Understand procedures for compliance with Standard V with respect to: diligence and reasonable basis.
   a. communication with clients and prospective clients.
   b. record retention.
3. State and interpret Standard VI with respect to:
   a. disclosure of conflicts.
   b. priority of transactions.
   c. referral fees.
4. Understand procedures of compliance with Standard VI with respect to:
   a. disclosure of conflicts.
   b. priority of transactions.

Topic 2: Alpha Drivers and Beta Drivers

Readings

CAIA Level I: An Introduction to Core Topics in Alternative Investments. Wiley. 2009. ISBN: 978-0-470-44702-4. Part I – Alpha Drivers and Beta Drivers, Chapters 1 – 5.

Chapter 1
What is an Alternative Asset Class?

Keywords

Super asset classes

Learning Objectives

1. Describe super asset classes.
2. Describe the asset allocation process and compare strategic and tactical asset allocation.
3. Compare efficient versus inefficient asset classes and explain their relationships with traditional and alternative asset classes.
4. Compare constrained versus unconstrained investing.
5. Compare asset location and trading strategy.

6. Compare asset class risk premiums versus trading strategy risk premiums.

Chapter 2
Why Alternative Asset Classes are Important

Keywords

Absolute return strategies
Alpha drivers
Alternative/cheap beta
Beta drivers
Concentrated portfolios
Equity risk premium (ERP)
Long/short investing
Market segmentation
Nonlinear return processes
Strategic asset allocation (SAA)
Tactical asset allocation (TAA)

Learning Objectives

1. Describe the asset allocation process and compare strategic and tactical asset allocation.
2. Explain and identify beta drivers and alpha drivers as investment products.
3. Explain the application of beta and alpha drivers in constructing investment portfolios.

Chapter 3
The Beta Continuum

Keywords

Active beta
Alpha
Alternative beta
Bespoke beta
Bulk beta
Cheap beta
Classic beta
Endogenous alpha
Exchange-traded funds (ETFs)
Exogenous alpha
Fundamental beta

Learning Objectives

1. Compare various types of beta investment products or trading strategies (classical, bespoke, alternative, fundamental, cheap, active, and bulk), and explain how each type is typically constructed.
2. Describe the proper way to estimate the alpha of an investment product.
3. Given available information on factor returns and factor exposures, calculate alpha of investment products.

Chapter 4
Alpha versus Beta

Keywords

Process drivers
Product innovators

Learning Objectives

1. Describe product innovators, process drivers and balanced mandate asset managers in asset management industry.
2. Explain why multi-factor alpha determination models may fail to provide accurate estimates of alpha, describe its implications for asset managers, and explain how the alpha estimation process may be improved.
3. Argue why alpha may or may not be a zero-sum game.
4. Describe the risks associated with information asymmetry in the asset management industry and explain how governance models can address these risks.
5. Describe the four business models that are likely to be available to asset managers in the future.

Chapter 5
The Calculus of Active Management

Keywords

130/30 products
Breadth
Fundamental Law of Active Management
Information coefficient (IC)
Information ratio (IR)
Transfer coefficient

Learning Objectives

1. Describe and calculate an ex-post information ratio.
2. Explain why the Sharpe ratio is not an appropriate performance measure for individual managers and calculate whether a new manager should be added to a portfolio.
3. Describe and apply the relationship between the t-statistic and the information ratio.
4. Understand and identify the components of the information ratio on an ex-post and ex-ante basis.
5. Calculate an ex-ante information ratio.
6. Explain and calculate the weights of active positions in optimal portfolios.
7. Describe the process for the construction of benchmarks for alternative assets and identify the variables that affect the ex-post information ratio in this approach.

8. Discuss the role of the transfer coefficient in measuring the ex-ante information ratio and explain the impact of the transfer coefficient on the information ratio of traditional and active management products.
9. Describe 130/30 portfolios and explain how they are constructed and why they have attracted attention.

Correction to reading:

Page 49, Equation (5.10). Instead of the standard deviation of the residual risk, the variance of the residual risk should appear in the denominator.

Topic 3: Real Estate

Readings

CAIA Level I: An Introduction to Core Topics in Alternative Investments. Wiley. 2009. ISBN: 978-0-470-44702-4. Part II – Real Estate, Chapter 6 – 9.

Chapter 6
Real Estate Investment Trusts

Keywords

Dedicated REIT
Down-REIT
Equity REITs
Finite life REIT
Hybrid REITs
Mortgage REITs
Single-property REIT
Umbrella Partnership REIT (an UPREIT)

Learning Objectives

1. Explain the advantages and disadvantages of real estate investment trusts (REITs).
2. Differentiate the types of REITs as they pertain to investment philosophy, structure, and the markets in which they invest.
3. Discuss the rules that REITs must obey to obtain tax-advantage status.
4. Discuss the economic benefits of REITs compared to other assets.

Chapter 7
Introduction to NCREIF and the NCREIF Indexes

Keywords

Appraised values
Comparable sales method
Hedonic price index
NCREIF Property Index (NPI)

Learning Objectives

1. Classify and describe the types of properties underlying the NPI.
2. Describe the two methods used to appraise properties and critique appraisal-based indices.
3. Explain the three practical effects arising from the smoothing process, including the effects of adding leverage to the NPI, and the methods used to unsmooth the NPI.

Chapter 8
Real Estate as an Investment

Keywords

Smoothed indices
Unsmoothed indices

Learning Objectives

1. Explain the five goals for adding real estate to an investment portfolio.
2. Compare historical risk, return, and risk-adjusted real estate returns to other asset classes and draw relevant conclusions.
3. Describe the diversification benefits of real estate in terms of its correlation coefficients with other asset classes, as a hedge against inflation, and its capacity to expand the efficient frontier when combined to a portfolio of stocks and bonds.

Chapter 9
Core, Value-Added, and Opportunistic Real Estate

Keywords

Private equity real estate (PERE)
Style boxes

Learning Objectives

1. Compare and contrast the three National Council of Real Estate Investment Fiduciaries (NCREIF) real estate styles and discuss the eight attributes that help to distinguish the type of property.
2. Assess the returns and risks associated with real estate style boxes from an absolute and a relative return investor perspective.
3. Describe the cross-section distribution of NPI component property returns.
4. Discuss the characteristics of private equity real estate.

Topic 4: Hedge Funds

Readings

CAIA Level I: An Introduction to Core Topics in Alternative Investments. Wiley. 2009. ISBN: 978-0-470-44702-4. Part III – Hedge Funds, Chapter 10 – 17.

Chapter 10
Introduction to Hedge Funds

Keywords

144A securities
Activist hedge funds
Alpha engines
Arbitrage
Accredited investor
Bottom-up analysis
Convergence trading
Conversion ratio
Convertible arbitrage
Convertible bond arbitrage
Corporate governance
Corporate restructuring
Delta
Delta hedge
Distressed debt hedge funds
Dollar neutral
Equity long/short
Event-driven
Factor models
Fixed income arbitrage
Fixed income yield alternatives
Fundamental equity long/short
Fund of funds (FoFs)
Generalized Autoregressive Heteroskedasticity (GARCH)
Global macro
Hedge fund
Hedge fund of funds (FoFs)
Long Term Capital Management
Market directional
Market neutral
Market timing
Merger arbitrage
Multistrategy (MS) hedge funds
Off-the-run
On-the-run
Opportunistic
Regulation D
Relative value arbitrage
Rule of one alpha
Short rebate
Short selling
Spread
Statistical arbitrage
Stub-trading
Top-down analysis
Volatility arbitrage
Yield curve arbitrage

Learning Objectives

1. Describe the major characteristics of hedge funds and contrast them with mutual funds.
2. Determine whether a particular hedge fund strategy is best categorized as a market directional, corporate restructuring, convergence trading, or opportunistic hedge fund.

3. For equity long/short strategies:
   a. define the strategy.
   b. identify the portfolio risk and return effects from the ability to go both long and short.
   c. define fundamental equity long/short strategies.
   d. define quantitative equity long/short strategies.
4. For short selling strategies:
   a. define the strategy.
   b. compare the exposures of short selling with traditional long-only managers.
   c. compare the styles of short selling with equity long/short managers.
5. For activist investing:
   a. define the strategy.
   b. define the source of return.
   c. describe the available evidence regarding its performance.
6. For distressed securities strategies:
   a. define the strategy.
   b. define capital structure arbitrage.
   c. describe a particular distressed securities strategy that is most likely to overlap with private equity firms' activities.
7. For merger arbitrage strategies:
   a. define the strategy.
   b. identify the main sources of return.
8. For event-driven strategies:
   a. define the strategy.
   b. identify the main sources of return.
   c. contrast with merger arbitrage and distressed securities strategies.
9. For regulation D hedge funds
   a. define the strategy.
   b. identify the source of return.
10. For fixed income arbitrage strategies:
    a. define the strategy.
    b. describe the investment universe.
    c. identify the main sources of return.
    d. define mortgage-backed security arbitrage strategies.
    e. identify the main risk exposures of mortgage-backed security arbitrage strategies.
11. For convertible bond arbitrage strategies:
    a. define the strategy.
    b. identify the sources of return.
    c. identify the role of the delta/hedge ratio.
    d. identify the components of total return to the strategy.
    e. identify the main risk exposure.
    f. calculate the number of shares required in a hedge.
12. For market neutral strategies:
    a. define the strategy.
    b. define the rule of "one alpha."

c. define the term "dollar neutral."
d. define the role of factor models.

13. For relative value arbitrage strategies:
    a. define the strategy.
    b. identify the market neutral nature of the strategy.
    c. define stub trading strategies.
    d. define volatility arbitrage strategies.
14. For global macro strategies:
    a. define the strategy.
    b. describe the investment universe.
    c. explain why global macro funds have fallen out of favor.
15. For funds of funds:
    a. define the role of funds of funds managers.
    b. identify the main advantages and disadvantages associated with funds of funds as compared to direct investment in hedge funds.
16. For multi-strategy hedge funds:
    a. describe the advantages and disadvantages of multi-strategy hedge funds.
    b. compare multi-strategy hedge funds to funds of hedge funds.

Chapter 11
Establishing a Hedge Fund Investment Program

Keywords

Absolute return
Benchmark
Cash substitute
Catastrophe bias
Correlation
Equitization
Hedge fund of funds
Hurdle rate
Idiosyncratic risk
Investment opportunity set
Performance persistence
Portable alpha
Risk budgeting

Learning Objectives

1. Explain why hedge funds should be part of a diversified portfolio.
2. For historical performance of hedge funds:
    a. contrast the historical absolute performance of hedge funds with the performance of the S&P 500.
    b. contrast the historical volatility of hedge fund returns with the historical volatility of the S&P 500 returns.
    c. discuss the academic evidence on the contribution of hedge fund allocations to the performance of a broad stock market based portfolio.
    d. discuss the academic evidence on the diversification benefits of hedge fund allocations.
    e. identify the main drawbacks of the academic evidence on hedge fund performance.

3. Discuss the academic evidence on hedge fund return persistence.
4. Discuss the academic evidence regarding the impact of hedge funds on the financial markets.
5. Identify potential goals of a hedge fund investment program.
6. Identify the opportunistic investment potential of hedge funds.
7. Identify the goals of an opportunistic hedge fund investment program.
8. Identify the purpose of a hedge fund of funds program.
9. Discuss the academic evidence on hedge fund of funds programs.
10. Define risk budgeting.
11. Identify the risk budgeting potential of hedge fund investments.
12. Calculate hedge fund allocations based on risk budgeting constraints.
13. Calculate the hurdle rate for a hedge fund of funds investment as an addition to a diversified portfolio.
14. Understand the portable alpha strategy.
15. Calculate alpha of a hedge fund and explain how it can be ported to another investment product.
16. Discuss the academic evidence regarding hedge fund investments as substitutes for investment grade bonds.
17. Identify the "absolute return" nature of hedge fund products.

Correction to reading:

Page 165, middle of page:

$405,000,000 × ($250 × 1,300) = 1,246 S&P500 futures contracts

should be

$405,000,000 ÷ ($250 × 1,300) = 1,246 S&P500 futures contracts.

Chapter 12
Due Diligence for Hedge Fund Managers

Keywords

Account representative
Active risk
Administrative review
Assets under management
Benchmark
Capacity
Clawback
Counterparty risk
Disaster planning
Drawdown
Due diligence
Fees
High watermark
Incentive fee
Investment markets
Investment securities
Investment style
Legal review
Limited partnership
Lockup period
Margin call
Master trust

Notice period
Outside service providers
Passive securities benchmark
Prime broker
Redemptions
Reference checks
Regulatory registrations
Risk management
Separate accounts
Short volatility risk
Shorting volatility
Subscription amount

Learning Objectives

1. Describe the phases of due diligence.
2. Identify three fundamental questions for understanding the nature of a hedge fund manager's investment program.
3. Identify three essential questions for understanding a hedge fund manager's investment objective.
4. Discuss the "black box" investment process.
5. Define process risk.
6. Identify two distinct information processing skills.
7. Understand the structural review phase of due diligence.
8. Define master trust.
9. Identify tax consequences of a master trust structure to investors.
10. Identify relevant questions about the hedge fund manager's organization.
11. Identify the role of the CFO of a hedge fund in the relationship between a hedge fund manager and an investor.
12. Identify the role of hedge fund ownership in due diligence analysis.
13. Identify the various regulatory registrations required of a hedge fund manager (U.S.).
14. Identify relevant outside service providers to hedge fund managers.
15. Identify the role of prime brokers in the hedge fund business.
16. Discuss documentation of hedge fund investment styles, hedge fund investment markets, and hedge fund investment securities.
17. Define the short volatility strategy.
18. Identify the role of passive benchmarks in evaluating hedge fund manager performance.
19. Identify the role of hurdle rates in evaluating hedge fund manager performance.
20. Identify the role of current portfolio position snapshots in the due diligence process.
21. Discuss the hedge fund investment idea generation process.
22. Discuss capacity in hedge fund investments.
23. Identify three relevant performance review questions.
24. Define drawdown.
25. Contrast drawdown in long-only investments with drawdown in hedge fund investments.
26. Identify the role of withdrawals in due diligence analysis.
27. Identify three relevant questions for the risk review phase of due diligence analysis.
28. Define active risk, short volatility risk, and counterparty risk.

29. Identify the role of leverage limits in hedge fund risk management.
30. Discuss the review of civil, criminal and regulatory actions in due diligence analysis.
31. Identify potential effects of high employee turnover on hedge fund performance.
32. Define the role of an account representative.
33. Identify the role of disaster planning in the hedge fund business.
34. Identify the main implications of the limited partnership structure of a hedge fund investment.
35. Contrast separate accounts with limited partnerships.
36. For hedge fund fees, define:
    a. the "2 and 20" fee structure.
    b. high watermarks.
    c. incentive fees.
    d. clawback.
37. Define the lock-up period.
38. Identify the benefits of a lock-up period to an investor.
39. Define the notice period.
40. Identify the role of high subscription amounts in hedge fund investments.
41. Identify the role of maximum subscription amounts in hedge fund investments.
42. Identify potential sources for due diligence reference checks.
43. Identify relevant due diligence questions to be asked to existing hedge fund clients.

Chapter 13
Risk Management Part I: Hedge Fund Return Distributions

Keywords

Asset-based analysis
Double alpha strategy
Kurtosis
Leptokurtosis
Long bias
Market risk
Moments
Platykurtosis
Skewness
Short volatility exposure

Learning Objectives

1. Describe the style analysis and asset-based approach to modeling hedge fund returns.
2. Describe the academic evidence on the suitability and limitations of the use of market factors.
3. Describe the major risks affecting:
    a. market directional funds.
    b. corporate restructuring funds.
    c. convergence trading funds.
    d. opportunistic funds.

4. Compare and contrast the skewness and kurtosis of return distributions for convergence trading and corporate restructuring funds with:
   a. hedge funds having more market exposure.
   b. hedge funds that minimize credit risk and market risk.
5. Explain the similarities and differences among the return distributions of equity long/short funds, short selling funds, emerging markets funds, and activist funds.
6. Explain the similarities and differences among the return distributions for distressed securities funds, merger arbitrage funds, event driven funds, and Regulation D funds.
7. Explain the similarities and differences among the return distributions of fixed income arbitrage funds, convertible bond arbitrage funds, equity market neutral funds, fixed income yield alternative funds, and relative value arbitrage funds.
8. Explain the similarities and differences among the return distributions of global macro funds and funds of funds.
9. Identify three strategies that have positively skewed returns.
10. Describe the distribution of returns for three strategies that exhibit the most market risk.
11. Identify the similarities between selling insurance, convergence trading, and corporate restructuring funds.
12. Explain the risk management implications of the similarities between selling insurance and convergence trading, and corporate restructuring funds.
13. Identify two strategies that have both low market risk and low insurance risk.
14. Define short volatility risk.
15. Explain the purpose of multi-moment optimization.

Chapter 14
Risk Management Part II: More Hedge Fund Risks

Keywords

Backfilling
Beta expansion risk
Catastrophe bias
Credit risk
Data risk
Event risk
Liquidation bias
Liquidity risk
Mapping risk
Multimoment optimization
Performance measurement risk
Process risk
Risk buckets
Selection bias
Short volatility risk
Short volatility bias
Style analysis
Short volatility strategy
Survivorship bias
Transparency risk
Value at Risk (VaR)
Volatility event

Learning Objectives

1. Define process risk.
2. Identify ways of managing process risk.

3. Define mapping risk.
4. Identify ways of managing mapping risk.
5. Define transparency risk.
6. Explain the effect of lack of transparency on portfolio-level risk aggregation.
7. Define and calculate Value at Risk (VaR).
8. Define risk management risk.
9. Identify the drawbacks of applying the VaR methodology to hedge fund investments.
10. Define data risk.
11. Define survivorship bias.
12. Define selection bias.
13. Define backfilling.
14. Explain differences in the academic evidence of hedge fund returns.
15. Define catastrophe/liquidation bias.
16. Define performance measurement risk.
17. Identify the difficulties of using a Sharpe ratio analysis to compare hedge fund returns.
18. Define short volatility bias.
19. Define volatility event.
20. Define event risk.
21. Identify the liquidity risk exposure of arbitrage strategies.
22. Define beta expansion risk.

Correction to Reading: Level I: An Introduction to Core Topics in Alternative Investments
Part III – Hedge Funds, Chapter 14, Page 247

The 3rd, 4th and 5th paragraphs of this page discuss the performance of various hedge fund strategies during the recent financial crisis. As the text states, the first signs of the crisis appeared in July and August of 2007. Almost one year later in September and October 2008 we saw the culmination of the crisis when Lehman Brothers filed for bankruptcy and AIG had to be rescued through U.S. government intervention. The discussion refers to figures appearing in Exhibit 14.7. However, the data presented in this exhibit is incomplete and in some cases incorrect. The following Exhibit presents the complete set of performance figures for both the 2007 and 2008 event periods and the following paragraphs present the correct discussion of those figures.

New Exhibit 14.7

Strategy	Sep-08	t-Stat	Oct-08	t-Stat	Sep - Oct	t-Stat	Jul-07	t-Stat	Aug-07	t-Stat	July-Aug	t-Stat
Distressed/Restructuring	-5.87%	-3.57	-7.93%	-4.65	-13.81%	-5.81	-0.65%	-0.84	-1.43%	-1.26	-2.08%	-1.48
Merger Arbitrage	-2.90%	-2.93	-2.47%	-2.59	-5.37%	-3.90	-0.76%	-1.22	0.37%	-0.31	-0.40%	-1.08
Private Issue/Regulation D	-1.50%	-1.22	-4.44%	-2.63	-5.94%	-2.72	-0.58%	-0.78	1.49%	0.22	0.91%	-0.40
Equity Market Neutral	-2.87%	-3.73	-0.50%	-1.22	-3.38%	-3.50	-0.05%	-0.74	-1.26%	-2.02	-1.31%	-1.95
Quantitative Directional	-7.46%	-2.16	-9.14%	-2.59	-16.61%	-3.36	-1.06%	-0.55	-1.51%	-0.66	-2.57%	-0.86
Short Bias	5.12%	0.83	9.58%	1.62	14.70%	1.74	3.99%	0.63	1.75%	0.24	5.73%	0.62
Emerging Markets	-10.38%	-2.70	-14.45%	-3.65	-24.82%	-4.49	2.89%	0.42	-2.58%	-0.87	0.31%	-0.32
Equity Long Short	-8.14%	-3.46	-9.46%	-3.96	-17.60%	-5.25	0.17%	-0.35	-1.67%	-1.04	-1.50%	-0.98
Event-Driven	-6.01%	-3.45	-8.19%	-4.53	-14.20%	-5.65	-0.88%	-0.91	-1.70%	-1.32	-2.58%	-1.58
Fund of Funds Composite	-6.54%	-4.11	-6.22%	-3.92	-12.75%	-5.68	0.33%	-0.19	-2.18%	-1.62	-1.84%	-1.28
Fund Weighted Composite	-6.13%	-3.44	-6.84%	-3.79	-12.97%	-5.11	0.08%	-0.42	-1.53%	-1.21	-1.45%	-1.15
Global Macro	-1.21%	-1.04	1.63%	0.21	0.42%	-0.59	0.79%	-0.16	-2.11%	-1.43	-1.32%	-1.13
Relative Value	-5.90%	-5.19	-8.03%	-6.84	-13.93%	-8.51	-0.58%	-1.07	-0.69%	-1.16	-1.27%	-1.57
Fixed Income-Convertible Arbitrage	-11.81%	-7.00	-16.01%	-9.38	-27.82%	-11.58	-0.48%	-0.60	-1.02%	-0.90	-1.49%	-1.06
Multi-Strategy	-6.45%	-5.58	-8.40%	-7.11	-14.84%	-8.98	-0.88%	-1.20	-1.20%	-1.46	-2.07%	-1.88
S&P 500	-8.91%	-2.28	-16.80%	-4.15	-25.71%	-4.55	-3.100%	0.07	1.499%	0.90	-1.60%	0.65
High Yield	-7.98%	-3.29	-15.91%	-6.34	-23.89%	-6.81	-3.541%	0.28	1.364%	0.04	-2.18%	0.20
10-Year U.S. Treasury	0.05%	-0.35	-1.25%	-1.08	-1.20%	-1.01	2.136%	-0.47	2.153%	-0.02	4.29%	-0.33

We put these claims to the test by conducting an event analysis. The summer of 2007 saw the start of the subprime mortgage meltdown and subsequent credit and liquidity crisis (we will have much more to say about this in our chapters on credit derivatives). July and August of 2007 were the beginning of a long crisis of confidence in the financial markets that lasted for several months.

We use the data from the Hedge Fund Research Inc. Hedge Fund Indices. Using data from January of 1990 through October of 2008, we conducted an event analysis. First, we focus on the two-month event period of July and August 2007. These two months capture the beginning of the turmoil from the subprime mortgage meltdown crisis and were characterized by substantial volatility in financial markets. Next, we focus on the two-month event period of September and October 2008 when credit crisis reached its peak. Exhibit 14.7 presents the results of our analysis. For each hedge fund style, we present the returns for July and August 2007 and September and October 2008. We also present the t-statistics associated with the two event periods. Student t-statistics greater than or equal to 1.68, 1.97, and 2.30 in absolute values are significant at the 10%, 5%, and 1% level of confidence, respectively. Last, we present the cumulative return for each of the two event periods. For comparison, in Exhibit 14.7 we also present the returns associated with large-cap stocks, high-yield bonds, and U.S. Treasury bonds. As might be expected, high-yield bonds were significantly negatively impacted in July, but did recover somewhat in August. U.S. Treasury bonds performed well as many investors sought the safe haven of U.S. Treasury bonds during this period of uncertainty.

When we examine the two-month event period of September and October of 2008, we can reach some quick conclusions. For example, every hedge fund strategy, with the exception of short sellers and global macro managers, earned negative returns over this two-month period. Further, all of these negative returns were statistically significant.

Chapter 15
Hedge Fund Benchmarks and Asset Allocation

Keywords

Backfill bias
Crowded shorts
Hazard rate
Instant history
Liquidation bias
Survivorship bias

Learning Objectives

1. Describe the problem with estimating the size of the hedge fund universe.
2. Describe survivorship bias and the way it may affect databases and hedge fund indices.
3. Describe instant history bias and the way it may affect databases and hedge fund indices.
4. Explain the problem associated with strategy definition and its impact on hedge fund databases.
5. Explain the major trade-off that must be taken into account in constructing investable hedge fund indices.
6. Describe the typical fee structure of hedge funds that report to databases and its impact on the reported monthly returns.
7. Identify the factors that affect performance of various hedge fund indices and explain why performance of these indices may differ substantially from each other.
8. Explain the problems with using the mean-variance expected utility approach to asset allocation with hedge funds.

Chapter 16
Hedge Fund Incentive Fees and the Free Option

Keywords

Incentive fee option

Learning Objectives

1. Understand typical hedge fund fee structures.
2. Understand the option-like nature of hedge fund fees.
3. Discuss the empirical evidence on the hedge fund incentive fee option value.
4. Understand how the option-like nature of hedge fund fees can affect manager behavior.

Chapter 17
Hedge Fund Collapses

Learning Objectives

1. Explain Amaranth's main trading strategy and the major factors behind its collapse.
2. Explain Peloton's main trading strategy and the major factors behind its collapse.
3. Explain Carlyle's main trading strategy and the major factors behind its collapse.
4. Explain Bayou's main trading strategy and the major factors behind its collapse.
5. Explain Marin Capital's main trading strategy and the major factors behind its collapse.
6. Explain Bernie Madoff's scheme.
7. Understand the conclusions that can be drawn from these cases.

Topic 5: Commodities and Managed Futures

Readings

CAIA Level I: An Introduction to Core Topics in Alternative Investments. Wiley. 2009. ISBN: 978-0-470-44702-4. Part IV – Commodities and Managed Futures, Chapters 19 – 22.

Chapter 19
Introduction to Commodities

Keywords

Capital assets
Commodity futures contracts
Commodity-linked notes
Contango
Convenience yield
Financial futures
Initial margin
Interest rate parity theorem
Maintenance margin
Margin call
Normal backwardation
Storage costs
Variation margin

Learning Objectives

1. Compare commodities to capital assets.
2. For exposure to commodities, describe:
   a. the purchasing of the underlying commodity.
   b. a "pure play" investment.
   c. commodity futures contracts and margin requirements.
   d. commodity swaps, forward contracts, commodity-linked notes, and commodity exchange-traded funds.
3. For the relationship between futures prices and spot prices:
   a. calculate the futures price for an asset that pays no income.
   b. calculate the futures price for an asset with a known dividend yield.
   c. identify arbitrage opportunities for situations where futures prices are higher than fair value.
   d. identify arbitrage opportunities for situations where futures prices are lower than fair value.
   e. calculate the futures price for a currency contract.
   f. formulate the interest rate parity relationship.
   g. define storage cost.
   h. calculate the futures price for a commodity futures contract.
   i. define convenience yield.
   j. identify mispricing arbitrage opportunities in the commodity markets.
4. For economics of the commodity markets:
   a. define normal backwardation.

b. define a contango market.
c. identify the role of futures in hedging producers' risk.
d. identify the role played by speculators in the commodity market.
e. compare backwardated commodity markets to contango markets.
f. identify the determinants of speculator profits in the commodity markets.
g. compare pricing of commodities to pricing of financial assets.

Chapter 20
Investing in Commodity Futures

Keywords

Collateral yield
Commodity futures indices
Commodity Research Bureau (CRB) Index
Dow Jones-AIG Commodity Index (DJ-AIGCI)
Managed futures accounts
Mount Lucas Management Index (MLMI)
Real assets
Roll yield
Standard & Poor's Goldman Sachs Commodity Index

Note: The Dow-Jones-AIG Commodity Index is now the Dow Jones- UBS Commodity Index. However, we will continue to refer to the index as it was named prior to the change in 2009.

Learning Objectives

1. Define real assets.
2. Compare and contrast commodity and capital asset price movements with respect to the business cycle and event risk.
3. Discuss the empirical evidence for the diversification potential of commodity futures added to portfolios of financial assets.
4. For commodity indices:
   a. identify desirable characteristics.
   b. define an unleveraged index.
   c. discuss the economic exposure.
   d. contrast the returns with those earned by managed futures accounts.
   e. identify sources of return.
   f. define collateral yield.
   g. calculate roll yield.
   h. distinguish between circumstances resulting in positive roll yield and those resulting in negative roll yield.
5. For the Goldman Sachs Commodity Index (GSCI):
   a. identify the main characteristics.
   b. describe the weighting methodology.
   c. identify the five groups of real assets represented.
   d. identify the main characteristics of the historical return distribution.

6. For the Dow Jones-AIG Commodity Index (DJ-AIGCI):
   a. identify the main characteristics.
   b. identify the components.
   c. describe the weighting methodology.
   d. identify the main characteristics of the historical return distribution.
7. Describe the Reuters/Jefferies Commodity Research Bureau (CRB) Index.
8. For the Mount Lucas Management Index (MLMI):
   a. identify the main characteristics.
   b. identify the components.
   c. describe the weighting methodology.
   d. identify the main characteristics of the historical return distribution.

Chapter 21
Commodity Futures in a Portfolio Context

Keywords

Downside risk protection
Efficient frontier
Treasury inflation-protected securities (TIPS)

Learning Objectives

1. Explain how real assets such as commodity futures can hedge against the decline of stocks and bonds prices in an inflationary environment.
2. Explain why commodities are perceived to be a better inflationary hedging tool than Treasury inflation protected securities (TIPS).
3. Identify why international stocks generally do not offer inflationary protection for a U.S. portfolio of stocks and bonds.
4. Compare the risk and return characteristics of commodity indices to traditional broad market indices.
5. Define the efficient frontier.
6. Identify how adding a passive commodity index to a portfolio of stocks and bonds changes the efficient frontier.
7. Compare the effects of adding the Goldman Sachs Commodity Index (GSCI), the Dow Jones-AIG Commodity Index (DJ-AIGCI), and the Mount Lucas Management Index (MLMI) to a portfolio of stocks and bonds.
8. Identify how extreme market events can affect the return correlation of equity instruments.
9. Identify the potential of downside risk protection offered by commodities when added to portfolios of stocks and bonds.

Chapter 22
Managed Futures

Keywords

Chicago Board of Trade (CBOT)
Chicago Mercantile Exchange (CME)
Commodity Exchange Act
Commodity Futures Trading Commission (CFTC)
Commodity pool operator (CPO)
Commodity pools
Commodity trading advisor (CTA)
Individually managed account
Managed futures
National Futures Association (NFA)
New York Mercantile Exchange (NYMEX)
Private commodity pools
Public commodity pools

Learning Objectives

1. Define:
   a. commodity pool.
   b. public commodity pool.
   c. private commodity pool.
2. Define the relationship between commodity pool operators (CPOs) and commodity trading advisors (CTAs).
3. Describe the history of organized futures trading in the U.S.
4. Identify standard fees charged by CTAs and CPOs.
5. For the Commodity Exchange Act, identify the:
   a. standards established by the Act.
   b. registration requirements established by the Act.
   c. role of the National Futures Association (NFA) as established by the Act.
6. Discuss the empirical evidence on the portfolio performance benefits of investment in CTAs, private and public commodity pools.
7. Describe how one can detect the level of skill of a CTA by using a naïve benchmark.
8. Describe conclusions that can be made by analyzing historic return distributions for different managed futures indices.
9. Compare the effects of adding managed futures versus adding passive commodities to a portfolio of stocks and bonds.
10. Identify the potential downside of risk protection offered by managed futures for portfolios of stocks and bonds.

Topic 6: Private Equity

Readings

CAIA Level I: An Introduction to Core Topics in Alternative Investments. Wiley. 2009. ISBN: 978-0-470-44702-4. Part V – Private Equity, Chapter 23 - 26.

Chapter 23
Introduction to Venture Capital

Keywords

Alpha testing
Balanced VC funds
Beta testing
Burn rate
Clawback
Distressed debt
Expansion
Gatekeeper
Investment advisers
J-curve effect
Late stage
Mezzanine financing
Private equity
Prudent person
Venture capital

Learning Objectives

1. List four distinct strategies encompassed by the term private equity.
2. Define venture capital.
3. Identify important developments in the history of venture capital.
4. Describe expected returns in the venture capital market relative to those in the public stock market.
5. Identify the venture capitalist's relationship with investors including the role of protective covenants and venture capital fees.
6. List and describe the aspects of the entrepreneur's business opportunity upon which venture capitalists focus.
7. List sources of venture capital and describe how the structure of the venture capital marketplace has changed over previous years.
8. List and describe various venture capital investment vehicles.
9. List specializations within the venture capital industry.
10. Explain the life cycle of a venture capital fund and describe each of the stages of financing.

Chapter 24
Introduction to Leveraged Buyouts

Keywords

Agency costs
Buy and build

Corporate governance
Earnings before interest, taxes, depreciation, and amortization (EBITDA)
Economic value-added (EVA)
Equity kicker
Exit strategy
Junk bonds
Leveraged build-up
Leveraged buyout (LBO)
Management buyout (MBO)
Material adverse change clause
Merchant banking
Vintage year

Learning Objectives

1. Define leveraged buyouts (LBOs).
2. Identify important developments in the history of LBOs and describe the recent historical performance of LBOs.
3. Define earnings before interest, taxes, depreciation, and amortization (EBITDA).
4. Compute the annual compounded return for a theoretical LBO investment.
5. Describe the layers of LBO financing.
6. Compare the five general categories of value creation methods through LBOs.
7. Describe the role of the material adverse change clause in LBO failures.
8. Compare the structure of LBO funds to that of hedge funds and venture capital funds.
9. Describe fee structures for LBO firms.
10. Explain the concept of a vintage year as it relates to the J-curve effect.
11. Compare LBOs to venture capital deals.
12. Outline risks associated with LBOs.
13. Define corporate governance and list three types of agency costs associated with LBOs.
14. Describe three important benefits for the public market that result from principles of corporate governance applied by LBO firms.
15. Describe the practice of merchant banking.

Chapter 25
Debt as Private Equity Part I: Mezzanine Debt

Keywords

Blanket subordination
Inter-creditor agreement
Mezzanine debt
Mezzanine financing
Payment-in-kind
Springing subordination
Story credits
Takeout provisions

Learning Objectives

1. Describe the general purpose of mezzanine financing and the rationale for its return expectations.
2. Compare mezzanine funds to other forms of financing.

3. Recognize the type of transactions that use mezzanine financing.
4. Identify advantages of mezzanine debt to the investor and to the issuer.
5. Describe restrictions on the senior creditor and the mezzanine investor that may be included in the inter-creditor agreement.

Chapter 26
Debt as Private Equity Part II: Distressed Debt

Keywords

Chapter 7 bankruptcy
Chapter 11 bankruptcy
Covenant-light loans
Cramdown
Debtor-in-possession (DIP) financing
Distressed debt investing
Vulture investors or Vultures

Learning Objectives

1. Identify factors that have influenced growth in the distressed debt market since the 1990s.
2. Describe the nature of distressed debt investors.
3. Understand the basics of the Chapter 11 bankruptcy process.
4. Illustrate how an investor can gain control of a company through Chapter 11 bankruptcy proceedings.
5. Recognize the types of active and passive distressed debt strategies.
6. Describe an arbitrage strategy in the distressed debt market.
7. Identify two of the main risks of distressed debt investing.

Chapter 27
Trends in Private Equity

Keywords

Auction market
Club deal
Death spiral
Direct secondaries
Leveraged loans
Structured PIPEs or Structured Private Investment in Public Entities (PIPEs)
Toxic PIPEs

Learning Objectives

1. Describe the efficiency and development of an auction market environment for private equity.
2. Describe the advantages and disadvantages of the club deal in the LBO market.
3. Describe the advantages and disadvantages of the development of a secondary market for private equity.
4. Contrast deal terms for hedge funds with deal terms for private equity firms.

5. Define leveraged loans.
6. Describe the interest of the various parties in the leveraged loan market including equity firms and collateralized loan obligation funds.
7. For private investments in public entities (PIPEs):
   a. describe how a traditional PIPE transaction works.
   b. explain how toxic PIPEs work.
   c. describe a safeguard that can help prevent toxic PIPEs and death spirals.

Chapter 28
The Economics of Private Equity

Keywords

Distressed debt
Diversification
Leveraged buyout (LBO)
Mezzanine debt
Venture capital

Learning Objectives

1. Compare the investment results of investing in the four private equity categories to that of investing in the S&P 500.
2. Compare the return distributions of the four private equity categories, given by the average, standard deviation, skewness, and kurtosis.
3. Rank the risk-adjusted average returns (Sharpe ratio) for the four private equity categories and understand reasons for the differences in performance.
4. Discuss the diversification benefits of including private equity in a portfolio of traditional investments.

Topic 7: Credit Derivatives

Readings

CAIA Level I: An Introduction to Core Topics in Alternative Investments. Wiley. 2009. ISBN: 978-0-470-44702-4. Part VI – Credit Derivatives, Chapters 29 – 31.

Chapter 29
Introduction to Credit Derivatives

Keywords

Credit call option
Credit default swap (CDS)
Credit linked note (CLN)
Credit put option
Credit spread risk
Default risk
Downgrade risk
International Swaps and Derivatives Association (ISDA)
Nationally Recognized Statistical Rating Organizations (NRSROs)
Qualifying affiliate guarantees
Qualifying guarantees
Rating migration
Revolvers
Spread product

Learning Objectives

1. Compare and contrast the three types of credit risk.
2. Describe two methods of measuring credit risk.
3. Describe three traditional methods of managing credit risk.
4. Understand the diversification potential of credit risky investments.
5. Describe the high yield debt market.
6. Describe the leveraged bank loan market.
7. Compare and contrast revolvers with term loans.
8. Describe the emerging markets debt market.
9. Describe the distressed debt market.
10. List four advantages that credit derivatives provide.
11. Understand credit put options and credit call options.
12. Explain why an investor would purchase a credit linked note (CLN).
13. Compare and contrast the cash flows of a total return credit swap for the swap buyer with those for the swap seller.
14. Compare and contrast a total return credit swap with a credit default swap (CDS).
15. List five types of terms negotiated by parties to a CDS.
16. List six kinds of trigger events provided by the International Swaps and Derivatives Association (ISDA).
17. List four types of risks associated with credit derivatives.

Correction to reading:

Page 535 Next to the last paragraph, the average monthly return on leveraged loans should read +0.05% rather than -0.05%.

Chapter 30
Collateralized Debt Obligations

Keywords

Arbitrage CDOs
Balance sheet CDOs
Bankruptcy remote
Cash flow CDO
Cash-funded CDOs
Collateralized bond obligation (CBO)
Collateralized debt obligation (CDO)
Collateralized loan obligation (CLO)
Correlation products
Credit enhancement
Credit tranching
External credit enhancement
First-loss tranche
Overcollateralization
Reserve account
Special purpose vehicle (SPV)
Spread enhancement
Subordination
Synthetic arbitrage CDOs
Synthetic CDOs
Unfunded CDO
Waterfall

Learning Objectives

1. Explain factors impacting the growth (or contraction) in the collateralized debt obligation (CDO) market.
2. Compare and contrast the structure of:
   a. balance sheet CDOs with arbitrage CDOs.
   b. cash funded CDO with synthetic CDOs.
   c. cash flow CDO with market value CDOs.
   d. funded with unfunded CDOs.
3. Explain how special purpose vehicles work in the CDO market.
4. Describe the structure of a cash funded balance sheet CDO.
5. Calculate the net gain (or loss) of a synthetic balance sheet CDO using a total return swap to the bank sponsoring a credit loan obligation (CLO) trust.
6. Explain why synthetic CDOs using credit default swaps (CDSs) are often called "correlation products".
7. Identify key benefits to banks from CLOs.
8. Compare and contrast cash flow arbitrage CDOs to market value arbitrage CDOs.
9. Describe synthetic arbitrage CDOs.
10. Calculate the profits from an arbitrage CDO trust.
11. Describe three phases of most arbitrage CDOs.

Chapter 31
Risks and New Developments in CDOs

Keywords

CDO squared
Collateralized commodity obligation (CCO)
Distressed debt CDO
Hedge fund CDOs
Market Value CDOs
Private equity CDOs
Single-tranche CDO
Weighted average rating factor (WARF)
Weighted average spread (WAS)

Learning Objectives

1. Describe the nature of the following new developments in CDOs:
   a. distressed debt CDOs.
   b. hedge fund CDOs.
   c. collateralized commodity obligations.
   d. private equity CDOs.
   e. single tranche CDOs.
   f. CDO squared.
2. Identify key risks associated with CDOs.
3. Discuss the implications of the weighted average rating factor (WARF) and weighted average spread (WAS) over the London Interbank Offered Rate (LIBOR) for the CDO manager.

Corrections to Exhibit 31.3 and Exhibit 31.4.

Exhibit 31.3: Diversified Strategies CFO

Tranche	Rating (S&P)	Amount (millions)	Interest Rate
A	AAA	$125	Libor + 60
B	A	$32.5	Libor + 160
C-1	BBB	$10	Libor + 250
C-2	BBB	Euro 16.2	Libor + 250
Equity	unrated	$66.30	Residual
		$250	

Source: Bloomberg

Exhibit 31.4: Diversification by Investment Strategies

Investment Strategy	Max. Allocation of NAV (%)*	Current DSF Allocation (year-end 2001)
Distressed	12.0	2.1
Risk Arbitrage	30.0	14.5
Convertible Arbitrage	30.0	19.7
Equity Market Neutral	30.0	16.9
Fixed Income Relative Value	20.0	10.9
Hedge Equity (U.S.)	20.0	9.6
Hedge Equity (Global)	20.0	9.8
Macro Discretionary	15.0	2.8
Macro Systematic	15.0	3.9
Portfolio Insurance	15.0	5.5
Multi-strategy	15.0	10.9

NAV--Net asset Value. If the portfolio NAV is greater than the initial NAV, the excess amount will not be subject to these minimum constraints.

Source: Standard & Poor's

Action Words

In each of the above learning objectives, action words are used to direct your study focus. Below is a list of all action words used in the study guide, along with definitions and two examples of usage — in a sample question and in a description. Should you not understand what is required for any learning objective, we suggest you refer to the table below for clarification.

Term	Definition	Sample Question	Example of Term Use
Analyze	Study the interrelations	George has identified an opportunity for a convertible arbitrage reverse hedge. What risks are associated with this hedge? A. The convertible may remain overvalued, causing the positive cash flow to harm the position's return profile. B. The short convertible may be called in and the position must be delivered, forcing the hedge to be unwound at an inopportune time. C. The implied volatility may decrease, lowering the bond's value. D. The implied volatility may increase, lowering the bond's value.	You have to **analyze** the positions and factors impacting them. Correct Answer: B
Apply	Make use of	Alicia Weeks, CFA, Real Estate Investment Advisor, works in an Asian country where there are no securities laws or regulations. According to CFA Institute Standard I, Fundamental Responsibilities, Alicia: A. must adhere to the standards as defined in a neighboring country that has the strictest laws and regulations. B. need not concern herself with ethics codes and standards. C. must adhere to the CFA Institute's codes and standards. D. must adhere to the standards as defined in a neighboring country that has the least strict laws and regulations.	You have to **apply** the CFA Institute Standard I to find the correct answer. Correct Answer: C
Argue	Prove by reason or by presenting the associated pros and cons; debate	Why did the shape of the supply curve for venture capital funds change after 1979?	You have to describe how the curve has changed AND **argue** why it changed by providing reasons and supporting the reasons with statements of facts (e.g., change in regulations.)

Term	Definition	Sample Question	Example of Term Use
Assess	Determine importance, size, or value	How are lower capital gains taxes expected to impact firm commitments? A. Through increased supply of capital, firm commitments are expected to rise. B. Through decreased supply of capital, firm commitments are expected to rise. C. Through decreased after-tax return on venture investments, firm commitments are expected to rise. D. Through increased after-tax return on venture investments, firm commitments are expected to decline.	You must **assess** the significance of the change in the tax rate for firm commitments. Correct Answer: A
Calculate	Use a mathematical formula to determine a result	A T-bill has a face value of $10,000 and sells for $9,800. If the T-bill matures in 90 days, what is its effective annual yield? A. 8.18% B. 8.26% C. 8.34% D. 8.54%	You have to **calculate** the effective annual yield. Correct Answer: D
Classify	Arrange or organize according to a class or category	Classify compliance issues considered by examiners when investigating firms that market private equity securities.	You have to correctly **classify** the aspects of private equity firms relating to the various compliance issues.
Compare	Describe similarities and differences	Which of the following least accurately compares the Sharpe and Teynor ratios? A. Both ratios contain excess return in the numerator. B. Both ratios express a measure of return per unit of some measure of risk. C. The Sharpe ratio is based on total risk while the Treynor ratio is based on systematic risk. D. The Sharpe ratio is the inverse of the Treynor ratio.	You have to **compare** the three approaches based on their most important similarities and their most important differences Correct Answer: D

Term	Definition	Sample Question	Example of Term Use
Compare and Contrast	Examine in order to note similarities or differences	A comparison of monthly payments and loan balances of the constant payment mortgage with the constant amortization mortgage with the same loan terms will show that: A. the initial payment will be the same. B. the payments of the constant payment mortgage are initially greater than those of the constant amortization mortgage, but at some time period the payments of the constant payment mortgage become less. C. the present value of the payment streams of the two loan types are the same. D. the constant payment mortgage loan balance exceeds that of the constant amortization mortgage during the first six months of the loan.	You have to **compare** indices to arrive at the answer. Correct Answer: C
Compute	Determine an amount or number	The "asked" discount yield on a T-bill is 5%. What is the asked price of the bill if it matures in 60 days and has a face value of $10,000? A. $9,757 B. $9,797 C. $9,837 D. $9,917	You have to **compute** a value from a set of inputs. Correct Answer: D
Construct	Make or form by combining or arranging parts or elements	A reverse convertible arbitrage hedge consists of a: A. short convertible position plus a put option on the stock. B. long convertible position plus a put option on the stock. C. short convertible position plus a call option on the stock. D. short convertible position plus a long position in the stock.	You have to combine positions to **construct** the hedge. Correct Answer: D
Contrast	Expound on the differences	Which of the following best characterizes a difference between Value at Risk (VaR) and Modified Value at Risk? A. Modified VaR is expressed as a percent while VaR is a dollar value. B. Modified VaR uses a user defined confidence interval while VaR uses a 99% interval. C. Modified VaR incorporates non-normality while traditional VaR assumes normality. D. Modified VaR is for a single trading period while traditional VaR is multiple period.	You have to **contrast** the assumptions of the first model to those of the second model so that the differences are clear. Correct Answer: C

Term	Definition	Sample Question	Example of Term Use
Critique	Evaluate with reasoned judgment	Compared with ranking investment opportunities using NPV, which of the following best describes the appropriateness of the IRR approach? A. The IRR approach does not rank different sized projects as well B. The IRR approach requires the user to supply an interest rate C. The IRR approach requires annuity computations D. The IRR approach does not consider future cash flows	You must **critique** the various risk measures so that the advantages and disadvantages have been enumerated and justified. Correct Answer: A
Defend	To support or maintain through argument; justify	Justify the use of an adjusted stochastic.	You must **defend** the use of an adjusted stochastic instead of a traditional stochastic.
Define	State the precise meaning	The interest rate charged by banks with excess reserves at a Federal Reserve Bank to banks needing overnight loans to meet reserve requirements is called the: A. prime rate. B. discount rate. C. federal funds rate. D. call money rate.	You have to **define**, in this case, the federal funds rate. Correct Answer: C
Describe	Convey an idea or characterize	Which of the following words best describes expected return? A. Spread B. Average C. Spread squared D. Average squared	You need to choose the word that best **describes** the concept from a list. Correct Answer: B
Determine	Establish or ascertain definitively, as after consideration, calculation or investigation	Assume you sold short 100 shares of common stock at $50 per share. The initial margin is 60%. What would be the maintenance margin if a margin call was made at a stock price of $60? A. 25% B. 33% C. 41% D. 49%	You have to **determine** a precise value from a set of inputs. Correct Answer: B

Term	Definition	Sample Question	Example of Term Use
Differentiate	Constitute the distinction between; distinguish	What type of convertible hedge entails shorting a convertible and going long in the underlying stock? A. Call option hedge. B. Traditional convergence hedge. C. Implied volatility convergence hedge. D. Reverse hedge.	You have to **differentiate** one type of hedge from another. Correct Answer: D
Discuss	Examine or consider a subject	Discuss the limitations of private equity data.	You have to present a **discussion** of a set of ideas in a list or paragraph.
Distinguish	Separate using differences	Which of the following best distinguishes between the covariance and the correlation coefficient? A. The covariance indicates the extent to which two assets move together or apart. B. The correlation coefficient is the expected product of the deviations of two variables. C. The covariance is the square root of the correlation coefficient. D. The correlation coefficient is scaled and bounded between +1 and -1.	You have to **distinguish** between risk measurement approaches based on their assumptions regarding the distribution of returns. Correct Answer: D
Explain	Illustrate the meaning	1. Explain why return on assets (ROA) rather than return on equity (ROE) might be the preferred measure of performance in the case of hedge funds. or 2. Which of the following best explains risk from the standpoint of investment? A. Investors will lose money. B. Terminal wealth will be less than initial wealth. C. Final wealth will be greater than initial wealth. D. More than one outcome is possible.	1. You have to place a series of thoughts together as an **explanation** of a term or issue. 2. You need to identify the term that best **explains** a term or issue. Correct Answer: D
Formulate	State or reduce to a formula	The holding period return (HPR) on a share of stock is equal to: A. the capital gain yield minus the inflation rate over the period. B. the capital gain yield plus the dividend yield over the period. C. the current yield plus the dividend yield. D. the dividend yield plus the risk premium.	You have to **formulate** the meaning of some term or issue. Correct Answer: B

Term	Definition	Sample Question	Example of Term Use
Identify	Establish the identity	The investments that have historically performed best during periods of recession are: A. commodities. B. treasury bills. C. stocks and bonds. D. gold.	You have to **identify** the term that best meets the criterion of the question. Correct Answer: C
Illustrate	Clarify through examples or comparisons	For two types of convergence hedges, what situations present profitable opportunities, how are the hedges set up, and what are the associated risks?	You have to provide an example for each hedge or compare the two to **illustrate** how they work.
Interpret	Explain the meaning	Your certificate of deposit will mature in one week, and you are considering how to invest the proceeds. If you invest in a 30-day CD, the bank will pay you 4%. If you invest in a 2-year CD, the bank will pay you 6% interest. You should choose the: A. 30-day CD, no matter what you expect interest rates to do in the future. B. 2-year CD, no matter what you expect interest rates to do in the future. C. 30-day CD if you expect that interest rates will fall in the future. D. 2-year CD if you expect that interest rates will fall in the future.	You have to **interpret** the features of an investment scenario. Correct Answer: D
List	Create a series of items	List the determinants of real interest rates.	You have to differentiate from a **list** those items that are consistent with the question.
Name	State a word by which an entity is designated or distinguished from others	As of December 31, 1999, which class of mutual funds had the largest amount of assets invested? A. Stock funds B. Bond funds C. Mixed asset classes, such as asset allocation funds D. Money market funds	You need to **name** the correct statement or phrase from a group of potential answers. Correct Answer: A

Term	Definition	Sample Question	Example of Term Use
Outline	Summarize tersely	Which of the following best characterizes the steps in computing a geometric mean return based on a series of periodic returns from T time periods? A. Add one to each return, add them together, divide by T and subtract one. B. Add one to each return, multiply them together, divide by T and subtract one. C. Add one to each return, add them together, take the Tth root and subtract one. D. Add one to each return, multiply them together, take the Tth root and subtract one.	You must **outline** the study's most important findings rather than explain them in detail. Correct Answer: D
Price	State the amount by which an asset is valued or value an asset in monetary terms	Widgets Inc. paid a dividend of $2.50 last year. Required return on Widget Inc.'s stock is determined to be 13% per year, and the dividend is expected to grow at 3% per year forever. Determine a fair market price for Widget Inc.'s stock, assuming the constant dividend growth model holds. A. $20.25 B. $25.75 C. $31.25 D. $36.75	You have to **price**, according to a formula, a value from a set of inputs. Correct Answer: B
Rank	Determine relative position	According to the analysis by Gompers and Lerner, which of the following best ranks, from low to high (by percentage), the four outcomes for total venture-backed firms? A. Liquidated, IPOs, merged, and continued private B. IPOs, liquidated, merged, and continued private C. Merged, liquidated, continued private, and IPOs D. Continued private, IPOs, merged, and liquidated	You have to choose the correct **ranking** of a number (4) of items according to a particular criterion (percentage). Correct Answer: A
Recommend	Indicate as preferred	Sue Arnold works for a hedge fund and has been asked to develop a methodology for the fund to measure and report on the potential tendency of various investment strategies to have a much higher probability of large negative outcomes than large positive outcomes. Which of the following would be the most appropriate risk measure for Ms. Arnold to suggest in response to this concern? E. Drawdown F. Skewness G. Kurtosis H. Variance	You have to **recommend** which procedure reflects best practices. Correct Answer: B

Term	Definition	Sample Question	Example of Term Use
Relate	Show or establish logical or causal connection	Which of the following effects does NOT help to explain growth in the venture capital industry? A. Amendments to the prudent man rule B. The rise of limited partnerships as an organizational form C. Decline in the valuations of small capitalization stocks D. The activities of investment advisors in the venture capital market	You must **relate** effects or factors (e.g., the prudent man rule) to another result or concept (e.g., growth in an industry). Correct Answer: C
Solve	Find a solution	Diversified Portfolios had year-end assets of $279,000,000 and liabilities of $43,000,000. If Diversified's net asset value was $36.37, how many shares does the fund have? A. 4,938,372 B. 5,713,372 C. 6,488,372 D. 7,263,372	You have to place various inputs into a formula and **solve** for the unknown. Correct Answer: C
State	Set forth in words or declare	State the main risks faced by distressed securities investors.	You have to present a list or set of sentences that **states** main ideas.
Summarize	Cover all the main points succinctly	Summarize the performance of trend and momentum strategies, and compare their performance to the buy-and-hold strategy.	You have to **summarize** a longer discussion or complicated concept or set of results by focusing on the main ideas.
Understand	Perceive and comprehend nature and significance; grasp meaning	Which of the following would increase the net asset value of a mutual fund share, assuming all other things remain unchanged? A. An increase in the number of fund shares outstanding B. An increase in the fund's accounts payable C. A change in the fund's management D. An increase in the value of one of the fund's stocks	You have to use reasoning to illustrate an **understanding** of a specific issue. Correct Answer: D
Use	Apply for a purpose or employ	Illustrate the financial benefits of merger arbitrage using an actual merger transaction.	You have to **use** facts or values from a situation to answer a specific question.

Term	Definition	Sample Question	Example of Term Use
Value	Assign or calculate numerical quantity	Multiple Mutual Fund had year-end assets of $457,000,000 and liabilities of $17,000,000. There were 24,300,000 shares in the fund at year-end. What was Multiple Mutual's net asset value? A. $11.26 B. $18.11 C. $24.96 D. $31.81	You have to determine a numerical **value** from a set of inputs and a formula. Correct Answer: B

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