



CERTIFIED FINANCIAL MODELING SPECIALIST

CERTIFIED FINANCIAL MODELING SPECIALIST (CFMS)

STUDY GUIDE

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Please use this guide to assist in preparation for your Certified Financial Modeling Specialist (CFMS) examination.

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I. BUSINESS TRAINING:

BusinessTraining.com is the leading online program for specialized niche business certification programs. The team behind BusinessTraining.com is comprised of industry experts in niches including online marketing, project management, public relations, consulting, and many more.

This experience, combined with our advisory board's expertise in online education and training, is what makes it possible to provide the training and certification programs found on our website.

BusinessTraining.com is part of the G.T.C. Institute, a global training and certification organization that has provided practical industry-specific certification to over 1,000 clients from the United States, Europe, and more than 30 other countries around the world.

We provide high value training programs that provide function knowledge on very specific business topics such as public relations, online marketing, project management, international business, and consulting.

BusinessTraining.com's Mission: To provide professionals with high impact business training and certifications in niche subject areas that are functional and immediately beneficial.

BusinessTraining.com helps you to:

- Quickly gain specialized knowledge in highly valuable business niches.
- Enhance your credibility, resume, and overall value in the marketplace.
- Complete our training programs in 5 months from anywhere in the world.

Our programs accept participants year-round and are flexible to work with your current work schedule and academic constraints. You can complete one of our programs in 2 months or 2 years; the choice is yours.

II. CFMS DETAILS AND TIMELINE:

PROGRAM DETAILS:

The **Certified Financial Modeling Specialist (CFMS)** certification program is unique in that it is modeled after many online courses offered at Ivy League institutions today, offering more value for a more cost-effective program. The CFMS Program is a self-study program that includes educational multimedia resources in video form, a study guide, required readings, and a flexible online examination process, accessible around the world.

The online exam is structured so that in order to complete the exam within the 2-hour time frame one must read through all of the assigned materials and conceptually understand the majority of the material to score well enough to pass the exam.

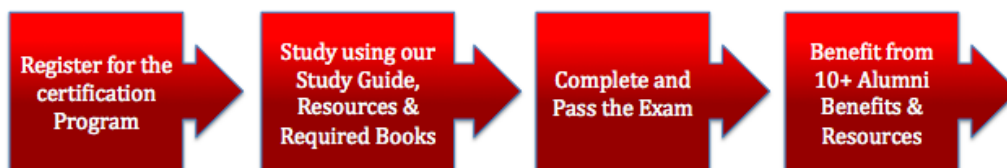
Our goal is to offer the most challenging program in the industry while also providing all of the learning tools possible to ensure participants get the most out of the experience. By testing the knowledge depth and comprehension from the materials digested, the CFMS certification prepares individuals for successful, real-world application.

The Certified Financial Modeling Specialist (BDS) program is sponsored by the GTC Institute and offered by BusinessTraining.com. This certification program is designed to show and certify that you have gained an in-depth understanding and high-level, specialized knowledge.

In addition to the benefits of gained knowledge, growing industry recognition, more knowledgeable career choices, and networking, our organization is also developing additional resources for CFMS Participants. This includes video and MP3 recordings on Q&A or strategies and tactics, webinars, access to interviews

with internet marketing professionals who have more than 10 years of experience in the industry, among many more benefits.

4 STEP CERTIFICATION PROCESS



TIMELINE & EXAMINATION DATES:

Programs are offered through open enrollment, making our programs 100% flexible with your current work or academic schedule. After joining you may select an examination date that works well for you from the following dates we offer annually: January 10th, April 10th, July 10th, and October 10th.

BusinessTraining.com exams are administered 100% online. When you have completed the strategic project (outlined later in this study guide), please follow the project submission instructions. Once you have submitted your completed project, you are welcome to schedule your exam date.

Please note that your exam date request must be received at least 3 weeks before the exam date. For example, if you would like to sit for the January 10th exam, we would need to receive your request no later than December 20th.

To register for an examination date:

- 1.) Email your completed CFMS project (*explained in detail in this study guide*).
- 2.) Include your desired exam date in the email with your completed project.

LEARNING OBJECTIVES OF THE CFMS:

1. Review basic concepts of accounting for the Income Statement, Balance Sheet and Cash Flow Statement, and understand the linkages between them so that modelers can accurately develop balanced multi-year financial projections.
2. Review basic concepts of finance such as the Net Present Value, Weighted Average Cost of Capital, Terminal Value and the discounting of cash flows.
3. Develop Excel expertise with functions, formulas, layout, style and formatting so modelers can easily and quickly build scalable and robust financial models that are easy to use, extend, and incorporate into presentations as flexible tools for business decision-making.
4. Develop modeling instincts so modelers know what assumptions are reasonable and likely to result in dependable results, and what parameter ranges are realistic to account for invariable deviations of reality from models.
5. Develop a framework that allows modelers to build financial projections, perform discounted cash flow valuations, perform sensitivity analyses, build graphs and allow others to use their models

without worrying about basic issues such as incorrect data input or “breaking” the model.

6. Provide a foundation for more advanced modeling courses such as for Leveraged Buyout Analyses, Mergers & Acquisitions, Equity or Debt issuance and other complex financial applications.

III. **REQUIRED READING:**

1. John S. Tjia, Building Financial Models, 2nd Edition. ISBN: 978-0-07-160889-3

IV. **CFMS EXAM PREPARATION**

1. **EXAM COMPOSITION:**

There are a total of 100 points available to earn for the exam, 80 of which can be earned from the multiple choice or true/ false questions that are worth 2 points each, and 20 of which can be earned from 2 short answer questions that are worth 10 points each. Please see below for the composition and distribution of the points in-depth.

<u>Topics and Weights</u>	
Chapters 1 & 2	5 Multiple Choice Questions
Chapter 4	5 Multiple Choice Questions
Chapter 5	5 Multiple Choice Questions
Chapters 6	15 Multiple Choice Questions
Chapters 10 & 11	5 Multiple Choice Questions
Chapters 14, 15 & 16	5 Multiple Choice Questions
Comprehensive & Conceptual Essay Questions	2 Questions

You will have 2 hours to complete the CFMS exam. Those who have not made the effort to read the materials will have a hard time completing the exam within the allotted time, but for participants who have read the required readings 2 hours will be sufficient.

2. **TERMS AND CONCEPTS TO KNOW:**

Below, please find the terms and concepts that you should be able to define after having read the required readings.

Please define the terms from the required readings rather than a dictionary. You will be tested on the definitions that authors have provided.

- Understanding all line items on the Income Statement, Balance Sheet and Cash Flow Statement
- Linkages between the three financial statements
- Your role as a financial model developer
- Best practices
- Functional knowledge of Excel, including formulas, functions and F keys
- The Accounting Equation
- Developing an Income Sheet Common-Size Statement
- Forecasting Guidelines and Key Principles
- Understanding Income Statement and Balance Sheet Ratios
- Projecting the Income Statement and Balance Sheet using historical data
- Projecting the Cash Flow Statement using the Income Statement and Balance Sheet
- Balancing the Balance Sheet
- Discounted Cash Flow Valuation
- Weighted Average Cash Flow formula
- Discounting Factors
- Free Cash Flow
- Terminal Value formula
- Enterprise Value
- Equity Value

3. **SAMPLE QUESTIONS:** (Answers are provided on the last page of this study guide.)

Q1. What best describes the results of a financial model?

- a. They accurately predict exact financial results for the future if the model's assumptions are carefully chosen.
- b. They only estimate a company's financial future based on the accuracy of the model's assumptions.

Q2. As a model developer you are:

- a. A virtual architect

- b. A spreadsheet wizard
- c. A finance expert
- d. All of the above

Q3. When you begin building a financial model, you must:

- a. Set Excel's global settings
- b. Understand the user's level of expertise
- c. Have a clear idea of what the model needs to do
- d. Do all of the above

Q4. For user input of the model's variables, it is best to have:

- a. Multiple input points for the same variable at every worksheet where the variable is used
- b. One input point for a variable and hard-coded variable values as needed throughout the model
- c. One input point for a variable and references to the variable as needed throughout the model
- d. One input point for the same variable on every worksheet of the model.

Q5. To determine Enterprise Value using the DCF method, you need the following:

- a. Projected Net Income, Cost of Debt and Cash at valuation date
- b. Projected Net Income, Cost of Debt, Cost of Equity and Cash at valuation date
- c. Projected Free Cash Flow, Weighted Average Cost of Debt, Terminal Value and Cash at valuation date
- d. Projected Free Cash Flow, Weighted Average Cost of Capital, Terminal Value

V. BOOK SUMMARY:

Building Financial Models, 2nd Ed., John S. Tjia, McGraw-Hill (2009).

John Tjia's book is the most comprehensive introductory book on building solid financial models. Tjia's book will give you an excellent foundation for building robust, scalable, usable and real-world financial models. Too often, models are developed by people not fully familiar with financial concepts, which lead to model conclusions that are out of touch with reality. Tjia's book combines just the right elements of Excel, modeling tips, model-building exercises and finance that you will need to create solid financial models.

Chapter 1: A Financial Projection Model

This introductory chapter provides a basic overview of the elements of financial models. It introduces the reader to the Income Statement, Balance Sheet and Cash Flow Statement, and how the three are interlinked. It reminds us that a model is only as good as the assumptions that go into building the model, and that model results are only estimators on what the future may hold. Models can also be used to test out various likely scenarios based on historical trends. Well constructed models are effective and reliable tools for decision making.

A model could be built as a one-off for a specific application, or as a template for repeated use. Modelers must be prepared to typically go through three iterations before getting the model right, where the initial iterations are absolutely essential to developing a usable model.

A financial modeler wears three hats – as the finance expert, the excel wizard, and the virtual architect who produces an easy-to-use and hard-to-break-down final product.

Chapter 2: Best Practices

The author shares model building best practices based on his years of experience. Tjia urges model developers to invest some time upfront in planning the model. Clearly understand what the model needs to do, who its users will be and what their level of expertise is.

A model must tell a story, with a beginning, middle and end. Utilize Excel's multiple worksheet functionality to layout your model nicely, such as into Input and Output areas. Make all worksheets consistent in formatting and formulas to the extent you can; this will make model development a lot easier.

Keep things simple, with one input only for each data point, simple formulas and almost nothing hard-coded. Build your model so trouble-shooting and error resolution is simple. Familiarize yourself with Excel's relevant formulas, and remember to save your model often, with a backup copy in case you accidentally overwrite the model – something that's tormented almost every modeler at some point.

Chapter 3: Setting the Stage

This chapter provides handy tips on setting up the Excel sheet for your model – with excellent input on visual appearance, colors, row and column spacing, and customizing Excel toolbars to increase productivity. The chapter also has useful guidelines on style such as fonts, alignment, protection and borders. In particular, financial modeling requires numbers set in currency and accounting formats, dates and percentages.

Chapter 4: Accounting for Modeling

Chapter covers accounting fundamentals such as the accounting equation, double-entry bookkeeping, retained earnings, and modeling changes in cash flow. A key component of any financial model is having a balance sheet that balances, and this chapter walks through the two ways of doing so. The chapter also highlights real world mechanisms used to manage cash flow – such as delaying payables – which is very relevant to the real world.

Chapter 5: The Model Building Toolbox: F Keys and Ranges

Excel modeling goes a lot quicker when one's familiar with Excel's function keys, such as F2 to edit, F4 for absolute references, F8 to anchor a range, F9 to calculate formulas, etc. The chapter describes the usage of each function key from F1 to F12.

Ranges are an essential element of elegant financial models. The author explains everything there is to know in defining, naming, using and deleting ranges in models. The chapter also covers operations on ranges such as multiplication.

Chapter 6: The Model Building Toolbox: Functions

Functions are what give Excel its power. This chapter lists 46 essential functions for financial modeling, including logical (if, sum, average, min, max, and, or), lookup (choose, vlookup, hlookup), date (date, year, eomonth, days360, datevalue), math (int, round), special (sumproduct), financial (NPV, IRR) and text (upper, lower, len).

Users also gain insights into how Excel formulas work – the precedence of rows over columns in calculations, using period instead of colon or spaces in a formula, etc.

Chapter 7: Building a Pilot Model

Finally, users get to build a simple financial model, using two versions of balancing the balance sheet. Readers get easy, step-by-step instructions with two-year data for an Income Statement and Balance Sheet with simple calculations using basic Excel functions. Once users have built the model, they can plug in their own numbers and test balancing.

Chapter 8: Circular References and Iterative Calculations

Chapter 8 gets into trouble-shooting the model for circular references, and using iteration to calculate certain values. For example, it talks of how to avoid common #REF! or #DIV/0! Errors, or track them down. The book also shows the application of Iteration for interest calculations.

Chapter 8 is optional reading because there are other ways of accomplishing things outlined in the chapter.

Chapter 9: Variations on Balancing Plugs

Chapter 9 is a relatively short chapter that explores nuances on the balancing of the balance sheet. Specifically, the chapter explores ways in which cash may be returned to shareholders as dividends, and how that flows through the model.

Chapter 9 is optional reading.

Chapter 10: Preparing to Build a Full Model

Here, the book expands on the basic model started in Chapter 7. The chapter nicely lays out the various line-items within the Income Statement, the Balance Sheet and the Cash Flow Statement. Understanding this level of detail, and the interactions between the various line items, is essential to building solid financial model, so readers are urged to pay extra attention here.

The model outlines different layouts, starting with Revenue on the Income Statement, COGS and SGA. The model also introduces the concept of % of Revenue – a standard way to evaluate performance from year to year, and against competitors. It also outlines formatting options.

Chapter 11: Building an Integrated Financial Model: Part I

This chapter provides the complete framework on building a working financial model using the Income Statement and Balance Sheet, with balancing done with just the Balance Sheet.

The chapter starts with basic guidelines and layout. It first develops a complete Income Statement – from Revenue to EBIT to Net Income to accretion/depletion of Retained Earnings. It also has helpful tables with easy to understand formulas. Next, it develops the Balance Sheet – Assets, Liabilities and Shareholders' Equity – line by line. With the Income Statement and the Balance Sheet complete, the model shows how to develop Common Size equivalents.

Chapter 12: The Cash Flow Statement

This short chapter builds on Chapter 11, with a buildup of the Cash Flow Statement, initially with only cash from operations. This is an excellent line-by-line buildup that goes through all the major operating line items and shows the user how to link these back to annual changes in the Balance Sheet. For example, a change in Accounts Receivable on the Balance Sheet would impact cash.

Chapter 13: The Cash Sweep

This rather lengthy chapter is dedicated to modeling the use of excess cash to pay down long-term debt. Practically speaking, most corporations do not use automatic cash sweep models but conserve their cash and carefully use it to pay down debt.

This is optional reading if the modeler believes cash sweep would be in-line with his modeling objectives and corporate policy.

Chapter 14: Ratios

This is an important and relevant chapter which outlines various ratios that are useful in comparing company performance year-on-year (or quarter-on quarter), and in benchmarking one company's performance against others. The chapter introduces ratios for six broad categories – size, liquidity, efficiency, profitability, leverage and coverage.

The chapter introduces basic metrics for size such as revenue, total assets and total book value (shareholder's equity). It also clearly explains other widely used ratios, such as the Current Ratio, Quick Ratio, Gross Margin, EBITDA margin, Return on Equity, Debt / Equity and debt coverage. The chapter also develops Common-Size statements for the Income Statement and Balance Sheet.

Chapter 15: Forecasting Guidelines

Chapter 15 is another short but important chapter that lays out forecasting guidelines. Modelers are given handy tips on how to develop reasonable and supportable future-year projections for Income Statement items such as revenue based on relevant revenue drivers, margins, depreciation, interest and taxes, and for Balance Sheet items such as cash, current assets such as Accounts Receivable, liabilities and Retained Earnings.

Chapter 16: Discounted Cash Flow Valuation

Having built a complete model that projects financial statements in the preceding chapters, this chapter clearly explains the steps involved in valuing the company using the Discounted Cash Flow method. The chapter outlines all the key elements of the DCF models – the weighted average cost of capital or WACC, free cash flows, terminal value, enterprise value and equity value.

The chapter also goes into details on how to estimate WACC based on the company's costs for equity and debt, how to easily extract cash flows from the Income Statement, how to determine the Terminal Value, and how to discount cash flows back to the present date to determine Enterprise Value and Equity Value.

Chapter 17: Introduction to Visual Basic for Applications (VBA)

This chapter is optional reading for modelers who are comfortable with programming and want to learn Excel programming skills using VBA. The chapter focuses on writing, editing and running Macros to speed things up in your model.

Most financial modelers will not typically need to run Excel macros, unless they develop advanced models with large data sets.

Chapter 18: A VBA Primer

This chapter is optional reading for modelers who are comfortable with programming and want to learn Excel programming skills using VBA.

The author provides a basic, beginner's guide to VBA to replace repetitive tasks one would typically encounter while cleaning up large data sets and organizing them into a format suited for the financial model. It covers the basics on objects, properties and methods, variables, dimensioning of a variable, forced variable declaration, object variables and more.

Chapter 19: Tips and Tricks

This is another short but highly useful chapter. After you've built your model, the author gives you pointers on making your model more usable and presentable. The chapter covers what-if scenarios for sensitivity analysis (to see how your outputs would change if key input parameters varied within a range of extreme and average values); data validation strategies to make sure junk data is kept out, formatting your output so it is visually appealing and conforms to standard practices; printing tips such as hiding rows with formulas; and dealing with quarterly or monthly projections.

Put together, all of the 19 chapters give you an excellent framework to develop accurate, usable, robust and presentable financial models and to perform a basic DCF valuation analysis.

VI. CERTIFIED FINANCIAL MODELING SPECIALIST (CFMS) VALUATION PROJECT:

The **Certified Financial Modeling Specialist (CFMS)** Program requires participants to complete a Valuation Project in order to graduate from the program. This project is worth 100 points and accounts for 50% of the total grade within the program.

As such, non-submission of this strategic plan will result in an automatic failing grade for the CFMS program. You will receive details for the Strategic Business Plan after registration. If you have any questions, please email us at **CFMS@BusinessTraining.com**.

Once you have completed this project, please send it and your request to take your desired exam date at least 3 weeks before the scheduled exam date. **To schedule yourself for an exam date**, this project must be received, completed, at least 3 weeks before the exam date. For example, to take the October 15th exam date, this project must be received (as well as a request to take the exam) no later than September 24th.

PROJECT DETAILS

Putting your learning into practice:

The Course Project involves the building of a simple financial model with the following step-by-step components:

- i. We will build financial projections and a valuation model for Cisco Systems, a publicly-traded supplier of networking solutions.
- ii. We have provided an Excel Template (Project Template.xls) that contains financial data – Income Statement, Balance Sheet and Cash Flow - for Cisco’s Fiscal Years 2006, 2007, 2008, 2009 and the first two quarters of 2010.
- iii. The Project Template does not contain data for the third and fourth quarters of FY2010. Your first task is to obtain quarterly financial data – Income Statement, Balance Sheet and Cash Flow - for the third and fourth quarters of Cisco’s Fiscal Year 2010 from Cisco’s website. Only use GAAP numbers.

Enter these results in the “yellow” highlighted areas on each relevant tab in the Project Template. Once you enter data for 3Q2010 and 4Q2010, make sure the numbers for all of FY2010 match Cisco’s reported numbers. (Hint: Financial results can be found at <http://investor.cisco.com/results.cfm>)

- iv. Next, move to cell A51 on the I-S tab (Income Statement) of the Project Template. You will see the “normalized” section where all Income Statement line-items are expressed as a % of Total Net Sales.

Once you enter I-S data for 3Q2010 and 4Q2010, you will see % values for those periods also. Eyeball these numbers to get a sense of Cisco’s revenue growth from year to year. **This is an important parameter which we will use to project revenue growth.** Based on these numbers, we have picked estimates to develop our projections. These estimates are in column M of the I-S tab, starting with cell M51.

Use these estimates to build out 5-year projections (FY2011 – FY2015) for the Income Statement (yellow highlighted area starting in cell M6 of the I-S tab). We have started you off, with projections for Net Sales.

- v. Once you have successfully completed I-S projections, move to the first tab – Valuation. Fill out the cells marked in yellow (Hint: link them to relevant cells in the I-S tab and the C-F tab. Depreciation and Amortization can best be obtained from the Cash Flow statement)
- vi. If you fill out everything correctly, the Valuation tab automatically calculates the fair market value per share using the DCF method.
- vii. Write a brief commentary (100 words) comparing Cisco’s current share price to your projected Equity Value per share, and make a recommendation on buying or selling Cisco shares.

Tips: Make sure you enter data for the relevant quarter only and not for nine-months or the full-year (Answer: You can do this by taking 9-month numbers and subtract the first two quarters to get numbers for just the third quarter. Similarly, you can get numbers for just the fourth quarter.) Remember, there are four quarters in a Fiscal Year and a Fiscal Year need not start on Jan 1 but can be any date of the company’s choosing. The Fiscal Year need not coincide with a Calendar Year. Make sure your numbers are consistent with Cisco’s reported numbers – check for typos and math errors.

VII. FAQ (FREQUENTLY ASKED QUESTIONS):

Have more questions or need more information?

Please see our consistently updated FAQ (Frequently Asked Questions) section on the BusinessTraining.com website here at <http://BusinessTraining.com/FAQ.html>.

You can also get in touch with the BusinessTraining.com team over email at Team@BusinessTraining.com, by phone at 503.664.0678, and through our ClickAndChat tool, accessible from our homepage: <http://BusinessTraining.com>.

Thanks for joining BusinessTraining.com! Please let us know if you have any questions.

-The BusinessTraining.com Team & G.T.C. Institute

VIII. SAMPLE QUESTION ANSWERS:

Q1. What best describes the results of a financial model?

B. p. 5 of course textbook; A model is only as good as the assumptions that go into it; a model cannot predict the future; it's only a best-guess estimate on how things play out – actual results could be very different if internal or external conditions deviate from the model's assumptions.

Q2. As a model developer you are:

D. p. 9 of course textbook; as you build models, you wear all three hats.

Q3. When you begin building a financial model, you must:

D. p. 16 of course textbook; as you build models, you must do a, b, and c, and keep it modular and simple.

Q4. For user input of the model's variables, it is best to have:

C. p. 22 of course textbook; As you build models, you must only allow one input per variable, and then reference that variable throughout your model. This makes it easier for the user, and keeps errors low because the user only has to change an input at one location for it to flow through the entire model.

Q5. To determine Enterprise Value using the DCF method, you need the following:

D. p. 359 of course textbook; Enterprise Value is the sum of the present values of projected Free Cash Flows and Terminal Value, discounted using the Weighted Average Cost of Capital. Cash and Debt at the valuation date are not required to compute Enterprise Value.