

4.0

participant's manual

**LEROY D. BROOKS** 

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FOURTH EDITION

# FinGame Online 4.0

The Financial Management Decision Game Participant's Manual

LeRoy D. Brooks

John Carroll University





#### FINGAME ONLINE 4.0, PARTICIPANT'S MANUAL

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# **Preface**

FinGame Online: The Financial Management Decision Game is a comprehensive multiple-period finance case. The game helps the student develop and enhance skills in financial management, financial accounting statement analysis, and general decision making.

Version 4.0 operates on the McGraw-Hill internet site. Internet access with compatible access equipment is required for use of the game. Your instructor will need to provide information for joining the appropriate user group prior to your commencement of game play on the web. Access is worldwide. Information on group average performance and global performance, when using the competition version of the game, to be described later, is now available for the first time with the web version.

The multiple-period decision-making setting provided in *FinGame Online* is not found with standard cases or problems. In the game, feedback on the results of prior decisions is received with each iteration of play. Repeated reinforcement throughout the game promotes learning of financial definitions, analytic tools, and solution techniques.

A multiple-period environment also forces students to recognize the importance of maintaining future flexibility in making decisions. Flexibility is retained by avoiding decisions that eliminate a large set of feasible future company decision options. With single-stage problems, the consequences of the future restrictions caused by a given decision are usually never recognized, and clearly never experienced. Static single-period cases and models fail to adequately capture the complexities of an actual environment.

The manager's and company's long-term prosperity and competitiveness come from a planned effort to control the breadth of the future set of available decisions through the manager's current decisions. *FinGame Online* provides this experience.

The primary focus of the game is directed toward finance. Participants in the game control the major financial decision areas of a company. The decisions include both the internal management of the firm and the external acquisition of assets and funds. The *FinGame Online* company managers have approximately the same degree of control as actual companies in paying dividends; issuing or

retiring preferred and common stock; and issuing, retiring, and refunding several different types of debt. Additionally, decisions are required on short-term investments, the risk level of short-term investments, sales discounts, capital budgeting projects, and various production decisions that affect the finance function.

This fairly complex company environment enables students to gain insights into the interrelationships among financing, capital budgeting, liquidity management, accounting, production, and capacity management. Few constraints are placed on the set of decisions in the game that are not found in actual companies. This makes the game more realistic.

FinGame Online provides a simulation requiring the application of theory, analytical tools, and solution procedures that must be learned outside the game. The game and manual are supplements to be used with standard texts; they are not replacements for texts. In this context, the game is a dynamic multiple-period case that provides the student with many different types of problems requiring solution.

### **Acknowledgments**

Many have contributed to the prior game development and this current Online version; they deserve special thanks. I thank the many students who have provided valuable suggestions and comments. I am especially appreciative of the reviewers of drafts of this edition. Very helpful comments leading to changes since the last edition, and changes that will take place in the future, came from Professors Robert J. Boldin, Bruce E. Fredrikson, William Nelson, Theodore Veit, and especially Anne Anderson for testing and feedback on the beta version of FinGame 4.0.

Most credit for the current edition clearly belongs to my friend and son, David W. Brooks. He has provided tremendous time, dedication, and knowledge to creating the programming for this version and creating the web interface.

LeRoy D. Brooks

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#### CHAPTER

1

# Introduction

### Overview

FinGame Online 4.0 (FG) provides a decision-making setting similar in many respects to the financial management requirements of an actual company. The manager of an FG company has the operating control of an entire company. The *manager is the chief financial officer (CFO)* who also controls major decisions normally managed by the *chief executive officer (CEO)*.

Maintaining flexibility and avoiding being "locked out" of future decisions is the key. The FG decision environment is much more complex than the environment found in a standard case course for two reasons. First, decisions are entered in many interrelated areas in each period of play. Tools and techniques previously examined, analyzed, and employed in only single-decision problems now must be applied in the presence of interrelationships with many other simultaneously derived decisions. Second, decisions must be entered over several periods of play. The consequences of prior decisions impact the range of decisions available in later periods.

An adopted successful strategy must be flexible enough to adjust to a changing environment over time. Flexibility is kept by avoiding decisions that eliminate a large set of future company decisions.

**Example.** Too much debt and not enough shareholder equity could lead to depressed stock prices. Use of low-priced stock to rebalance the company's debt-equity ratio to a more reasonable level would then be very expensive.

An integrated strategy and long-term plan are essential.

This interrelationship among decisions both at a point in time and over time adds to the complexity of the decision-making setting. To perform successfully, a strategy must be developed that combines the numerous single-decision solution techniques into an effectively integrated set of multiple-period decisions.

Material differences exist between the game and an actual environment that are reviewed in Chapter 5. Therefore the experience gained in the game is not fully transferable to an actual operating company. Most specific problem-solving techniques that lead to successful game performance are transferable. Experience is gained in simultaneously considering a large set of interrelated decisions and integrating this set of decisions into a coherent overall firm strategy. The major purpose of FG is to provide a setting where general decision-making skills in solving complex multiple-period management problems can be experienced and improved.

Business simulation games are usually enthusiastically received. An active role is required, allowing the practical application of knowledge gained from lectures or other instructional formats. In addition, the success of a firm is directly related to the effort and knowledge of the company managers.

The Financial Management Decision Game (FinGame Online 4.0) is a comprehensive multiple-period finance case requiring up to 20 separate management decisions in each period of play. Most decisions are financial; however, a few nonfinancial decisions are included because they have a major impact on financial decisions.

## The Purpose of the Game

Use of the game complements and strengthens student skills in managerial accounting, production, and finance by requiring a repeated application of principles, tools, and procedures learned in each of the disciplines. Sound financial decisions are required concerning the firm's financial structure (liabilities and equity mix) and its resource allocation (asset mix).

Planning and forecasting are essential in building a company management strategy. To achieve successful company operation, an FG company manager must forecast, plan, and control his or her company. Through game play, the manager gets information on the dependence among the different decision variables. The manager must then construct a sound decision-making structure for the firm. The decision tools and techniques that should be used approximate those needed in constructing financial decision-making systems for a real-world operating company.

In summary, much of the participant's learning comes directly from experience gained by operating in the iterative and interactive problem-solving environment provided by the game. The simulation requires decision making in an environment not too unlike the real world, where new events occur requiring specific new decisions. Also, like a real situation, the consequences of decisions are reflected in the performance measures. The game's characteristics make it an especially pertinent vehicle for demonstrating a complex decision-making setting.

### **Text Contents**

Students need to read the entire manual before making actual company decisions. Students need to read the entire manual prior to making company decisions. The manager who is more knowledgeable about both his/her firm and its environment can often obtain a better performance than a less-informed manager.

Chapter 1 provides an overview of the game. This includes the purpose of the game, an overview of students' primary management objective, a brief description of the game environment, and a suggested procedure for preparing and using the game.

Chapter 2 contains information on how to access and use the web site. Information on initializing your company and the procedures for entering decisions, running the simulation, viewing results, and printing results are included.

Chapter 3 discusses the development of a stated, coherent, and integrated strategy or plan for managing a company. The prime directive of the manager is to maximize the wealth of her shareholders. Wealth maximization is achieved, in part, by students effectively managing each decision area controlled by the manager. Each decision area controlled by the student is reviewed, together with examples of poor and effective management.

Chapter 1 Introduction

The environment determines the optimal management policies.

There is no single correct policy for maximizing shareholder wealth in the game. The game environment controlled by the instructor determines what the optimal policies of the company should be.

**Example.** If the environment is very business cyclical or the company is in a high-growth industry, a smaller amount of debt coupled with larger amounts of share-holder equity leads to better performance relative to a company having proportionally more debt and less equity. The reverse holds if you had a mature company with little business cyclical risk.

Chapter 4 presents the numerous rules that define the FinGame company's environment. Successful participation in the game by a new company manager requires a complete reading of this manual prior to the start of game simulations and a thorough understanding of the rules and conditions governing game play.

No computer game can totally duplicate the conditions of the real world. Chapter 5, therefore, compares and contrasts the game and an actual environment.

The Appendix contains the procedure for constructing pro forma (budgeted or expected future) company financial statements based on the manager's set of company operating decisions. The Appendix provides practice in generating the first set of pro forma statements for an FG company. The rules and conditions first given in Chapter 4 are used to construct the pro forma statements.

Preparation of the expected future or pro forma statements by hand, and thus a review of the Appendix, is unnecessary if students will be permitted to computer-generate pro forma statements within FinGame. Your instructor will specify what you must do.

Students must rely on outside texts and course work for the necessary decision tools.

Given the case orientation of FinGame, information on finance models and decision techniques are not in the manual. Students must rely on outside texts and course work for the necessary decision tools.

### The Game Environment

Managers act as agents for the common equity holders of the company. Effective managers efficiently acquire and invest funds. In an efficient market, common stockholder value is increased when managers invest in assets that provide a return on investment that exceeds the cost of capital used to make the investment. Common stockholder wealth is decreased when an investment does not earn a sufficient return to cover the cost of funds used to finance the investment. A manager's primary objective in FinGame is to maximize common stockholder wealth. Note that:

- All FinGame companies produce and sell the same product.
- All companies start the game with the same asset mix, financial structure, and potential for success.
- Each firm is provided with an initial set of financial statements including a position statement, a performance report, and a statement of additional summary data. The starting sets of statements and data for all firms are identical.
- A new set of updated financial statements and summary data is generated for each manager's company in each period of play based on that manager's set of company decisions for that period.
- A new set of decisions is required for each period of play.

- The duration of a period of play is equivalent to one-quarter of a year (three months).
- As in the real world, managers cannot repeat an already completed quarter of operation.
- A company has a maximum life of 25 quarters.

A brief description of the operating procedure will now be presented. (Chapter 4 fully explains all operating rules, conditions, and financial statements' contents.) *There are many possible decisions*. Your instructor will state which decisions the company manager controls:

Your instructor will state the decisions you control and enter each quarter.

- 1. Units to be produced.
- 2. Unit price of product.
- 3. Purchase of demand and price forecast.
- 4. Plant capacity purchased.
- 5. Machine capacity purchased.
- 6. Capital budgeting project A.
- 7. Capital budgeting project B.
- 8. Decision on labor strike settlement (if a labor strike is possible next quarter).
- 9. Short-term investment.
- 10. Risk of short-term investment.
- 11. Discount terms on receivables.
- 12. Advertising expense.
- 13. Short-term loan.
- 14. Two-year term loan.
- 15. Three-year term loan.
- 16. Long-term debt.
- 17. Preferred stock.
- 18. Common stock.
- 19. Tender price for repurchase.
- 20. Dividend on common stock.
- 21. Possible strike settlement.

Game players directly enter decisions on each of the preceding variables that they control. The instructor indicates the value of the preceding items not under the game manager's control. These decisions indirectly determine additional decisions that must be controlled to achieve effective company management.

**Example.** The production decision will determine the end-of-period inventory balance even though managers do not directly enter an ending inventory decision. In a second example, all decisions affecting cash flows for the period will determine the ending cash balance. Cash management is determined by the manager even though there is no decision entered for an ending cash balance. Both the inventory and cash balance policies need to be actively controlled by managers. The policies are controlled only by recognizing and managing the active decisions that affect these policies. Cash management is achieved by preparing budgeted or pro forma financial statements, which are described in Chapters 3, 4, and the Appendix.

The game is a multiple-period decision problem. Starting with an identical initial company, each manager makes her first set of decisions for quarter 2. The financial statements and summary information on the company received from the

A given quarter's decisions cannot be repeated.

simulation of quarter 2 are then used to make decisions for quarter 3. This process is repeated for the 11 to 25 quarters of operation of the company. Once the quarter is simulated, decisions for a given quarter cannot be repeated. As in the real world, the company's future is based on prior sets of nonrepeatable decisions.

The company operates in a nonspecific environment. The company is not a firm in a specific industry, such as chemicals. The firm produces an unidentified product. This intentional approach reduces the manager's possible bias toward using an already existing industry's financial structure or asset mix. Game managers should make sound financial decisions based on their company's operating environment rather than rely on decisions and rules of thumb currently used within a specific industry.

Decisions of any single company do not affect any other company. The game is noninteractive. Neither the decisions nor the performance position of any one firm causes changes in any other firm. No manager's actions will change the overall market equilibrium conditions.

**Example.** An issuance of stock by company 2 does not change the sales price of company 1 stock. The firms are not competing against each other for a limited amount of product sales, machines, plant, capital budgeting projects, production, or capital.

The noninteractive environment approaches perfect competition where capital markets are complete and efficient. Each company is too small to have an effect on the market equilibrium interest rate of marketable securities or other firms' costs of capital. General marketwide prices, interest rates, product demand, and costs in the game are all affected by a general economic index that is independent of each firm's actions.

*Performance is cumulative.* The manager's objective is to maximize common stockholders' long-run wealth. This goal is reached by repeatedly making sound financial decisions. Since performance is determined by several decisions in each of several periods, a firm's performance is derived from its entire set of past decisions.

**Example.** Company A makes the same decisions as company B except A accepts a capital budgeting project that should be rejected and company B rejects the project. Firm B will have operated in the best interests of its shareholders and will outperform A. The difference in decisions between the two firms could result in a performance superiority for B that could last the entire game. The full weight of the effect on the financial statements and overall company performance often will not be evident until the end of the life of the capital budgeting project. A's costs could exceed B's in each period of the project's life, thus adding cumulatively to B's advantage.

A manager's decisions can have additional indirect, or secondary, effects on operating and financial costs, which in turn further impact the company's performance position.

Decisions often have major secondary effects.

**Example.** Incorrect capital budgeting decisions could lead to a poorly operating firm with a lower stock price and higher debt costs than other firms. This firm could issue new shares and debt only at a higher average cost of funds than obtained by a better firm. The present value or profitability of the same new investments would be lower for the already poorly performing firm. They would underperform the more successful companies still further due to this type of secondary valuation effect.

Secondary effects cause further disparities between high-and low-performance companies as the game progresses. This feedback effect can place a company in a "locked-out" position where there is little hope of catching up to better-performing

companies. This condition is just like the long-term dominance in performance that exists with some companies in the real world.

The manager operates in an uncertain environment. The manager has incomplete information on the future. There is a lack of knowledge about company performance, product demand, product price, and interest rates. The capable manager searches for lead indicators (predictors of the future conditions) to decrease the level of uncertainty.

The game is a comprehensive case. The game and this text are constructed like a traditional case. Required knowledge in finance, accounting, and other disciplines needed for successful company management needs to be obtained from other sources. A finance text is required to provide knowledge of the impact of financial decisions and to determine appropriate solution techniques for solving problems.

**Example.** The possible impact on a company's cost of capital from either excess debt or excess equity is covered in the basic finance course and text. A manager who lacks this knowledge will likely underperform other company managers. The naive manager would fail to monitor the effect of the debt-equity relationship on the cost of capital of his company and other companies. He could fail to adjust his debt-equity back toward more reasonable levels even in light of clear evidence of a poor policy. He would underperform the more knowledgeable managers.

Effective financial decisions must be integrated with nonfinancial management decisions.

The game is interdisciplinary. In a successful company financial management cannot be separated from decision making in other disciplines of business and economics. The production, marketing, and accounting functions are highly interrelated with the economic environment and optimal financial decisions. A decision or event in one area induces changes in others. Operation of an entire firm requires planning, decision making, and control of all of the business management functions in each decision period.

The game is designed with emphasis on finance in that:

- 1. Most of the decisions are financial variables.
- 2. Decision requirements on the financial variables are typically more complex than the nonfinancial decisions.
- 3. The weights of the effects of the finance variables on performance are generally greater than nonfinancial variables.

Production and marketing decisions are included to increase the game player's awareness of their effects on financial decision making.

A unique set of optimal decisions may not be found or exist. The optimal set of decisions for a company may change over time if the company's environment changes.

**Example.** Because of possible changes in the underlying economy, the environment in which the firm operates is subject to substantial change over time. The capital and asset structure of the firm might have to be modified to ensure a company's continued high performance. A strategy incorporating high financial leverage might be appropriate for a highly stable firm. Yet, if through time the firm moves toward greater business instability, the maintenance of high financial leverage could cause failure or at least relatively poorer performance.

Since performance in the game is cumulative, to fully understand the impact of a single variable, the manager must explain its relationship among the many other company variables, the feedback effects among the variables, and how this feedback is affected by time. Additionally, due to the uncertainty in the game environment, much of the information required to determine the impact of one decision variable and the relationships among the variables is not observable or measurable.

As in the real world, decisions must still be made in this uncertain environment with the objective of maximizing common stockholders' wealth. The manager should seek information and make decisions through several periods of play in an attempt to approach an optimal decision for each manager-controlled variable.

**Example.** Dividends affect stock price and the performance measure in the game. The company's manager knows this but does not know the relationship between payout and performance. By varying dividend payout throughout the game and examining the impact of other companies' dividend policies, management can hone in on the optimal or near-optimal payout.

Effective financial management requires repeated analysis and testing of the impact from a given decision variable. In this environment a decision is changed and the effect on performance is measured. This process is continued until an optimal solution or optimal range of solutions is estimated and implemented for a given management decision variable, like dividend policy.

If the general economic environment did not change through time and if the firm could be simulated through hundreds or thousands of periods, the optimal set or sets of management decision variables could be estimated fairly accurately. Due to the rapid changes in the real world and the game, operating firms rarely have the number of stable periods necessary to discover the entire set of optimal decisions. A restricted number of 11 to 25 periods in a game more closely duplicates the real-world experience of managing a company where there is also an insufficient number of periods to derive an optimal solution on all decision variables.

## **Preparation Requirements**

Knowledge of finance, accounting, economics, and production is required of a FinGame manager. The manager has to master the areas sufficiently to apply them in making decisions. More specifically, the operation of a company requires

- 1. An understanding of current theory in both finance and economics.
- 2. Knowledge of financial statements and their construction.
- 3. An ability to apply established analytical methods to problem solving in finance; for example, in capital budgeting the manager should know how to apply the net present value or internal rate of return procedures.
- 4. An ability to communicate financial information.

An understanding of basic finance and economics is essential. Economic training will enable the manager to guess how interest rates, product demand, and prices of both input material and the final product should correlate with the general business cycle.

Knowledge of finance provides models that explain the impacts on the firm's earnings stream from increasing either financial or operating leverage, the effects of dividend stability and payout on stock prices, and the means of determining an optimal sales discount for credit sales. Stock-out and economic order quantity models can be used in decisions about cash levels, inventory levels, and purchasing machine and plant capacity. The net present value or internal rate of return method can be applied to capital budgeting and debt refunding decisions. This