

Developments in Business Simulation & Experiential Exercises, Volume 11, 1984

A SIMULATION GAME MODEL FOR CONGLOMERATES

Richard F. Barton, Texas Tech University

ABSTRACT

Design requirements for creating a simulation game model of conglomerates are presented. Each conglomerate must be allowed to enter, leave, or continue an existing owned business in any of several industries. Each industry may look like those represented by current simulation game models, yet these models need modification if they are to become part of a conglomerate game model. Modeling conglomerates for gaming purposes presents interesting questions such as: Where do acquired companies come from or divested companies go if not from other player managed conglomerates?

INTRODUCTION

At the present time there exist no simulation game models for firms with the structure of a conglomerate so that the conglomerates may compete with each other in several industries.¹ The nature of a conglomerate is that it is essentially a corporation headquarters that manages distinct operating units called strategic business units. General Electric has defined a strategic business unit (SBU) as a business or collection of related businesses that has its own distinctive mission, competitors, and markets so that total business accountability, short and long range, can realistically be focused on one manager [5]. That is an internal view of an SBU. Externally, one might view a collection of SBUs, each controlled by a different corporate conglomerate, as an industry for which a meaningful market share can be defined. For a set of industries, any one conglomerate may compete in all or in only a subset of the industries. For any one industry, a conglomerate may enter or leave it. Of course, some business units in an industry may be independent of any conglomerate.

Perhaps the reason no multi-industry simulation game models exist is that most present models were developed in the years when the conglomerate movement was just beginning and when most corporations were in fact engaged in single industries. Concurrent with the evolution of multiple industry corporations was the emergence as an academic discipline of the area of policy and strategy to deal with the conceptual issues faced by managers of conglomerates. Thus far, concepts from this new discipline have not found themselves embedded in a business simulation game. Most game models for policy and strategy teaching and research are for single industry companies, some producing and selling only one product. Usually the firms in these industries are given identical starting positions and the products of each compete head on. In some models, additional products in separate but usually related markets, or in different geographical areas, may be brought out by the player-managers of the simulated companies. Thus, most past game models represent competition among several firms in essentially the same industry.

MANAGEMENT OF CONGLOMERATES

The corporate headquarters functions of conglomerates include the acquisition, creation, divestment, or liquidation of businesses. The group of businesses managed by a conglomerate, by analogy with managers of financial investments, is popularly called a portfolio of businesses. In addition to deciding on additions and deletions from its portfolio of businesses, corporate headquarters also decides the strategic role each business that remains in the portfolio should play. This is essentially a resource allocation matter, hence corporate headquarters functions are largely financial in nature although many also provide consulting services to their business units. Usually a charge is imposed on business units for the support of corporate headquarters.

The evolution of multiple business corporations raised issues of managing this new type of organization. Old managerial concepts and practices did not apply. One of the motivations for becoming a multiple-business corporation is to diversify the risks due to uncertainty. For example, should Business A suffer financial losses, Businesses B, C and D could carry the corporation. The idea is to acquire Businesses B, C, and D so that they are not subject to the same risks as Business A. In parallel, there had long been a specialized manager who had been doing this all along. He was the person managing a portfolio of financial investments. He would place part of the resources he controlled in risky, high return investments and other resources in relatively safe but lower return investments. He would also try to balance his portfolio of investments so that the uncertain turns of any one industry or the economy did not affect the entire portfolio at once.

This concept of portfolio management was adopted by multiple business corporate headquarters as a means for viewing their current businesses and those they may grow internally or acquire externally. These new corporate headquarters leaders no longer asked "What business should we be in?" but "What set of businesses should we be in?" "What businesses should we sell or simply close down?" "What new businesses should we start up or acquire?"

Concepts for Managing a Portfolio of Businesses

As with the financial portfolio manager, the corporate headquarters leaders faced decisions about "balancing the portfolio." Besides choosing businesses to be or not to be in, they also asked "What role in our portfolio of businesses should each business play?" To answer this last question, several schemes to define the roles have been developed. Two of them will be presented here. They are organized as two dimensional matrices. It must be recognized that management of portfolios of businesses has many dimensions. However, these schemes of few dimensions have had significant impact on corporate decisions to acquire or divest, or to assign a particular role to one of its businesses.

The BCG (Boston Consulting Group) business portfolio matrix [1,3] is shown in Figure 1. For this paper some technical simplifications are made and the two dimensions are not as rigorously defined as they are

¹ Author's observation confirmed by business simulation game observers J. Bernard Keys and Joseph Wolfe in personal communication.

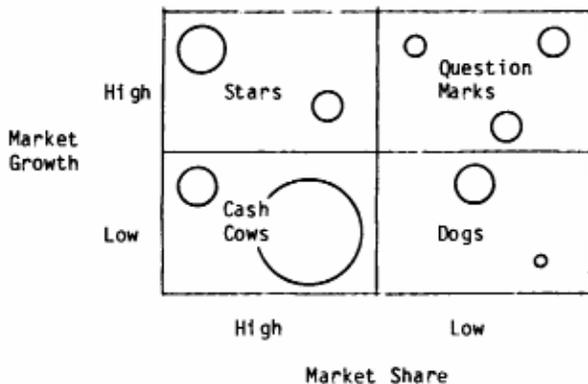
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elsewhere in the corporate strategy literature. The circles represent the relative size in sales volume of each business unit in the portfolio. The two BCG dimensions are market growth and market share. Each of these is divided into high-low halves giving four possibilities with BCG names for each as follows:

MARKET SHARE	MARKET GROWTH	BCG NAME
High	High	Stars
High	Low	Cash Cows
Low	High	Questions Marks
Low	Low	Dogs

Since corporate headquarters usually decentralizes operations of separate business units to their own levels, the strategic decisions at corporate headquarters concern the allocation to or withdrawal from the business units of the

**FIGURE 1
BOSTON CONSULTING GROUP BUSINESS PORTFOLIO MATRIX**

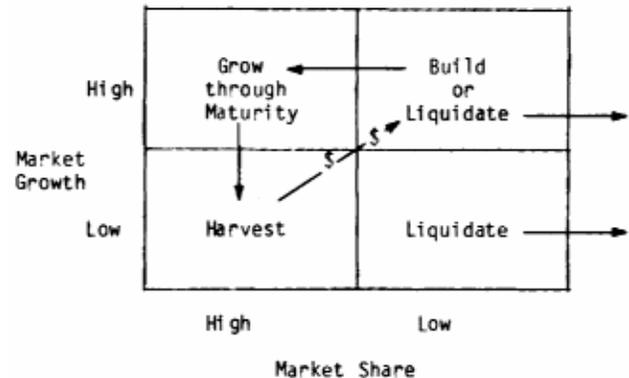


resources available to the total corporation. For present purposes we can think of this as cash, although human resources are perhaps as important.

As a business unit grows it requires more cash investment to purchase plant and equipment, to hold larger inventories of materials and finished goods, and to support the larger accounts receivable from growing sales volume. Some business units can generate about what they need in cash to finance their growth. Others that grow faster require more cash than they generate. And others that enjoy good revenues and profits but are not growing, generate more cash than they need. In the simplified nomenclature of the BCG matrix, it is usually considered that low growth and high share businesses generate excess cash (hence "Cash Cows") and that any low share business in a high growth market has the possibility of very rapid growth (hence "Question Marks") and possibly great need for cash. "Stars" and "Dogs" may or may not cover their own needs for cash.

Generic strategies for dealing with business units in each of the BCG cells are commonly mentioned. Cash Cows are to be harvested, Dogs liquidated, Stars grown, and Question Marks either built into Stars or divested. Hence for the Question Marks that are potential Stars, cash should flow to them from Cash Cows. Eventually, as the market matures, Stars move to Cash Cow status provided they hold their share. These generic strategies are depicted in Figure 2.

**FIGURE 2
BCG GENERIC STRATEGIES**

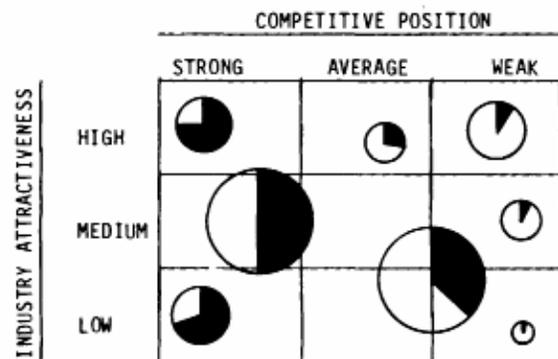


Some serious limitations have been voiced about the BCG matrix. The more significant of these are [2,4]:

- 1) Growth rate is an inadequate description of industry attractiveness: market share likewise is an inadequate description of the competitive position.
- 2) The four cell scheme is too simplistic as there are intermediate positions as well which can be significant.

In order to overcome some of these limitations, General Electric developed the G.E. Business Screen (Figure 3). Industry attractiveness and business strength are composite measures determined through an analysis and weighting of a number of components. The areas of the circles are proportional to the size of the industries in which the various businesses compete. The pie slices represent the respective market shares held by the conglomerate. The analyst is able to assess at a glance the firm's position in the different industries in which it operates. The screen forces questioning of the underlying factors responsible for success or failure of a business and helps in the resource allocation decision. Through developing screens for competitors, corporations gain a better understanding of competitors' strategies in each industry. Also if the firm's future positions can be forecasted and screens drawn to represent these, important strategic issues confronting individual businesses and the conglomerate as a whole can be identified and dealt with.

**FIGURE 3
GENERAL ELECTRIC'S BUSINESS SCREEN**



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MULTI-INDUSTRY MODEL REQUIREMENTS

The first of three major implications of corporate business portfolio management for simulation gaming model design is that several industries must be represented. The second implication is that each industry must have different characteristics. The third of these implications is that the firms within each industry must hold different positions.

Some existing business simulation games can represent more than one industry in separate parallel plays of the game. Others allow altering characteristics of the industry, again in separate plays. An attractive development path would be to build multi-industry simulations using existing simulations to represent industries of strategic business units each owned by a different conglomerate. While some difficulties are immediately apparent (such as passing resources to business units from conglomerate sources outside the model), the alternative of writing a completely new conglomerate model is even more difficult.

The third implication, except where a single-industry model is extremely flexible, may force rewriting existing games. Presently most business policy and strategy games start play with companies in equal positions. Not to do so seems patently unfair when player quality is judged by comparing performances of the several companies. Yet, the essence of the conceptual portfolio schemes presented earlier is that companies are usually unequal in their industries. Often, as play progresses companies do become quite unequal due to player decisions, but to represent several conglomerates competing in several industries, companies must start unequal.

For simulation game administrators, a major consideration is how many players are to manage each conglomerate. If three or four players manage corporate headquarters and similar-sized teams manage each operating business unit, then a conglomerate can use four plus the number of business units times four players. In this structure, one conglomerate could use all available players. Alternatively, the operating decisions of business units could be automated by generic strategies so that corporate headquarters players could simply designate the role a business unit is to play in the portfolio and let tactical and operating decisions be effectively decentralized to automated decisions programmed into the model for each firm.

To summarize, a simulation game model to represent the decision problems of conglomerate corporate headquarters must differ from existing models by the following specifications:

1. More than one conglomerate.
2. More than one industry.
3. Industries must differ in growth and attractiveness.
4. More than one firm in an industry (as in current models).
5. Firms must differ at the start and throughout play, especially in market share and other aspects of competitive position.
6. There must be a place outside the competition of the modeled conglomerates where acquisitions come from and where divestitures go to, yet these companies must remain active in their industries although no modeled conglomerate may own them.
7. There must be provisions to manage the business units on strategic dimensions, allowing corporate headquarters players to delegate operating decisions.
8. There must be mechanisms for passing resources between corporate headquarters and business units.

9. There must be mechanisms for buying and selling businesses among conglomerates.

10. Finally, the review of schemes for management of portfolios of businesses suggest that a headquarters level decision support system will be needed to implement these schemes by passing business unit and industry data from the several industries to each corporate headquarters.

A Schematic of a Three Conglomerate-Three Industry Model

Approximating the complexity of the GE business screen yet retaining some colorful labels of the BCG matrix, a schematic of three industries each containing business units of three conglomerates is presented in Figure 4. While there is the appearance of symmetry, Conglomerate I has the advantage because its high share business is in the high growth industry, i.e. it is the only conglomerate with a "Star." A fourth group of modeled firms is provided so that there are firms that can be acquired by the modeled conglomerates. This group of firms also provides a place for divested firms to go. Because these firms are not associated with the three modeled conglomerates, they are called "independent" in Figure 4 although they could be thought of as belonging to other nonmodeled conglomerates.

Conglomerates I, II, and III can acquire, start-up, divest or liquidate businesses in any of the three industries. These strategies are shown schematically in Figure 5. Acquisitions can be from other conglomerates or from the Independent group. Divestment can be to other conglomerates or to the independent group. When conglomerates buy or sell businesses to each other, their player-managers can set the price by face-to-face negotiation. However, when firms move between the independent group and conglomerates the game administrator or a modeled evaluation mechanism must set the price.

Modeling start-up or liquidation of a business differs from present game models since most begin and end with the same number of firms in an industry. Unless an extremely flexible policy game model is available to represent industries, some rewriting will be necessary or a new game created.

While Figures 4 and 5 illustrate a rather complex game, its conglomerates are not very diversified, being in only three industries at most.

Modeling Conglomerates

Given an adapted existing game model for industries with flexibility to represent high, low, and medium growth industries and high, low, and medium share starting firms within each industry--and given that the same model is used for all firms, the financial and environmental reporting format will be identical for all firms. Assuming that these reports are organized as rows and columns, then certain variables can be added matrix fashion to provide consolidated numbers for the entire conglomerate. This applies to asset and liability items (assuming firms are not indebted to each other) but does not apply to equity items. For example, a conglomerate may hold only a part interest in a business unit and this may not be the equity amount on the unit's books. Obviously, market shares cannot be added for a conglomerate's separate businesses. Needed is a mechanism for consolidating the separate business unit financial statements along with the parent corporate headquarters statement (headquarters itself will hold assets and have liabilities and equities) with a consolidated statement for the entire conglomerate.

FIGURE 4
ILLUSTRATIVE SCHEMATIC OF A MODEL OF CONGOLMERATES COMPETING IN THREE INDUSTRIES

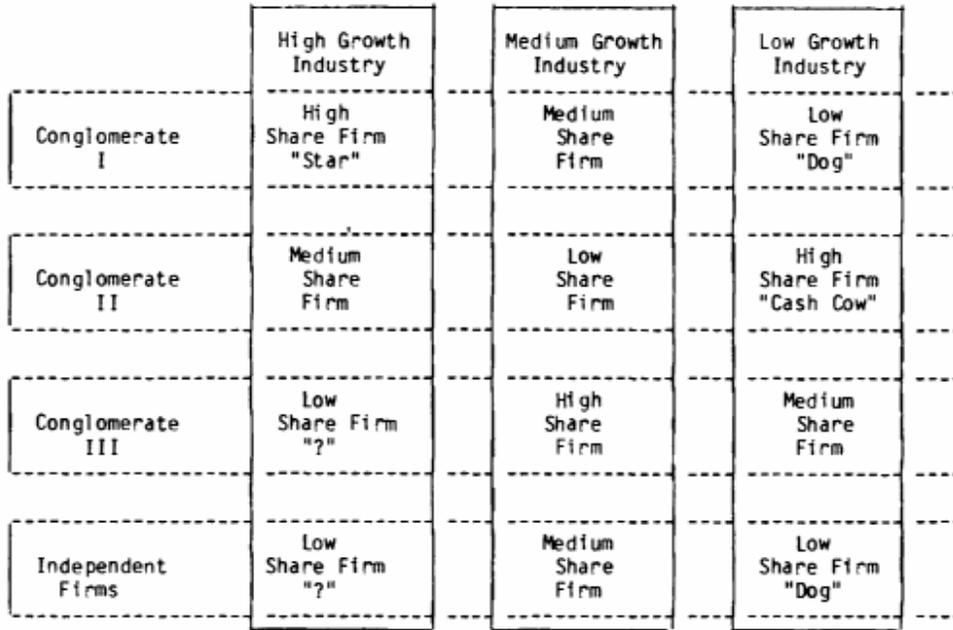
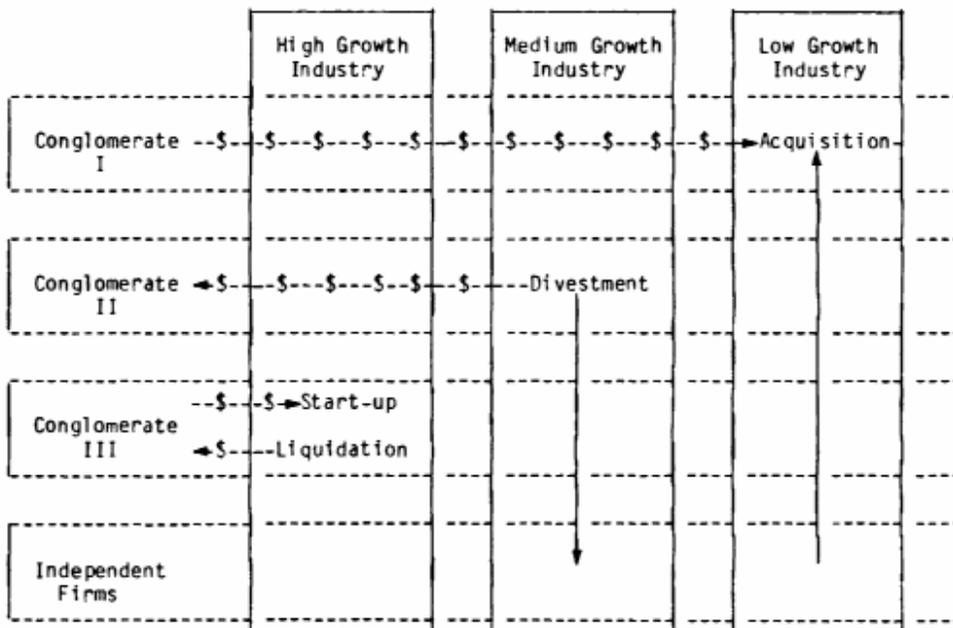


FIGURE 5
POSSIBLE CONGLOMERATE CORPORATE HEADQUARTERS ACTIONS



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These functions for planning purposes are well handled by several commercial decision support systems (DSS). While existing business game computer models are written in older languages, usually FORTRAN, conglomerate modeling probably can be best done with a DSS (e.g., IFPS, MODEL). Most DSS provide for passing data to and from models written in other languages. This means, given sufficient flexibility, some existing single-industry game models may communicate with a DSS conglomerate model.

Strategic Decision Support Systems (DSS)

Commercial DSS provide many modeling services in addition to consolidation. These features combined with the data passage features mentioned earlier would allow player managers of conglomerates to bring the recent conceptual constructs of the policy/strategy literature to bear on decision tasks of a conglomerate game. The DSS are designed to allow managers to easily build their own models. DSS also include limited graphics capability but to represent BCG or GE matrices may require too much work for players during play. Of course, an ambitious game administrative may design a package that allows players to create such matrices as they wish, store each, modify them, and print them for comparison.

SUMMARY

This paper has described an expanded domain for policy/strategy simulation gaming--that of the world of conglomerates. Issues both of modeling and of organizing players have been presented. As yet no known project is undertaking the task of building a conglomerate game.

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