NEGOTIATING CONSTRUCTION CONTRACTS THROUGH PRACTICAL CASH FLOW PLANNING AND ANALYSIS MODEL

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Abstract
Under-capitalization, difficulties in getting credit, substantial cost of getting financed, etc. cause contractors to complete projects with negative ending balances. Predictability and control of the cash flow through negotiating financial provisions of construction contracts mean differences between success and failure of a project or a contracting company. Despite many practical insights provided by professionals, structured procedures and tools are seldom used, and few contractors take advantage of the existing techniques which can enable them to identify the effects of their decisions on negotiating contract terms. In addition, commercial finance software is expensive and complicated. This paper presents the multi-period dynamic model on the project level which maximizes final cash balance through negotiating financial terms of contracts without time-consuming data collection and with reasonable accuracy. This allows industrial practitioners to define the cash flow planning horizon, as well as predict and maximize the final cash balance. Microsoft’s Excel spreadsheet software with its add-in optimization programs is used in solving these models. Through scenarios and sensitivity analysis on contract financial provisions, contractors can predict the impact on project cash inflows and outflows. The approximate solution of this deterministic model gives decision makers an excellent insight for making the optimal decisions.

Keywords
Cash flow, construction contract negotiation, retained percentage, billing period, initial capital, and multi-period dynamic optimization model

INTRODUCTION

Many of the contracting firms failing are profitable ventures at the time of bankruptcy. There are many reasons for the failure of a construction company, events such as a recession, tight money, etc. Credit is hard to get currently, and the cost is substantial if it can be obtained at all, leading to undercapitalization. However, these events affect all business enterprises when they affect one. What are the differences between firms which survive and firms which fail? The cash position of a contracting firm has a great deal to do with its success or failure.

Each individual project cash position is collectively the base of company cash positions. The nature of a construction project often causes contractors to be caught in