A Model Suggestion to Predict Leverage Ratio for Construction Projects

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Extensive Summary

Introduction

Construction is one of the leading sectors in economy and the sector carries high risk and low profit margin. Of course risk is associated with every aspect of our daily life and we know construction is a risky sector, as Quayle in 1999 said, “Risk and uncertainty are inherent in all construction work no matter what the size of the project”. Prasanta and Ogunlana in 2004 also said,” The construction industry is exposed to more risk and uncertainty than others are” and because of the importance of risk management isn’t known well or given enough importance, it isn’t well performed yet in the sector. “For years the engineering and construction industry has had a very poor reputation for coping with risk, with many major projects failing to meet deadlines, cost targets, and specifications” (Vega and Vokurka, 2000).

Due to its nature, construction is an industry with high uncertainty and risk and construction projects are characterized as very complex projects, where uncertainty comes from various sources.

Cash flow management and risk management are also very important for the sector but are not well known yet. The construction industry is high amount of cash flow which creates high financial leverage. Construction industry carries high leverage ratios. Firms with low equities work in big projects through progress payment system, but in this case, even a small negative in the planned cash flows constitute a major risk for the company. The use of leverage, with a small investment, targets high-profit, but also brings a high risk. Investors may lose all or the portion of the money.

In this study, monitoring and measuring of the leverage ratio because of the displacement in cash inflows of construction projects which uses high leverage and low cash to do business in the sector is targeted.
The Conceptual Framework of Suggested Model

In this study, construction projects cashflow is assumed as S curve. Measuring the impact of leverage ratio on S curve approach has been selected.

Cash flow in construction projects can be skewed. Beta distribution was chosen for modeling the cashflow.

It's assumed that, cashoutflows and shifted cashinflows are equal. Displacement of cashinflows is assumed to be constant throughout the project term.

Cash inflows and outflows are assumed to occur within the same day.

Project duration, the form of S curves and displacement period of cashinflows are the parameters of the model. Net cash requirement is calculated with these parameters.

Findings and Discussion

Cash need because of displacement of cash inflows may be seen due to the model. Cash inflow delay shifts the projects financial burden towards to the contractor by exponentially growing.

Work activities should be done in the early stages of the project with little capital but in the later stages, rapidly growing capital need arises.

Monitoring cashflow and take the right precautions in the right time will protect the project from many risks. If the firm does not predict the difference between the planned and the actual cash inflows and take precautions like maintaining adequate capital for the project, shall be faced with bankruptcy.

Construction projects are inherently highly leveraged projects. The values obtained from the model may be used to supply the capital held in the right time by anticipating the risks because of the delay in cashflow of construction projects which uses high leverage ratio.

Firms doing business under the high leverage should continuously monitor and manage leverage ratio. Both contractors and employers should know the cash need in every phase of the project by using this model for the sustainability of the project and the firm.