

# Project Finance In Theory And Practice Second Edition Designing Structuring And Financing Private And Public Projects

This text is about international project analysis and financing. Project analysis is concerned with identifying and assessing the value enhancing potential of individual investment opportunities. Project financing in its broadest sense encompasses all sources of funds used to finance project investments. Thus, these two aspects are inseparably interconnected. The text focuses upon key areas such as capital budgeting and risk management and includes case study material. It will be relevant to professionals and students with an interest in project analysis and financing. Never HIGHLIGHT a Book Again! Virtually all of the testable terms, concepts, persons, places, and events from the textbook are included. Cram101 Just the FACTS101 studyguides give all of the outlines, highlights, notes, and quizzes for your textbook with optional online comprehensive practice tests. Only Cram101 is Textbook Specific. Accompanys: 9780123919465 .

A timely update to one of the most well-received books on project financing As an effective alternative to conventional direct financing, project financing has become one of the hottest topics in corporate finance. It's being used more and more frequently—and more successfully—on a wide variety of high-profile corporate projects, and has long been used to fund large-scale natural resource projects. But the challenges of successful project financing are immense, and the requirements of the process can easily be misunderstood. That's why John Finnerty has returned with the Third Edition of Project Financing. Drawing on his vast experience in the field, Finnerty takes you through the process step by step. Using updated examples and case studies that illustrate how to apply the analytical techniques described in the book, he covers the rationale for project financing, how to prepare the financial plan, assess the risks, design the financing mix, raise the funds, and much more. Includes completely new chapters that cover the financing of sustainable projects as well as Sharia-compliant (Islamic) project financing New material has been added to the discussion of financial modeling and international debt financing Explores today's most innovative financing techniques and analyzes the shortcomings of unsuccessful project financing attempts Whether you're a corporate finance professional, project planner, or private investor, Project Financing, Third Edition demystifies the complexities of project financing and provides an invaluable guide for anyone who wants to master innovation in corporate finance today. Suitable for aspiring modellers and finance analysts who wish to become masters of the art of modelling for project finance, with particular reference to UK PFI, this title covers various aspects such as: Financial theory; Modelling theory; Excel theory and techniques; a practical guide to building a project finance model; and more. Renewable Energy Finance: Theory and Practice integrates the special characteristics of renewable energy with key elements of project finance. Through a mixture of fundamental analysis and real-life examples, readers learn how renewable energy project finance works in actual deals that mix finance, public policy, legal, engineering and environmental issues. The skills developed in analyzing non-recourse cash flow-based finance are applicable not only to green energy, but also apply more widely in

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project finance and infrastructure investing. The book's comparisons of developed and developing countries make it valuable to readers worldwide. Presents real world cases in each chapter Includes a companion website that contains renewable energy project finance models and other resources Supports efforts to achieve environmental sustainability through renewable financing projects and cleaner production techniques This 2007 third edition continues to be a comprehensive and authoritative guide to the business, practice, law, and practical use of project finance. It covers the complete project finance structure, from conception to negotiation to debt closing, and from project difficulties to successful restructuring. The book continues to be accessible to those with little experience in project finance, while maintaining the insight and detail of previous editions that has made it a valuable reference for the experienced lawyer, manager, banker, contractor, and government official. This edition focuses on a real-world, practical approach to project finance, without the overuse of case studies and economic theory. Yet the contract forms, detailed glossary, index, and project finance bibliography make it a complete text.

This overview of project finance for the oil and gas industry covers financial markets, sources and providers of finance, financial structures, and capital raising processes. About US\$300 billion of project finance debt is raised annually across several capital intensive sectors—including oil and gas, energy, infrastructure, and mining—and the oil and gas industry represents around 30% of the global project finance market. With over 25 year's project finance experience in international banking and industry, author Robert Clews explores project finance techniques and their effectiveness in the petroleum industry. He highlights the petroleum industry players, risks, economics, and commercial/legal arrangements. With petroleum industry projects representing amongst the largest industrial activities in the world, this book ties together concepts and tools through real examples and aims to ensure that project finance will continue to play a central role in bringing together investors and lenders to finance these ventures. Combines the theory and practice of raising long-term funding for capital intensive projects with insights about the appeal of project finance to the international oil and gas industry Includes case studies and examples covering projects in the Arctic, East Africa, Latin America, North America, and Australia Emphasizes the full downstream value chain of the industry instead of limiting itself to upstream and pipeline project financing Highlights petroleum industry players, risks, economics, and commercial and legal arrangements

Project Finance in Theory and Practice Designing, Structuring, and Financing Private and Public Projects Academic Press

A unique, international approach to optimal real estate financing Property Finance is an authoritative guide to both the financial and legal issues surrounding real estate financing. Unique in its exclusive focus on the topic, this book builds from a solid theoretical foundation to provide practical tools and real-world solutions. Beginning with a discussion of the general issues encountered in real estate finance from an international perspective, the authors delve into country-specific information and set out the legal peculiarities of eight important countries (Germany, France, Italy, Spain, China, India, England and Wales) by asking questions of relevance to the leading local law firms specializing in real estate financing. The reader may thus consider in greater depth the problems relating to any given country and compare and contrast the

positions under different legal systems. Examples with numerical calculations and contract excerpts enhance the explanations presented, and are immediately followed by practical case studies that illustrate the mechanisms at work. The companion website features downloadable spreadsheets used in the examples, power point presentations, as well as real estate news and more. Property financing entails many sources of capital, including both debt and equity resources as well as hybrid forms like preferred equity and mezzanine debt. Knowing how to work with these avenues is important to ensuring financial sustainability in real estate assets. Property Finance covers the most common issues encountered, helping readers prepare for and find a way around possible roadblocks. Consider the issues surrounding real estate lending at an international level Compare and contrast the positions under different legal systems Develop an international perspective on cash flows and financing agreements Use powerful tools to structure financing and gauge its effects on property financing The success of a real estate investment is dependent upon optimal financing, and a mere bird's eye view of the topic does not fully prepare investors for issues ahead: Property Finance provides a knowledge-based approach to real estate investment, detailed information and powerful tools.

This is a self-contained text on the logic and institutions of project finance, supplemented by a series of project finance case studies illustrating applications in different economic environments, across different jurisdictions and at different stages of development. It will introduce an analytical framework drawing on applied institutional economics that includes and concentrates primarily on an analysis of the institutional logic behind generic project finance arrangements. The application of the institutional framework will be demonstrated with project cases from Hong Kong, Thailand, India, Europe and Azerbaijan – each at different stages of development. While each project case will have a general theme and will highlight aspects of interest to built environment professionals, it will primarily be used to illustrate one or more specific PF/PFI principle. The ending of the decade of the seventies and the dawning of the eighties can be characterized as a period of great uncertainty with prospects for economic political instability. High inflation and fluctuating exchange rates in the developed Western world have served to strengthen the forces of disequilibrium in the financial markets, leading to an investment situation with several unusual but significant factors. Capital spending by business, leading to the creation of new jobs, has not been reduced substantially during this period of uncertainty, as happened in similar periods in the past. This is shown in part by the continuing low unemployment rates in evidence during the period, which are in contradiction to the trend exhibited in similar past periods. The expanding financing requirements resulting from high price inflation have led to an increase in the capital intensity of firms, and thus to enhanced sensitivity of their income streams to economic fluctuations. At the same time, the record high interest rates that companies have had to pay to acquire this inflated amount of capital have caused a deterioration in the safety or quality indicators by which the creditworthiness of the firms is judged. These developments tend to increase the stakes involved in business decision making. One important repercussion of this is that greater attention is now being focused on improving the quality of investment decisions.

Project Analysis and Financing brings together the joint disciplines of capital budgeting

and project finance, detailing the key theories underpinning current best practice in these areas. This text is ideal for students of advanced undergraduate and postgraduate courses in investment analysis and project finance, as well as bankers, lawyers, project sponsors, policy makers with responsibility for raising private finance for public sector projects, contractors, project consultants and other practitioners working in the field. The book contains a wide array of case studies which illustrate the subject's key principles in action. Its thorough coverage of relevant modern finance theory, from the Capital Asset Pricing Model to real options, combined with a full range of real world examples of project finance and capital budgeting in action, acts as an excellent conceptual and practical guide to the subject.

Project finance is comparatively broad term since it includes various sub theories within it. Since it is practically applied in commercial world, it makes in even broader. When we apply any theory practically, there are hundreds of possible variations. This book, however, covers the basic knowledge of the process only. We have described the theory as a process (which it really is), which makes it even easy to understand all the concepts clearly. This book will surely help one to get a breakthrough in the broad term of Project Finance.

The Principles of Project Finance reviews the technique of project finance. It explores, step-by-step, the key ingredients of the concept. The book is aimed at a business savvy audience, but one which is not necessarily up to speed on the concept, and has a global reach by covering both OECD countries and the emerging markets. Project finance is positioned at a key point between the global capital markets and the energy and infrastructure industries. To explain and illustrate the ideas behind project finance, the book is made of chapters written by a range of leading players in the market from around the world and is split into four sections:  $\phi$  The first reviews various themes and issues key to the project finance market - views from bankers, lawyers and advisers plus chapters on bank, bond and multilateral finance and a look at environmental, insurance and construction market issues.  $\phi$  The second section looks at how project finance is used in various sectors of the energy and infrastructure market - renewable energy, oil and gas, mining, PPPs and roads and transportation.  $\phi$  The third then takes an in-depth look at various projects finance markets from around the world - Australia, Vietnam, Indonesia, India, Turkey, Russia, Africa, France, USA and Brazil.  $\phi$  Finally, the fourth section presents a series of Top 10 deal cases studies from the pages of Thomson Reuters Project Finance International (PFI), the leading source of global project finance information.

An essential guide to valuation techniques and financial analysis With the collapse of the economy and financial systems, many institutions are reevaluating what they are willing to spend money on. Project valuation is key to both cost effectiveness measures and shareholder value. The purpose of this book is to provide a comprehensive examination of critical capital budgeting topics. Coverage extends from discussing basic concepts, principles, and techniques to their application to increasingly complex, real-world situations. Throughout, the book emphasizes how financially sound capital budgeting facilitates the process of value creation and discusses why various theories make sense and how firms can use them to solve problems and create wealth. Offers a strategic focus on the application of various techniques and approaches related to a firm's overall strategy Provides coverage of international topics based on the premise

that managers should view business from a global perspective Emphasizes the importance of using real options Comprised of contributed chapters from both experienced professionals and academics, Capital Budgeting Valuation offers a variety of perspectives and a rich interplay of ideas related to this important financial discipline. This—revised and enhanced—book examines the role of finance in supporting other functional areas while fostering an understanding of how financial decisions can create value. Corporate Finance covers areas related to estimating divisional cost of capital; executing a financing strategy; establishing debt and dividend policies consistent with the company`s strategy and environment; choosing between dividends and stock repurchases; managing high growth and managing working capital. Its new topics include: - Corporate Financial Flexibility (Real options) - New Financial Instruments - Project Finance - Acquisitions and Control - Performance Measurement and Incentive Compensation The goal of this book is to provide a thorough understanding of how and why firms make their financial decisions the way they do and their impact on shareholder value. The central theme of the book is Value Based Management, which assumes that maximizing shareholder value is the governing objective of a firm. Each chapter of this new edition has detailed and real-life cases to help students easily understand and grasp concepts. The author has also provided the case-map of the Harvard Business School to make this book more user-friendly in classrooms. The inclusion of several new topics/cases, extensive pedagogical tools and a finance-for-non-finance approach make this book ideal for MBA/CA/CFA/ICWA students and executive education programs.

This cutting-edge financial casebook is divided into four modules: Structuring Projects, Valuing Projects, Managing Project Risk, and Financing Projects. The cases have been carefully selected to reflect actual use of project finance over the past five years in terms of geographic location (the cases come from 15 different countries) and industrial sectors. \* Benjamin Esty, of the Harvard Business School, is one of the leading scholars in project finance. \* Project finance is becoming the financing mechanism of choice for many private firms. \* Cases require the reader to integrate knowledge from multiple disciplines when making a single managerial decision. This integration of functional areas such as strategy, operations, ethics, and human resource management encourages the reader to adopt a more integrative perspective and understanding of the interconnectedness of managerial decision-making.

This monograph is devoted to a modern theory of capital cost and capital structure created by this book`s authors, called the Brusov–Filatova–Orekhova (BFO) theory, and its application to the real economy. BFO theory promises to replace the traditional theory of capital cost and capital structure by Nobel laureates Modigliani and Miller. This new theory in particular, presents a possible explanation to the causes of the recent global financial crisis. The authors of the book describe the general theory of capital cost and capital structure that can be applied to corporations of arbitrary age (or with arbitrary lifetime) and investment projects with arbitrary duration. The authors illustrate their theory with examples from corporate practice and develop investment models that can be applied by



by the contractual relationships within each project. By their very nature, these types of projects rely on a large number of integrated contractual arrangements for successful completion and operation. Project finance is an element within the larger field of project management. Many organizations around the world utilize project management to enable innovative processes, to plan, organize, and control strategic initiatives, to monitor enterprise performance, to analyze significant deviations, and to forecast their impact on the organization and project(s). Project management can be found in many industries today, from construction and information systems to healthcare, financial services, education, and training. A comprehensive and authoritative guide to the theory and practice of project finance An international scope, covering projects in both the developed and developing worlds The book describes and explains: Sources of project finance Typical commercial contracts (such as those for construction of the project and sale of its product or services) and their impact on the project finance structure Project finance risk assessment from the points of view of lenders, investors, and other project parties Structuring the project finance debt The key issues in negotiating a project finance debt facility Extensive glossary and cross-referencing No prior knowledge of project finance or financing techniques is assumed

"The book includes a step-by-step guide to individual infrastructure assets, focusing on their project financing structures, risk analysis, the various financial instruments used in the transactions, cash flow models and sensitivity analysis"-- Thesis (M.A.) from the year 2014 in the subject Business economics - Investment and Finance, grade: 105, University of Siena, course: MSc in Finance, language: English, abstract: Project Finance approach is an important financing mechanism because of its intrinsic features and differences with respect to the conventional corporate finance. It has experienced a rapid development and growth in the last decades both in developed and developing countries. The aim of this dissertation is to study and deepen the Project Finance in Emerging Markets framework. After a brief introduction of the main general features of this approach, it will focus on the developing countries context: the historical evolution overview, the risks evaluation, the international institutions involved and the economic impact of project finance in this scenario. Furthermore, financial feasibility study will be conducted in order to evaluate a project over several financial and economic aspects. Finally, all these theoretical issues will be empirically applied to the PMESA case study. It regards a hydroelectric power plant built in Brazil in the early 2000s through the project finance approach. The project evaluation is time located in these years because Brazil was considered an emerging market and it presented some peculiar economic and financial characteristics.

A clear and comprehensive guide to financial modeling and valuation with extensive case studies and practice exercises Corporate and Project Finance Modeling takes a clear, coherent approach to a complex and technical topic. Written by a globally-recognized financial and economic consultant, this book

provides a thorough explanation of financial modeling and analysis while describing the practical application of newly-developed techniques. Theoretical discussion, case studies and step-by-step guides allow readers to master many difficult modeling problems and also explain how to build highly structured models from the ground up. The companion website includes downloadable examples, templates, and hundreds of exercises that allow readers to immediately apply the complex ideas discussed. Financial valuation is an in-depth process, involving both objective and subjective parameters. Precise modeling is critical, and thorough, accurate analysis is what bridges the gap from model to value. This book allows readers to gain a true mastery of the principles underlying financial modeling and valuation by helping them to: Develop flexible and accurate valuation analysis incorporating cash flow waterfalls, depreciation and retirements, updates for new historic periods, and dynamic presentation of scenario and sensitivity analysis; Build customized spreadsheet functions that solve circular logic arising in project and corporate valuation without cumbersome copy and paste macros; Derive accurate measures of normalized cash flow and implied valuation multiples that account for asset life, changing growth, taxes, varying returns and cost of capital; Incorporate stochastic analysis with alternative time series equations and Monte Carlo simulation without add-ins; Understand valuation effects of debt sizing, sculpting, project funding, re-financing, holding periods and credit enhancements. Corporate and Project Finance Modeling provides comprehensive guidance and extensive explanation, making it essential reading for anyone in the field.

What is project finance? What makes project or structured finance so relevant for large renewable energy infrastructure? Which vocabulary do I need to know in order to speak the same language during meetings with lawyers, investors, bankers and engineers? These questions and many more are answered throughout this book, offering real world examples to bridge the gap between theory and practice. The book details the role of each stakeholder in the development of renewable energy projects, the interconnection between all the agreements, the financial process from fundraising to financial close, the processes of due diligence, risk analysis, project investment valuation and much more. It also provides with an introduction to Portfolio Management using renewable energy assets and an explanation of the role of Climate Finance in green energy investments. The commented glossary enables readers to unpick the jargon used in project finance for renewable energy, and the numerous creative figures and comprehensive tables aid with understanding. Offering a complete picture of the discipline, Introduction to Project Finance in Renewable Energy Infrastructure will be of value to professionals, engineers and academics alike interested in understanding the process and components of project finance in renewable energy infrastructures, in both private and public-private contexts. This book presents new methodologies for rating non-financial issuers and project ratings based on the BFO (Brusov-Filatova-Orekhova) theory of capital

cost and structure, and its perpetuity limit (Modigliani-Miller theory), as well as modern investment models created by the authors. It first provides a critical analysis of the methodological and systemic shortcomings of the current credit ratings of non-financial issuers and project ratings. In order to increase the objectivity and accuracy of rating assessments, it then modifies the BFO theory for companies of arbitrary age as well as and the perpetuity limit (Modigliani-Miller theory) for rating needs. The authors also incorporate the financial indicators used in the rating methodology into both the BFO theory and the Modigliani-Miller theory. Within the framework of the modified BFO theory for rating needs, they then present a detailed study of the dependence of the weighted average cost of capital of WACC, used as the discount rate for discounting financial flows, on the financial ratios used in the rating, on the age of the company, on the leverage level and on the level of taxation for a wide range of values of equity cost and debt cost for companies of arbitrary age. This makes it possible to correctly assess of the discount rate, taking into account the values of financial ratios. The use of well-established corporate finance theories (BFO theory and its perpetuity limit) opens up new horizons in the rating industry, providing an opportunity to switch from mainly qualitative methods for determining the creditworthiness of issuers to mainly quantitative methods in rating, and as such improving the quality and accuracy of rating scores. Many infrastructure projects around the world are funded through the project finance method, which combines private financing with public sector backing from multilateral finance institutions such as the World Bank. This examination of the theoretical and practical implications of such funding begins with a discussion of the relationship between the financial structuring of these projects and finance, policy and legal disciplines, especially in the form of investment law, human rights and environmental law. A number of case studies are then examined to provide practical insights into the application (or otherwise) of human rights and sustainable development objectives within such projects. While these theoretical perspectives do not conclude that the project finance method detracts from the application or implementation of human rights and sustainable development objectives, they do highlight the potential for the prioritisation of investment returns at the expense of human rights and environmental protection standards. This is one of the first books that comprehensively explains fundamental theories of natural resource and infrastructure public private partnership (NRI-PPP) projects and project finance. NRI-PPP projects and project finance have been adopted in natural resource development, including oilfield development, mine development, and liquefied natural gas production; manufacturing, such as petrochemistry, which uses crude oil; and infrastructure-related projects such as railways, roads, airports, ports, water supply, waste treatment, communications, and electricity. An important concern during negotiations among the various stakeholders is the lack of congruence between theories underlying NRI-PPP projects and project finance and the particular, real-life business considerations

of the subject project and lack of understanding of the key theories. Studies that help us understand NRI–PPP projects and project finance have been developed based on economic theories such as contract theory and the economics of law by several distinguished professors. Until now, however, in financial institutions staff in departments that specialize in project finance have developed an understanding of the theories underlying NRI–PPP projects and project finance primarily through on-the-job training during which business points of view were passed on. Principles and theories regarding NRI–PPP projects and project finance have not been taught through textbooks in these firms. In fact, there are only a few books that explain the fundamental theories for actual project structures or actual project finance. This book attempts to fill that gap by making clear the fundamental theories that exist behind the actual projects and project finance in relation to natural resources and infrastructure. Readers of this book will include not only professionals in various private sectors and banks but also those involved in PPP projects in the public sector.

Published in association with the Intellectual Property Institute, this title provides a focal point for discussion of policy issues in intellectual property law and their effects on industry. It provides emphasis on interdisciplinary issues of policy, drawing together legal, economic, industrial, technical, managerial and statistical viewpoints

Tackle infrastructure development projects in emerging markets with confidence In Project Finance: Applications and Insights to Emerging Markets Infrastructure, distinguished professor and author Paul Clifford insightfully applies the fundamental principles of project finance structuring to infrastructure investments in emerging markets. Using leading emerging market case studies to illuminate the underlying themes of the book, the author provides a practitioner's perspective and incisive analysis of concepts crucial to a complete understanding of project finance in emerging markets, including: · Risk management · ESG and impact investing · The emergence of new global multilateral development banks · China's Belt and Road Initiative Project Finance bridges the gap between theoretical infrastructure development, investment, and finance and the implementation of that theory with instructive and applicable case studies. Throughout, the author relies on a grounded and quantitative approach, combining the principles of corporate finance with straightforward explanations of underlying technologies, frameworks, and national policies. This book is an invaluable resource for undergraduate and graduate students in finance, as well as professionals who are expected to deal with project and infrastructure finance in emerging markets.

Decision makers face a staggering array of problems in business and economics. Managers of growing firms have to decide when to exercise growth options and expand their business. Governments have to decide whether to undertake large infrastructure investments. Managers of oil firms must decide how rapidly to deplete their reserves. Owners of land must decide when and how to develop

their asset. Operators of power plants must decide when to start them up and when to shut them down. While these problems seem quite diverse, they share many important features. In each case, the decision maker must choose when to take a particular action that will be difficult, if not impossible, to reverse. In each case, the consequences of taking (or not taking) that action are uncertain. And in each case, the timing and nature of the actions taken by the decision makers directly affect the cash flows generated by the entities they manage. Real options that arise in the real world often vary radically from one problem to another. These differences may arise due to the particular real options embedded in the projects and the order in which they can be exercised. They may arise due to different underlying sources of uncertainty (with possibilities ranging from easily observable commodity prices to almost unquantifiable factors such as the technological viability of a project. The possibilities are almost endless. This book focuses on building a general approach to solving real options problems from the ground up to show readers how real options can be assembled in a way appropriate to the individual problem being analyzed. The book, part of the Financial Management Association Survey and Synthesis Series, will be a valuable asset to practitioners who want to develop their analytical techniques and also graduate students who will eventually become practitioners. It presents building blocks needed to carry out successful real options analysis and shows how these can be assembled in a way that is appropriate to a wide variety of problems in business and economics. The book contains a CD with spreadsheets that can be to fit the wide variety of real-world problems that readers will confront. A practical guide to creating, developing and using cash flow models for project finance. Relevant cross-industry, including energy, power, renewables and infrastructure, and for funding structures including classic project finance, PFI, PPP, BOT & DCF valuation. Clear explanation of theory and methods, plus self-study exercises.

This book presents comprehensive coverage of project finance in Europe and North America. The Second Edition features two new case studies, all new pedagogical supplements including end-of-chapter questions and answers, and insights into the recent market downturn. The author provides a complete description of the ways a project finance deal can be organized- from industrial, legal, and financial standpoints- and the alternatives available for funding it. After reviewing recent advances in project finance theory, he provides illustrations and case studies. At key points Gatti brings in other project finance experts who share their specialized knowledge on the legal issues and the role of advisors in project finance deals. \*Forward by William Megginson, Professor and Rainbolt Chair in Finance, Price College of Business, The University of Oklahoma \*Comprehensive coverage of theory and practice of project finance as it is practiced today in Europe and North America \*Website contains interactive spreadsheets so that readers can input data and run and compare various scenarios, including up to the minute treatment of the cutting-edge areas of PPPs and the new problems raised by Basel II related to credit risk measurement.

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The limitation of public funds available for infrastructure projects has induced governments to attract private entities to participate in long-term contracts for financing, constructing, and operating huge infrastructure projects through Public Private Partnerships (PPPs) to reduce debt, constrain taxation, and share financial risks and rewards between the public and private sectors. Because these projects have such complicated risk evolutions, diverse contractual forms for project members to hedge their risks are necessary. Hence, the Build-Operate-Transfer (BOT) model has been considered as a very popular type to accomplish PPPs with the characteristic of a shared-ownership. For the government to attract private sector's participation, they have used incentive systems such as debt payment guarantee, Minimum Revenue Guarantee (MRG), or direct cash support. These incentive systems have been important critical success factors in BOT projects yet they have remained unfavorable in bidding process by failure of the traditional capital budgeting theory, Net Present Value (NPV) analysis, in evaluating the guarantee values. This is because NPV analysis can not reflect the guarantee agreements' contingent characteristic. For this reason, 'Real Option Concept' imported from 'Option Pricing Theory' in finance has been used as an effective way in estimating the guarantee value during the construction and operation of the project. However, there are still open issues in identifying, formulating, and calculating the guarantee agreements' contingency due to the complexity of option pricing theory and in considering the uncertainty of the underlying asset. Furthermore, in recent real option-related research that evaluate BOT investment projects, the volatility of rate of return in underlying asset (project value) is assumed to be just given or too simplified in its calculating process despite its significant impact on the guarantee value. The purpose of this research is to develop the binomial real option model to better evaluate the MRG value by complementing existing real option models without violating the option pricing theory. To do so, the developed model in this research is to formulate the MRG agreement as a put option, consider the uncertainty of the underlying asset, and use the more detailed level of volatility with a Monte Carlo simulation approach. To verify the applicability of the developed model, the model is applied to three different BOT project case studies, then, the results are compared with those by NPV analysis, Cheah and Liu (2006)'s real option model, and option pricing theory derived from Black-Scholes model. Finally, based upon the results and analyses, the developed real option model appears to provide a practical and theoretical framework to quantitatively evaluate the MRG agreement under the BOT scheme and help the government establish better BOT policies and help the developer make appropriate bidding strategies in its investment.

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