Anexo I. Registro del Título del Trabajo Fin de Grado (TFG)

NOMBRE DEL ALUMNO: Álvaro Alonso Martínez de Salinas

PROGRAMA: MII+ADE GRUPO: X FECHA: 16/09/2024

Director Asignado: Fernández Alonso (Apellidos), Daniel (Nombre)

Título provisional del TFG:
Maximizing Shareholder Value through Project Finance in a Photovoltaic Power Plant

This study will focus on the Project Finance of a photovoltaic solar power plant located in southern Spain. The initial data is based on a real solar park, with anonymized details to prevent identification of the company involved. The objective of this project is to develop a Project Finance model, identifying the most efficient methodology to maximize shareholder value. The structure will begin with a theoretical framework and an overview of the current state of Project Finance in Spain, followed by a case study that develops a financial model. The project will conclude with an analysis of the results, including sensitivity analyses, to determine the optimal conditions for conducting Project Finance in a way that maximizes shareholder value.

ADJUNTAR PROPUESTA (máximo 4 páginas: Índice provisional, objetivos, metodología y bibliografía)

Firma del estudiante:

Álvaro Alonso Martínez de Salinas

Firmado por DANIEL FERNÁNDEZ ALONSO el 30/09/2024, DNI 71504235H, con un certificado digital personal FNMT.

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Faculty of Economic and Business Sciences

ICADE

Bachelor's Thesis

Maximizing Shareholder Value through Project Finance in a Photovoltaic Power Plant

Author: Álvaro Alonso Martínez de Salinas

Supervisor: Daniel Fernández Alonso

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1. PROVISIONAL INDEX

2. OBJECTIVES

The main objective of this bachelor's thesis is to develop a financial model for a photovoltaic solar farm using Project Finance, evaluating its viability and identifying the most efficient financial structure to maximize shareholder value. To achieve this, the following specific objectives are established:

1. **Analyze the fundamentals and application of Project Finance in solar energy:** This objective involves investigating the theoretical and practical aspects of Project Finance, specifically in relation to solar energy projects. It will cover:
   - A detailed review of the financial structures commonly used in Project Finance, highlighting the roles of debt, equity, and other financing tools.
   - Identification of the risks and advantages associated with Project Finance in the context of renewable energy projects, with particular attention to how these factors influence shareholder returns.
   - A thorough examination of how the unique characteristics of solar energy projects, such as their lifecycle and revenue generation model, affect the application of Project Finance.
2. **Develop and implement a financial model for the solar farm:** The goal of this objective is to create a robust financial model in Excel that accurately reflects the financial structure of a photovoltaic solar farm. This model will include:
   - Gathering and analyzing relevant data, including construction costs, operational expenses, revenue forecasts based on energy production, and financing conditions such as loan terms and interest rates.
   - Simulating different financial scenarios by adjusting key variables like debt-to-equity ratios, repayment schedules, and expected energy prices, allowing for a comprehensive understanding of the project's financial dynamics under various conditions.
   - Ensuring that the model is capable of providing clear outputs on key financial metrics such as Net Present Value, Internal Rate of Return, and Payback Period.
3. **Evaluate the financial viability and profitability of the project:** This objective focuses on assessing the project's overall financial performance. It will include:
   - Performing detailed cash flow analyses for the project to evaluate its ability to cover operational costs, repay debt, and generate profits for shareholders over the life of the project.
   - Calculating financial metrics like NPV, IRR, and the Payback Period to quantify the project's profitability and long-term sustainability.

- Conducting sensitivity analyses to understand how fluctuations in key factors, such as changes in interest rates, energy tariffs, or operating costs, can impact the project's financial outcomes and risk profile.

4. **Identify the optimal financial structure to maximize shareholder value:** The final objective is to determine the most effective financial structure for the project that maximizes shareholder returns while minimizing risk. This will include:

   - Comparing different capital structures, such as varying debt-to-equity ratios and loan terms, to evaluate their impact on the project's financial health and profitability.

   - Analyzing the advantages and disadvantages of different financing strategies, such as high equity versus high leverage, to identify the best approach for this specific solar farm project.

   - Providing clear, data-driven recommendations on how to structure Project Finance for photovoltaic solar farms in a way that optimizes value creation for shareholders and ensures the financial sustainability of the project over its operational life.

3. METHODOLOGY

The methodology used in this thesis provides a systematic and structured approach to evaluating an existing solar farm. This analysis will include:

- Development of a financial model in Excel: Create a financial model in Excel that reflects the situation of the solar farm, based on real operating and financing data.
- Evaluation of different financing scenarios through sensitivity analysis: Analyze how different strategies can improve the solar farm's debt structure, increasing financial efficiency and reducing costs.

3.1 TYPE OF RESEARCH

The research will be conducted using a combination of qualitative and quantitative methods to provide a comprehensive view of the solar farm:

- Quantitative research: Numerical data will be used to generate concrete projections and analyses, providing an objective basis for decision-making.
- Qualitative research: Data will be analyzed in a broader context, considering qualitative variables that may influence the project's viability.

The research is classified as analytical, focusing on evaluating the solar farm's financial data and modeling various hypotheses about the impact of different financial structures on the shareholders' value.

3.2 ANALYSIS TOOLS AND TECHNIQUES

Microsoft Excel will be the main tool for financial modeling due to its flexibility in financial modeling. Analysis techniques will include:

- Development of a financial model in Excel reflecting the solar farm's situation, based on real operational and financial data.
- Amortization tables for detailing the debt repayment structure.
- Cash Flow Analysis using a DCF model to project long-term cash flows and assess the solar farm's sustainability and profitability under current conditions.
- Evaluation of different financing scenarios through sensitivity analysis to assess how different strategies can improve the solar farm's financial structure, enhancing its financial efficiency and reducing costs.
- Financial performance indicators to measure the efficiency and feasibility of project finance.

3.3 DATA SOURCES

Data will be sourced from two main categories:

- Primary data: Provided directly by a utility company located in Spain, including operational and financial information about the solar farm. This data allows for a precise and up-to-date analysis of the project.

- Secondary data: Collected from existing literature on renewable energy project financing, including books and academic articles that offer a theoretical framework for interpreting the data in the broader context of the energy sector.

4. BIBLIOGRAPHY

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