Project Proposal

Project Title:

Analysis of the Impact of Debt-to-Equity Ratio on Stock Performance Across Different Sectors

Introduction:

This project aims to analyze how the financial health of companies, measured by the debt-to-equity ratio, affects their stock performance as indicated by the Relative Strength Index (RSI). The study will focus on the Egyptian market and will investigate whether this relationship varies across different sectors.

Objectives:

1. To determine the impact of the debt-to-equity ratio on the RSI across various sectors.
2. To identify sectors where the debt-to-equity ratio significantly affects stock performance.

Research Question:

Does the debt-to-equity ratio have a significant impact on the Relative Strength Index (RSI) across different sectors?

Hypothesis:

- **Null Hypothesis (H0):** The debt-to-equity ratio does not significantly impact the RSI within any sector.
- **Alternative Hypothesis (Ha):** The debt-to-equity ratio significantly impacts the RSI within at least one sector.

Methodology:

1. **Population of Interest:**
    - Publicly traded companies in Egypt with available financial and stock performance data (240 companies).
2. **Sampling Method:**
    - We performed stratified analysis by dividing the population into distinct subgroups based on their sectors. Each sector represents a unique stratum, and we conducted separate analyses within these subgroups. This stratified approach helps us understand sector-specific relationships and ensures that the unique characteristics of each sector are considered in the analysis.
3. **Data Collection:**
    - The dataset will include financial metrics and stock performance indicators for companies listed in the Egypt Stock Market as of May 8, 2024.
4. **Data Analysis:**
    - Descriptive statistics (mean, median, mode) will be calculated.
    - Visual representations (charts and graphs) will be created to identify trends or patterns.
    - Hypothesis testing will involve calculating p-values for each sector to determine the significance of the debt-to-equity ratio on RSI.

Bias Identification and Mitigation:

1. **Selection Bias:**
    - Ensuring the sample is representative by including only sectors with four or more companies after removing outliers.
2. **Data Quality Bias:**
    - Rigorous cleaning of the dataset to remove outliers and ensure reliability.

Hypothesis Testing Steps:

1. Calculate p-values for each sector.
2. Determine the number of sectors with p-values ≤ 0.05.
3. Reject the null hypothesis if at least one sector shows a significant p-value.

Expected Outcomes:

- Identification of sectors where the debt-to-equity ratio significantly impacts RSI.
- Validation of whether financial health, as measured by the debt-to-equity ratio, influences stock performance differently across sectors.

Conclusion:

This project will provide insights into how the financial health of companies influences their stock performance across different sectors. By identifying significant relationships, the study will help investors and stakeholders make informed decisions based on sector-specific financial metrics.

Team:

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