

This is a pretty advanced exam. To do it I think it is essential to create a sources and uses of funds analysis. When you first read the case you head may be spinning a bit, but don't worry and make sure to always begin with the time line and the operations. You can find what I define as crimes at <https://edbodmer.com/high-crimes-in-project-finance-modelling/>. I have made a video about this one because my friend Jose asked for a bond financing case. The file for this case is attached to the button below.

Multiple Currency and Structuring in Project Finance



Jose Rojo Coloret

Hello Ed, thanks for this content, could you please do a video of project bond financing? What are the main differences between Project Bond and PF from a modelling perspective?

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Here is the case: Stormy Daniels (the “Client”) is interested in bidding to design, build, finance and operate a prison being procured by the Belarus Government for people who commit excel crimes. She has approached you at Lehman Brothers, to provide financial advisory services and financing for the Project.

1. **THE EXCEL PRISON**

The prison will be constructed over a 2-year period and have a concession for 10 years thereafter. Financial Close will be April 1, 2022 with construction beginning then. Total construction cost is anticipated to be \$1.2 billion, distributed over the duration of the construction period. The only data you get in an excel file is the construction data.

2. Halfway through the Construction Period (i.e. in March 2023), the Belarus Government will provide a milestone payment of \$100 million to the Project. Upon completion of the Project on 30 March, 2024 (“Substantial Completion or at COD”), the Belarus Authority will provide a final payment of \$400 million to the Project.

3. After COD Stormy will collect revenue for the next 10 years. The forecasted revenue and operating expenses for the first month of operations is expected to be \$23 million and \$16 million respectively. Revenue is expected to grow at 2.00% per annum as the number of excel prisoners increase, while operating costs are expected to grow at 1.50% p.a.

4. The revenue collected will be used to pay operating costs, service debt, and pay dividends to Stormy. At the end of the Operating Period, Stormy will transfer ownership of the Project to the Authority.

5. **FINANCING OF THE EXCEL PRISON**

There will be three sources of financing:

6. Construction Loan Facility (“CLF”) from Lehman Brothers

■ The Loan Construction Facility will be a revolving credit facility, open for draw

beginning on the Financial Close date

- The CLF must be repaid in full by the end of construction and cannot be drawn upon during operations

- Lehman forbids the Client from receiving any dividends during construction

- The Bank will charge a base rate of 1.00% plus a credit spread of 100 bps per annum that is payable monthly on all opening balances of the drawn amounts

- The CLF will have an upfront fee of 100 bps, to be applied to the amount of CLF issued

- The Bank will charge a commitment fee of 25% of the credit spread on the Senior Construction

Facility that is payable monthly on all opening balances of the undrawn amounts

7. Senior Bonds underwritten by Deutsche Bank

- The Senior Bonds must be issued at Financial Close date

- The Senior Bonds will pay semi-annual interest payments at a benchmark rate of 2.00% per annum plus a credit spread of 200 bps on the opening balance of period

- The Senior Bonds will have an upfront fee of 200 bps, to be applied to the amount of Senior Bonds issued

- The construction period will be an “interest-only” period (no principal repayments)

- The Senior Bonds will begin mortgage-style amortization 6 months after Substantial Completion (June 30th, 2023) and continue on a semi-annual basis

- The Senior Bonds must be fully amortized by June 30th, 2034 (6 months before the end of the Operating Period)

8. Stormy’s Off-shore Equity (“Equity”)

- Stormy has \$350 million in her bank account that he must invest into the Project before the start of the Operating Period

- Stormy is able to receive dividends in the same months that she makes a principal payment on the Senior Bonds

- Stormy is not willing to reinvest any of her money during operations, nor inject more than \$350 million throughout the life of the Project

- Stormy is seeking to maximize the return on her investment on an Internal Rate of Return (“IRR”) basis calculated from Financial Close

9. YOUR TASK

Stormy wants a financial model (starting with the Financial Close Date in the first period, proceeding on a monthly basis thereafter). The Financial Model should assume all cash flows (other than financial close) occur at the end of the month. The purpose of the Financial Model is to calculate the optimal financing structure (propose the ideal amount of Senior Bonds and Senior Construction Facility required) and calculate the return that the Client would earn on this investment.

You should compute (Total nominal returns, IRR, NPV of the Project at a 4% discount rate)

10. PRESENTATION

A. What is the average life of the bond? What is the minimum Debt Service Coverage Ratio of the project? Average Debt Service Coverage Ratio?

B. At what operating cost inflation rate would the project default? At what revenue growth rate would the project default?

- C. If the Substantial Completion payment was \$200 million, instead of \$400 million, what would the optimal financing structure (Senior Bonds and Senior Construction Facility sizes) be? What is the resulting IRR?
- D. If the price of the bond is \$103.3 on April 1st, 2028, what is the implied yield to maturity? What is the PV01?
- E. At the time of Substantial Completion, Stormy is contemplating a refinancing of the Senior Bonds. If at that time, the benchmark rate is 1.50%, and similar bonds are trading at credit spread levels of 100 bps, what is the maximum amount of debt Stormy can raise to refinance the Senior Bonds.
11. Assume a minimum DSCR target of 1.15x. What is the resulting IRR? (Hint: Debt service does not need to be calculated on a mortgage-style basis.)