

FIN 321 Memo

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Executive Summary

A U.S. solar equipment importer expects to receive **€3,879,310 in one year**, equivalent to approximately **\$4,500,000 at the current EUR/USD spot rate of 1.16**. The firm faces FX exposure because the euro could depreciate before payment, reducing USD proceeds.

Three hedging strategies are evaluated:

1. **Forward Contract** – Lock in 1-year rate at 1.0875 USD/EUR.
2. **FX Options** – Buy a put option on EUR with strike = 1.16.
3. **Money Market Hedge** – Use EUR and USD interest rate differentials to synthetically lock in a forward rate.

A spreadsheet model will quantify USD outcomes under each hedge and test sensitivity to EUR/USD changes.

Background & Objectives

- **Exposure:** €3,879,310 receivable in 1 year ($\approx \$4.5$ M today)
- **Objective:** Protect USD proceeds from EUR depreciation
- **Market Data:**
 - **Spot Rate:** 1.16 USD/EUR
 - **1-Year Forward Rate:** 1.174 USD/EUR
 - **USD 1-Year Interest Rate:** 3.42 %
 - **EUR 1-Year Interest Rate:** 2.15 %

- **Put Option (on EUR):** premium = \$0.015 per EUR
- **Call Option (on EUR):** premium = \$0.018 per EUR
- **Strike Price (K):** 1.16 USD/EUR

The goal is to determine which hedge best balances protection, cost, and upside.

Methods

Step 1 – Key Inputs & Strike Price

- **Spot Rate:** 1.16
- **Forward Rate:** 1.0875
- **Interest Rates:**
 - **USD:** 3.42% (1-year)
 - **EUR:** 2.15% (1-year)
- **Option Premiums:**
 - **Put:** \$0.015 per EUR
 - **Call:** \$0.018 per EUR
- **Strike Price (K):** 1.16

Step 2 – Hedge Alternatives

Hedge Type	Description	Pros	Cons
Forward Contract	Lock in 1-year forward rate of 1.0875	Eliminates FX risk	No upside if EUR appreciates
FX Option (Put on EUR)	Purchase a put option with strike price of 1.16	Protects against downside, allows upside	Premium cost (\$0.015 per EUR)
Money Market Hedge	Borrow USD, convert to EUR, invest to match receivable	Exploit interest rate differentials	Operationally complex, interest rate dependent

Limitations & Next Steps

Limitations

- Assumes static interest rates, no transaction costs
- Options pricing does not account for volatility changes
- Forward contract removes potential upside if EUR appreciates

Next Steps

1. Build the spreadsheet model
 2. Run sensitivity analysis for EUR/USD from 1.04 to 1.28 ($\pm 10\%$)
 3. Compare USD outcomes under each hedge
 4. Recommend optimal hedge strategy based on risk tolerance and upside potential
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References

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