Suade RegTech Eng Exercise

June 2021

1 Background

This little coding challenge is an example of the kind of work we would expect from you at Suade. The goals of this exercise are to get a better understanding of your:

- Proficiency with programming in python, json and data handling
- How you "document" your code (ie. can someone else understand it)
- How you "test" your code (ie. make sure it does what you think it does)
- Understanding of financial terms and concepts
- Approach and creativity to solving open-ended problems

2 The Task

The task is to get a rough understanding of the objectives of the Investment Firm Regulation and implement a calculator in Python. There are two aspects, one regulatory and one technical.

2.1 Reg

- In 200 words or less, explain what you think the EBA is trying to achieve with this regulation, pros/cons of this approach and what (if any) is the alternative?
- Explain, in simple terms, what are the K-Factors?
- Which leg in a SFT create credit risk? The asset or the liability leg?

2.2 Tech

For the purpose of this exercise, we will limit the implementation to the Trading Counterparty Default Risk (K-TCD) for a Reverse Repo transaction. This exercise is self-contained, and we do not expect you to need any resource other than the definitions in Chapter 4 Section 1 "Trading Counterparty default" in the Investment Firm Regulation (Articles 26 to 32)

Your code should accept as an input the two legs of the SFT as a JSON file (.json) that conforms to the securities.json schema of the FIRE Data Format and return the K-TCD for that transaction.

Feel free to browse the FIRE Github repo where you will also find further documention/definitions for the data elements. There is some sample data below (NB. You should not need any further attributes than the ones provided below).

Please also provide a README.md with instructions on how to run the code and any unit test you may decide to include.

2.3 Sample Data


```
{
    "name": "Rev Repo Data",
    "date": "2021-06-01T00:00:00Z",
    "data": [
        {
            "id": "rev_repo_cash_leg",
            "date": "2021-06-01T00:00:00Z",
            "currency_code": "GBP",
            "end_date": "2021-07-01T00:00:00Z",
            "balance": -1500,
            "movement": "cash",
            "sft_type": "rev_repo",
            "start_date": "2021-06-01T00:00:00Z",
            "type": "cash",
            "trade_date": "2021-07-01T00:00:00Z",
            "customer": {
                "type": "regional_govt"
            }
        },
        {
            "id": "rev_repo_asset_leg",
            "date": "2021-06-01T00:00:00Z",
            "currency_code": "GBP",
            "end_date": "2021-07-01T00:00:00Z",
            "mtm_dirty": 1400,
            "movement": "asset",
            "sft_type": "rev_repo",
            "start_date": "2021-06-01T00:00:00Z",
            "type": "bond",
            "trade_date": "2021-07-01T00:00:00Z",
            "customer": {
                "type": "regional_govt"
            },
            "issuer": {
                "type": "central_govt"
            }
        }
    ]
}
```