**Exploratory Data Analysis (EDA) Report**

**Dataset Overview**

**•** Dataset Name: U.S. Treasury Securities Interest Rates

**•** Source:[Average Interest Rates on U.S. Treasury Securities | U.S. Treasury Fiscal Data](https://fiscaldata.treasury.gov/datasets/average-interest-rates-treasury-securities/average-interest-rates-on-u-s-treasury-securities)

**•** Date of Data: 01/31/2001 to 09/30/2023

**Introduction**

* This report presents the results of an exploratory data analysis (EDA) on the U.S.Treasury Securities Interest Rates dataset. The dataset provides information on interest rates for various types of U.S. Treasury securities. This EDA aims to understand the characteristics, distributions, and relationships within the data.

**Data Summary**

**Let's begin by summarizing the key statistics of the dataset:**

* Number of columns: 11
* Number of rows: 4419
* Memory usage: 379.9 KB

**Data Types** **and Description:**

1. **record\_date**(Date) : The date when the record was made.
2. **security\_type\_desc**(String) : The description of the security type.
3. **security\_desc** (String): description of the security.
4. **avg\_interest\_rate\_amt** (float) : The interest rate of the security for particular date
5. **src\_line\_nbr**(int): A numeric identifier for the data source.
6. **record\_fiscal\_year**(int): The fiscal year associated with the data.
7. **record\_fiscal\_quarter**(int) : The fiscal quarter associated with the data.
8. **record\_calendar\_year**(int): The calendar year associated with the data.
9. **record\_calendar\_quarter**(int) : The calendar quarter associated with the data.
10. **record\_calendar\_month**(int) : The calendar month associated with the data.
11. **record\_calendar\_day**(int) : The calendar day associated with the data.

**Univariate Analysis:**

**Numeric Variable**

* **avg\_interest\_rate\_amt**

count 4391.000000

mean 3.683136

std 2.298995

min 0.000000

25% 1.997000

50% 3.245000

75% 5.027000

max 10.251000

**Categorial Variables:**

**Percentage of security types in the dataset:**

Non-marketable40.84%

Marketable52.97%

Interest-bearing Debt6.17%

Interest- bearing Debt type is something won’t be considered for the analysis purposes.

A graph of a security type

Description automatically generated

**A graph of a graph of a graph

Description automatically generated with medium confidence**

A diagram of a box plot

Description automatically generated

Marketable Non-marketable

A chart of average interest rates

Description automatically generated

Dataset table with columns and some records:

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| record\_date | security\_type\_desc | security\_desc | avg\_interest\_rate\_amt | src\_line\_nbr | record\_fiscal\_year | record\_fiscal\_quarter | record\_calendar\_year | record\_calendar\_quarter | record\_calendar\_month | record\_calendar\_day |
| 10/31/2021 | Interest-bearing Debt | Total Interest-bearing Debt | 1.592 | 17 | 2022 | 1 | 2021 | 4 | 10 | 31 |
| 10/31/2021 | Non-marketable | United States Savings | 2.522 | 12 | 2022 | 1 | 2021 | 4 | 10 | 31 |
| 10/31/2021 | Non-marketable | United States Savings Inflation Securities | 5.272 | 13 | 2022 | 1 | 2021 | 4 | 10 | 31 |
| 10/31/2021 | Marketable | Federal Financing Bank | 2.598 | 6 | 2022 | 1 | 2021 | 4 | 10 | 31 |

**Null Columns from the Dataset:**

avg\_interest\_rate\_amt 28

**Year 2005:**

**-** avg\_interest\_rate\_amt: 24 null values

**Year 2006:**

- avg\_interest\_rate\_amt: 4 null values

**Conclusion**

This EDA report provides insights into the U.S. Treasury Securities Interest Rates dataset. It outlines data summary, univariate analysis, histogram, box plot, heatmap of average interest rates. The analysis reveals key statistics, distributions, null values and relationships within the dataset.