

INTERNATIONAL DEBT STATISTICS ANALYSIS



INTRODUCTION

This project analyzed international debt statistics using Microsoft Server Management Studio and Power BI to gain insights into the financial flows of the world's economy. This dataset is originally collected to measure and monitor credit worthiness of its client. The analysis focused on factors such as external debt, public debt, and debt service ratios. The findings were also used to identify patterns and trends, and make recommendations for future debt management strategies.

The data used in this project is provided by the world bank. The world bank is an international financial institution that provides loans and grants to the governments of low- and middle-income countries to pursue capital projects.

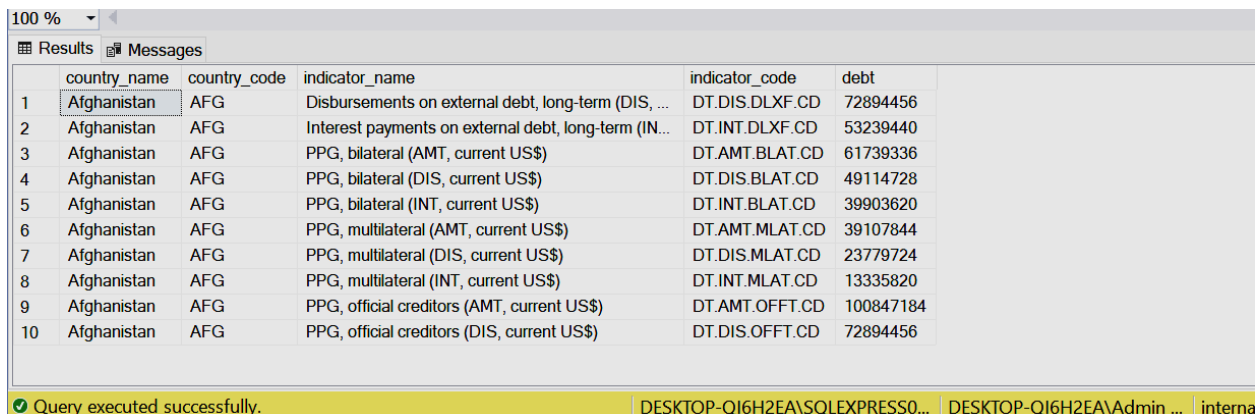
There are some questions addressed in this project:

1. What is the total amount of debt owed by the countries listed in the dataset?
2. Which country has the minimum and maximum amount of debt?
3. What is the average amount of debt owed by countries across different debt indicators?
4. What is the highest amount principal repayments?

SQL

To begin the analysis, let's have a brief introduction to the dataset. Also, we will limit the output to the first ten rows to keep the output clean.

```
SELECT TOP (10) *  
FROM [international_debt]
```



	country_name	country_code	indicator_name	indicator_code	debt
1	Afghanistan	AFG	Disbursements on external debt, long-term (DIS, ...	DT.DIS.DLXF.CD	72894456
2	Afghanistan	AFG	Interest payments on external debt, long-term (IN...	DT.INT.DLXF.CD	53239440
3	Afghanistan	AFG	PPG, bilateral (AMT, current US\$)	DT.AMT.BLAT.CD	61739336
4	Afghanistan	AFG	PPG, bilateral (DIS, current US\$)	DT.DIS.BLAT.CD	49114728
5	Afghanistan	AFG	PPG, bilateral (INT, current US\$)	DT.INT.BLAT.CD	39903620
6	Afghanistan	AFG	PPG, multilateral (AMT, current US\$)	DT.AMT.MLAT.CD	39107844
7	Afghanistan	AFG	PPG, multilateral (DIS, current US\$)	DT.DIS.MLAT.CD	23779724
8	Afghanistan	AFG	PPG, multilateral (INT, current US\$)	DT.INT.MLAT.CD	13335820
9	Afghanistan	AFG	PPG, official creditors (AMT, current US\$)	DT.AMT.OFFT.CD	100847184
10	Afghanistan	AFG	PPG, official creditors (DIS, current US\$)	DT.DIS.OFFT.CD	72894456

Query executed successfully.

From the First ten rows, we can see the amount of debt owed by Afghanistan in the different debt indicators. But we are not sure of the number of different countries we have on the table. The country names are repeated because a country is most likely to have debt in more than one debt indicator.

Then I wanted to examine how many unique countries are in the dataset.

```
SELECT  
COUNT(DISTINCT country_name)  
AS total_distinct_countries  
FROM international_debt
```

100 %

Results		Messages
	total_distinct_countries	
1	124	

There is a total of 124 countries in the dataset.

To continue our analysis, we saw in the first section that there is a column called *indicator_name* that briefly explains the purpose of taking the debt. Beside that column, there is another column called *indicator_code* which symbolizes the category of the debt. Familiarizing ourselves with these various debt indicators will help us understand the areas in which a country can possibly be indebted to.

```
SELECT
DISTINCT indicator_code
AS distinct_debt_indicator
FROM international_debt
ORDER BY distinct_debt_indicator
```

100 %

Results		Messages
	distinct_debt_indicator	
1	DT.AMT.BLAT.CD	
2	DT.AMT.DLXF.CD	
3	DT.AMT.DPNG.CD	
4	DT.AMT.MLAT.CD	
5	DT.AMT.OFFT.CD	
6	DT.AMT.PBND.CD	
7	DT.AMT.PCBK.CD	
8	DT.AMT.PROP.CD	
9	DT.AMT.PRVT.CD	
10	DT.DIS.BLAT.CD	
11	DT.DIS.DLXF.CD	
12	DT.DIS.MLAT.CD	
13	DT.DIS.OFFT.CD	
14	DT.DIS.PCBK.CD	
15	DT.DIS.PROP.CD	
16	DT.DIS.PRVT.CD	
17	DT.INT.BLAT.CD	
18	DT.INT.DLXF.CD	
19	DT.INT.DPNG.CD	
20	DT.INT.MLAT.CD	
21	DT.INT.OFFT.CD	
22	DT.INT.PBND.CD	
23	DT.INT.PCBK.CD	
24	DT.INT.PROP.CD	
25	DT.INT.PRVT.CD	

✓ Query executed successfully. DESKTOP-QI6H2EA\

The next query was done to check the total amount of debt (USD) that is owed by different countries. This will give us a sense of how the overall economy of the world is holding up.

```
SELECT
ROUND (SUM (debt) / 1000000,2)
AS total_debt
FROM international_debt
```

Results		Messages
	total_debt	
1	3079734.49	

We can dig further to find out how much a country owes on an average. This will give us a better understanding of the number of debts across different indicators.

```
SELECT TOP (10)
indicator_code AS debt_indicator,
indicator_name,
AVG(debt) AS avg_debt
FROM [international_debt]
GROUP BY indicator_code, indicator_name
ORDER BY avg_debt desc
```

Results

Messages

	debt_indicator	indicator_name	avg_debt
1	DT.AMT.DLXF.CD	Principal repayments on external debt, long-term (...)	5904868401.4991
2	DT.AMT.DPNG.CD	Principal repayments on external debt, private non...	5161194333.8126
3	DT.DIS.DLXF.CD	Disbursements on external debt, long-term (DIS, ...	2152041216.8902
4	DT.DIS.OFFT.CD	PPG, official creditors (DIS, current US\$)	1958983452.8598
5	DT.AMT.PRVT.CD	PPG, private creditors (AMT, current US\$)	1803694101.9632
6	DT.INT.DLXF.CD	Interest payments on external debt, long-term (IN...	1644024067.6508
7	DT.DIS.BLAT.CD	PPG, bilateral (DIS, current US\$)	1223139290.3982
8	DT.INT.DPNG.CD	Interest payments on external debt, private nongu...	1220410844.4215
9	DT.AMT.OFFT.CD	PPG, official creditors (AMT, current US\$)	1191187963.083
10	DT.AMT.PBND.CD	PPG, bonds (AMT, current US\$)	1082623947.6536

Query executed successfully.

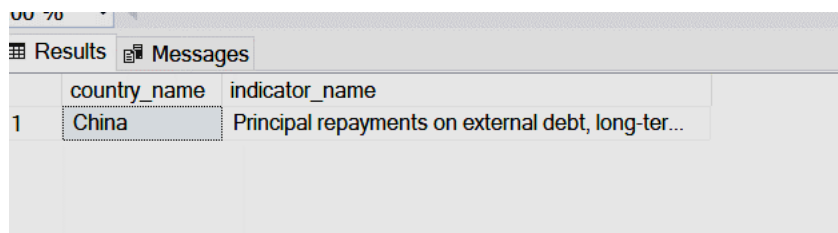
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We can see that indicator **DT.AMT.DLXF.CD** tops the chart of average debts. This category includes repayment of long-term debts. Countries take on long-term debt to acquire immediate capital.

An observation made in the above finding is that there is a huge difference in the amounts of the indicators after the second one, which indicates that the first two indicators might be the most severe categories in which the countries owe their debts.

Lets find out which country owes the highest amount of debt in the category of long term debts. Since not all countries suffer from the same type of economic disturbances, this finding will allow us to understand that particular country's economic condition a bit more.

```
SELECT TOP (1)
    country_name, indicator_name
FROM international_debt
WHERE debt = ( SELECT
                MAX (debt )
                FROM international_debt
                WHERE indicator_code = 'DT.AMT.DLXF.CD')
```



The screenshot shows a SQL query results window with two tabs: 'Results' and 'Messages'. The 'Results' tab is active, displaying a table with two columns: 'country_name' and 'indicator_name'. The first row of the table shows 'China' as the country and 'Principal repayments on external debt, long-ter...' as the indicator name.

	country_name	indicator_name
1	China	Principal repayments on external debt, long-ter...

China owes the most in terms of long-term debt loaned by world Bank.

Now let us find out the country that owns the highest amount of debt. Note that this debt is the sum of different debt owed by a country across several categories.

```
SELECT TOP (1) country_name,
    SUM (debt) AS total_debt
FROM international_debt
GROUP BY country_name
ORDER BY total_debt DESC
```

Results Messages		
	country_name	total_debt
1	China	285793494734.20

The next query is to find the distinct count of indicators. We have seen that long-term debt carry the most portion of debts in terms of debt amount. We are going to explore which category is the most common one across countries.

```
SELECT indicator_code,
COUNT (indicator_code) AS
indicator_count
FROM international_debt
GROUP BY indicator_code
ORDER BY indicator_count DESC
```

Results Messages		
	indicator_code	indicator_count
1	DT.AMT.DLXF.CD	124
2	DT.AMT.MLAT.CD	124
3	DT.INT.OFFT.CD	124
4	DT.AMT.OFFT.CD	124
5	DT.INT.DLXF.CD	124
6	DT.INT.MLAT.CD	124
7	DT.DIS.DLXF.CD	123
8	DT.INT.BLAT.CD	122
9	DT.DIS.OFFT.CD	122
10	DT.AMT.BLAT.CD	122
11	DT.DIS.MLAT.CD	120
12	DT.DIS.BLAT.CD	113
13	DT.INT.PRVT.CD	98
14	DT.AMT.PRVT.CD	98
15	DT.AMT.PCBK.CD	84
16	DT.INT.PCBK.CD	84
17	DT.AMT.DPNG....	79
18	DT.INT.DPNG.CD	79
19	DT.AMT.PBND.CD	69
20	DT.INT.PBND.CD	69
21	DT.INT.PROP.CD	54
22	DT.AMT.PROP.CD	54
23	DT.DIS.PRVT.CD	53
24	DT.DIS.PCBK.CD	51
25	DT.DIS.PROP.CD	19

As we can see, there are a total of six debt indicators in which all the countries listed in our dataset have taken debt. The indicator **DT.SMT.DLXF.CD** is also there on the list. So, this gives us a clue that all these countries are suffering from a common economic issue.

Let's change tracks from debt_indicators now and focus on the amount of debt again. Let's find out the maximum amount of debt across the indicators along with the country names.

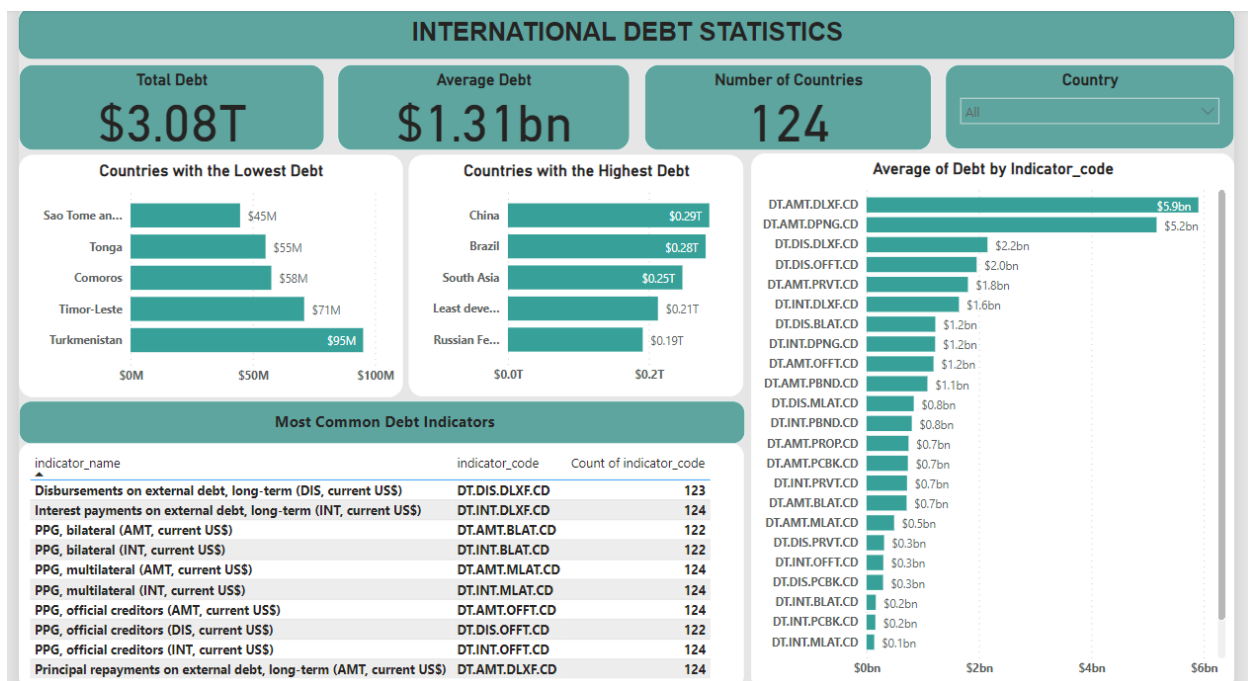
```
SELECT TOP (10) country_name ,  
               indicator_code,  
               MAX (debt) AS max_debt  
FROM international_debt  
GROUP BY country_name ,  
indicator_code  
ORDER BY max_debt DESC
```

	country_name	indicator_code	max_debt
1	China	DT.AMT.DLXF.CD	96218620835.70
2	Brazil	DT.AMT.DLXF.CD	90041840304.10
3	China	DT.AMT.DPNG.CD	72392986213.80
4	Russian Federation	DT.AMT.DLXF.CD	66589761833.50
5	Turkey	DT.AMT.DLXF.CD	51555031005.80
6	South Asia	DT.AMT.DLXF.CD	48756295898.20
7	Brazil	DT.AMT.PRVT.CD	43598697498.60
8	Russian Federation	DT.AMT.DPNG.CD	42800154974.90
9	Brazil	DT.AMT.DPNG.CD	41831444053.30
10	Least developed countries: UN classification	DT.DIS.DLXF.CD	40160766261.60

POWER BI

The csv file was loaded into the power query editor. An index column was added through the add column tab. The data was then loaded into Power BI.

- 1 Sum of debts.
- 2 Number of distinct countries.
- 3 Countries with the highest and lowest debt.
- 4 The average amount of debt across indicators.
- 5 The most common debt indicator.



CONCLUSION

1. Principal repayments on external debt, long-term (AMT, current US\$) and Principal repayments on external debt, Private nonguaranteed (PNG) (AMT, current US\$) were the top reasons countries borrow from World bank.
2. Six debt indicators were common to all 124 countries, which indicates that these countries suffer common economic issues.
3. China has the highest debt in the long-term debt principal repayments on external debt.
4. China, Brazil, South Asia and Russian Federation had the highest debt.
5. Sao Tome and Principe, Tonga, Comoros, Timor- Leste and Turkmenistan had the least debt.