**Regional Comprehensive Economic Partnership (RCEP) Economic Risk Analysis**

Alvaro Mendoza

2020-12-17

This is an analysis of a dataset from the International Monetary Fund, about Australia, Brunei, Cambodia, China, Indonesia, Japan, Lao, Malaysia, Myanmar, New Zealand, Philippines, Singapore, Thailand, and Vietnam. This to analyze the **Economic** **Default Risk** from each of these countries. The motivation behind the project is because of the current Regional Comprehensive Economic Partnership (RCEP) sealed in November, as they are all the participants (missing South Korea) of the deal.

The database includes the following tables:

* **Country tables**:
  + There is a total of 14 tables referencing the countries in the RCEP deal (one for each country), containing variables that represent statistics and economic measures per country:
    - Year: references the year of which the following indicators are referring to.
    - RGDP: References the Real Gross Domestic Product (GDP at constant prices) in percentage change per year.
    - NGDP: References the Nominal GDP per year in billions of dollars.
    - GDP\_pc: References the GDP per capita in percentage change per year.
    - Inflation: References the annual percentage of average consumer prices year to year.
    - Unemployment\_Rate: References the percentage of the labor force that was/is not working.
    - Net\_LB: Represents the net lending plus/minus the net borrowing. If it's negative, it means the country had more borrows than lends, and vice versa if it is positive. It is shown as a percentage of the GDP.
    - Account\_Balance: Represents all transactions other than those in financial and capital items. It is shown as a percentage of the GDP.
* **Summary**:
  + This is a summary table created to give on-point statistics and lower computational time.
  + Country: Stores the name of each country.
  + Years\_count: Stores the total amount of years of data.
  + RGDP\_sum: Stores the sum of all the RGDP percentage change values per country over the years.
  + NGDP\_sum: Stores the sum of all the NGDP values per country over the years.
  + GDP\_pc\_sum: Stores the sum of all the GDP\_pc values per country over the years.
  + Inflation\_sum: Stores the values of all the Inflation values per country over the years.
  + Unemployment\_sum: Stores the values of all the Unemployment\_Rate values per country over the years.
  + Net\_LB\_sum: Stores the values of all the Net\_LB values per country over the years.
  + Account\_Balance\_sum: Stores the values of all the Account\_Balance values per country over the years.

The database is composed of data from the year 1999 to the forecasted statistics for 2021.

To get a better understanding of the database, we will look at the ‘Australia’ Table, which contains all the previously mentioned variables, but only from Australia from 1999 to 2021:

**SELECT \*  
from Australia   
limit 5;**

The results are the following:

(Year, RGDP, NGDP, GDP\_pc, Inflation, Unemployment\_Rate, NET\_LB, Account\_Balance)  
('1999', '4.459', '526.96', '3.279', '1.767', '6.867', '0.667', '-5.484')  
('2000', '3.027', '555.05', '1.833', '5.789', '6.292', '1.254', '-4.102')  
('2001', '2.612', '582.04', '1.313', '3.146', '6.775', '-0.030', '-2.253')  
('2002', '4.136', '615.70', '2.973', '3.050', '6.358', '0.193', '-3.814')  
('2003', '2.784', '644.59', '1.634', '2.445', '5.942', '1.054', '-5.355')

In regards to the summary table

**SELECT \***

**FROM summary**

**LIMIT 5;**

(Country, Years\_count, RGDP\_sum, NGDP\_sum, GDP\_pc\_sum, Inflation\_sum, Unemployment\_sum, Net\_LB\_sum, Account\_Balance\_sum)  
('Australia', '23', '61.1220', '21754.560', '26.195', '57.603', '133.237', '-43.883', '-87.178')  
('Brunei', '23', '26.9450', '696.890', '-10.389', '7.157', '95.164', '36.143', '650.868')  
('Cambodia', '23', '172.0700', '935.490', '132.090', '84.270', NULL, '-55.429', '-170.329')  
('China', '23', '198.2910', '322231.640', '185.162', '50.436', '91.050', '-63.495', '72.697')  
('Indonesia', '23', '116.4250', '50478.280', '85.041', '141.321', '169.460', '-36.706', '1.781')

**Important Specification:**

1. Inside the database, all the variables, except “NGDP” are percentages. Carefully read the description of each of the variables to understand what they represent, as they do not show the valuation of any of the economic metrics that their variable name suggests. Instead, to facilitate the analysis, I decided to use the percentage change of them.
2. When exporting the values from excel to python and then to the SQL database, the “Null” values had to be exported as 0 in the original database. If you need help changing them again to 0, please review the “SQL queries.docx” in the GitHub repository to run the listed queries.

**Analysis**

To get a broad idea of the status of the economy of each of the countries who signed the RCEP deal, we will use some help from our summary table to get the average of each of the variables through the years (since 1999 to 2021 forecast).

**SELECT summary.NGDP\_sum/COUNT(australia.NGDP)  
FROM summary, Australia  
WHERE summary.Country = 'Australia';**

This selects the sum of all the valid values (not null) from the NGDP column only for Australia, and then divides it by the number of valid values in the column of NGDP in the table ‘australia’. With this we get the following result:

(Average NGDP Change of Australia)  
('945.8504348')

We repeat this same query for each of the 14 countries and we will get the average value for each of the economic statistic. We can use the following query to do this, or you can create a table if it you prefer:

**SELECT summary.Country, summary.NGDP\_sum/COUNT(australia.NGDP) AS 'Average NGDP'  
FROM summary, Australia  
WHERE summary.Country = 'Australia'  
UNION   
SELECT summary.Country, summary.NGDP\_sum/COUNT(brunei.NGDP)  
FROM summary, brunei  
WHERE summary.Country = 'Brunei'  
UNION  
…  
UNION  
SELECT summary.Country, summary.NGDP\_sum/COUNT(thailand.NGDP)  
FROM summary, Thailand  
WHERE summary.Country = 'thailand'  
UNION  
SELECT summary.Country, summary.NGDP\_sum/COUNT(vietnam.NGDP)  
FROM summary, Vietnam  
WHERE summary.Country = 'Vietnam';**

I decided to not put the whole query for efficiency. If you would like to further check this query, please refer to the ‘SQL queries.docx” in the GitHub repository.

The results of the query were:

(Country, Average NGDP)  
('Australia', '945.8504348')  
('Brunei', '30.2995652')  
('Cambodia', '40.6734783')  
('China', '14010.0713043')  
('Indonesia', '2194.7078261')  
('Japan', '4552.9239130')  
('Lao', '30.5826087')  
('Malaysia', '647.6086957')  
('Myanmar', '189.5708696')  
('New\_Zeland', '142.7413043')  
('Philipines', '584.3660870')  
('Singapore', '369.9300000')  
('Thailand', '902.5056522')  
('Vietnam', '548.9582609')

All these values represent the average value of the NGDP per country. This query can be even expanded further or modified to return the average value of all the variables of every country’s table. Feel free to play with it.

On the other hand, we can check for the highest and lowest value inside each variable in the Summary table, depending on what it represents. Let’s take for example the variable ‘Account\_Balance\_sum’.

We now will try to find the country with the largest and minimum Account Balance during the last 20 years (since 1999). The query is the following:

**SELECT country, NGDP\_sum  
FROM summary  
WHERE NGDP\_sum = (SELECT MAX(NGDP\_sum) FROM summary)  
UNION  
SELECT country, NGDP\_sum  
FROM summary  
WHERE NGDP\_sum = (SELECT MIN(NGDP\_sum) FROM summary);**

The query returned 2 results, one being the country with the most accumulated Nominal GDP through the years, and the one with the least (negative) accumulated through the years:

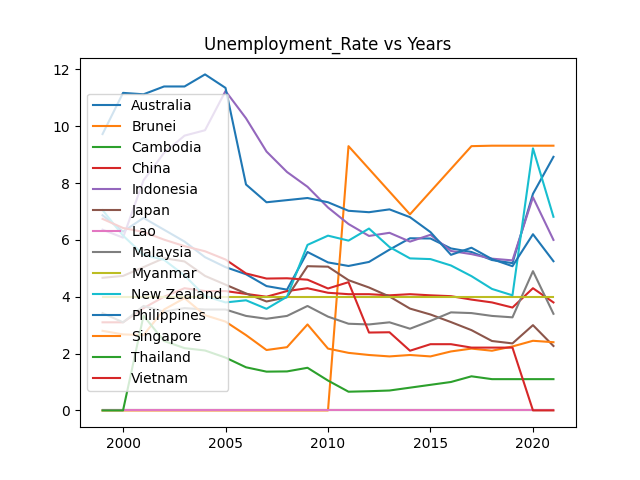
(country, NGDP\_sum)

'China', '322231.640')

('Brunei', '696.890')

The values as stated in billions of dollars. Therefore, we can see the enormous difference between China, being the country with the most accumulated, and Brunei, being the one with the least accumulated.

We can perform the same query adjusting it to the variables we desire to evaluate, and even comparing it among all countries through the years. However, in order to be more efficient, I decided to build graphs using python.

* **Graphs**:

Just as previously mentioned, the graphs will compare the data inside each of the variables independently among all the countries' tables throughout the years.

Let's take for example the variable ‘Inflation’. This is inside every country’s table in the database. Using python, I created an algorithm that creates any graph you give him an available variable inside the database, specifically in any of the countries’ tables.

The algorithm returns the following graph:

Please feel free to use the algorithm and modify it as desired to get any other type of graph. In the case, you want further to explore the graphs created with the database data, visit the file “RCEP\_graphs” in the GitHub repository to see them all.

With all the data insights obtained from the queries, along with the graphical representations, we can come up with some conclusions.

**Comments and Conclusions**

After looking at the statistics from the data and having visual representations of how the economy of each of the countries inside the RCEP deal, we realize that China is the most prominent and developed country by far, having better economic statistics like Real GDP growth, Nominal GDP, low unemployment, and a healthy account balance.

Also, we realize that other countries in the deal are doing well too, like Australia, Japan, or New Zealand, having interesting beneficial changes in their statistics as the year progresses.

But there are other countries like Brunei, Malaysia, or Thailand, that do not have very good indicators in the majority of the years, and in the last 5 years, they look worse than before.

Therefore, we can conclude that the RCEP deal will be in good timing for all the countries, and some will get more benefit than others, as it is known that the idea of it is to push forward the development of a strong economy for its participants.

But it is crucial to be skeptic. It is clear that China is by far the country with the strongest economy. Due to this, in the last years, it has been accused of expansionist campaigns, like for example the current “One Belt One Road” initiative.

Therefore, as we keep exploring the other countries that signed this deal (RCEP) have high default risk, having constantly negative net balances and Account Balances that surpass by billions their GDP. With this in mind, we can then also conclude that China might become the most benefited from the RCEP deal, as it will have the freedom to apply expansionist policies, like lending excessive capital, with its partners.

This is only a skeptical view in the wide range of possibilities behind the true motivations of the RCEP deal.

**Complications in the Data:**

The only inconvenience when making this analysis, or for someone who would also like to use the database is that unfortunately it does not provide the exact value of the measures is referring too, and instead is represented in percentage changes of that one. Therefore, in the case we wanted to know the specific values of those, we will need to make further calculations, specifically the ones that are specified in what the variables are referencing.

An example to explain these will be in the case we wanted to know the exact value of the Net Lending/Borrowing of Malaysia in the year 2005. To do this we will need to multiply the value of the variable in the year 2005 (in this case would be 1.712%) and multiply by the NGDP variable. This is because the values inside the variable of the Net Lending/Borrowing are in percentage of the NGDP.

**Links**

International Monetary Fund Database link:  
<https://www.imf.org/en/Publications/WEO/weo-database/2020/April>

GitHub repository:  
<https://github.com/Alva789ro/Regional-Comprehensive-Economic-Partnership-RCEP-Economic-Risk-Analysis>

GitHub link to Queries  
<https://github.com/Alva789ro/Regional-Comprehensive-Economic-Partnership-RCEP-Economic-Risk-Analysis/blob/master/SQL%20queries.docx>